Vrije Universiteit Brussel

Dual career of athletes in Europe: the 'Gold in Education and Elite Sport' project

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Sport Psychology –
Theories and Applications
for Performance, Health and Humanity

14th to 19th July, 2015, Bern, Switzerland

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Sport Psychology

Theories and Applications for Performance, Health and Humanity

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Keynote Lectures

1. Wednesday 15 July, 11.30am-12.30pm

Escape from cognitivism: Exercise as hedonic experience

Panteleimon Ekkekakis
Iowa State University, United States of America

As exercise psychology approaches its first half-century mark, it is time for critical introspection. If judged by conventional academic metrics (e.g., books and journal articles produced, research funds generated), the field has experienced meteoric growth. However, from a less charitable perspective, exercise psychology has arguably yet to fully establish its societal relevance, having failed to deliver methods for reliably increasing physical activity participation and adherence.

Indeed, a critic could argue that the field is rapidly approaching (or has already reached) its first paradigmatic crisis, given that its theoretical models offer remarkably poor accounts of its central phenomenon of interest, namely physical activity behavior.

These theoretical models represent derivatives of cognitivism, the dominant paradigm in psychology since the 1960s and the only paradigm exercise psychology has ever known. In cognitivist theories, humans are described as collecting relevant information (e.g., about personal agency, benefits versus barriers, sources of social support), weighing pros and cons, making probabilistic predictions about the future consequences of their actions and inactions, and making behavioral decisions on this basis. Scrutiny of the core postulates and fundamental assumptions of cognitivism, however, raises some legitimate questions. Are human behavioral decisions fully rational? Is the provision of information the only (or the best) way to change behavior? Are cognitive appraisals always stronger determinants of behavior than physical or biological factors?

While the conversation on these essential issues has been ongoing in other fields (e.g., behavioral economics), it has yet to be initiated in exercise psychology. By most indications, post-cognitivist theorizing will likely reflect a "dual-process" conceptualization. "System 1" ("Old mind"), whose importance has been grossly underappreciated so far, is presumed to rely on implicit knowledge, largely inflexible and automatic responses, and evolutionarily primitive affective learning (i.e., the pursuit of pleasure and avoidance of displeasure). "System 2" ("New mind") is more closely aligned with the view of the mind on which cognitivist models were based (i.e., relies on explicit knowledge, is flexible and sophisticated, operates on formal reasoning). A crucial step for the transition of exercise psychology to the post-cognitivist era will be a broad agreement on the need to develop exercise-specific theoretical models, recognizing the unique features and challenges of this particular behavior (distinct from other health or social behaviors).

Arguably, at the core of this uniqueness lies a profound conflict between "System 1" and "System 2," such that, while most adults recognize the health benefits of exercise, they tend to regard exercise as unpleasant or inadequately pleasant to compete against other, more pleasant options vying for a portion of their discretionary time. To prepare for the transition to this type of dual-process theorizing, researchers in exercise psychology will have to strengthen their understanding of a wide array of relevant affective constructs, from the sense of somatic exhaustion and pain to culturally framed emotions, such as shame and embarrassment. This represents a substantial challenge, not only because these constructs (and their motivational implications) have so far been neglected but also because the theoretical and empirical literature on affective phenomena is notoriously convoluted. Thus, approaching this area with due deference to its long history, richness, complexity, and

nuances will be essential. Besides continuing to investigate the cognitive underpinnings of exercise behavior, future basic research based on dual-process models will have to deepen the current understanding of the mechanisms underlying the regulation of affect during exercise and the processes by which exercise experiences register in memory as pleasant or unpleasant. Based on these theoretical advances, future applied research will have to reimagine what a bout of "exercise" or "physical activity" is or should be, with the promotion of pleasure as a central consideration.

2. Thursday 16 July, 11.30am-12.30pm

Serial winning coaches - Vision, people and environment

Sergio Lara-Bercial[1,2], Cliff Mallett[3]

[1]Leeds Beckett University, UK; [2]International Council for Coaching Education, UK; [3]The University of Queensland, Australia

Examinations of highly successful people typically focus on de-contextualised and comparative personality traits and behaviours. To enhance our understanding of the practices of highly successful people across various contexts a more comprehensive and nuanced examination of what underpins their successes is imperative; i.e., why they behave the way they do. In this keynote, some significant research findings will be presented to provide an insight into what we know about highly successful elite sport coaches and how this understanding might inform coach recruitment and development.

Several research studies have yielded interesting insights into the developmental experiences of successful coaches, their most valued characteristics, their motivations and perceived needs, how they draw from the knowledge and experience provided by sport scientists, and their psychological make-up, skills and coping strategies. This research has highlighted some consistent findings (e.g., diligent; typically played the sport they coached; learn mostly through experience and influenced by more knowledgeable others; relevance of life histories to how they coach). Methodologically, these studies have typically focused on either the coach or athlete perspectives and conducted mostly with samples from US, Canada, UK, and Australia. Furthermore, much of this research has been focused on the 'what' of coaching practice (e.g. behaviours, traits) and provides limited understanding of the person-in-context. There is a paucity of research that has examined: (a) consistently successful international coaches from around the world; (b) coach-athlete dyad perspectives; and (c) an examination of who they are (e.g., meaning making) beyond what they do (attributes, behaviours).

More recent research has examined a sample of some of the world's most successful coaches. These 'outliers among outliers' have won major international championships with many athletes/teams and in multiple contexts. In this research, fourteen serial winning coaches (SWC) from nine countries contributed multiple data sets that were complemented with data from some of their successful athletes. These data sets yielded a multi-layered understanding of a person using integrated theorising to develop a deeper insight into the coach-in-context.

Three key themes emerged from the qualitative data analysis: vision, people and environment. First, a clearly articulated vision of what is necessary to win was central to success. Seeing the 'big picture' and developing and implementing pertinent strategies to make this vision a reality was underscored. Monitoring and regulating action plans was pivotal to achieve that end. Second, the importance of selecting and developing a high performing and cohesive group of people who exude confidence (including the athletes and the support team) was reported. This confidence or belief in all actors was framed as: belief

in me (the coach); belief in you (the athlete); belief in us (the wider team). Third, SWC create a winning culture, in which everyone understands and buys into a given set of practices. The internal and culturally assimilated stories narrated by the SWC that gave them meaning and purpose (e.g., role of critical life events, opportunities for development) will be discussed in light of these themes.

Although the emergent themes and narratives might suggest a simplistic overview of the coach-athlete-performance relationship, we underscore both the complexity and diversity of elite coaching experiences and how coaches made sense of these events. Identifying a stereotypical serial winning coach is likely impossible; however, the research has identified some common and also several unique qualities and practices that contributed to these highly successful coaches - these were truly outliers in a group of outliers. We propose the following recommendations for coach developers: First, the creation of a comprehensive profiling system that moves beyond traits and identifies deeper insights into the person and the coach-organisational fit. Second, coach agency and engagement in 'blended' learning opportunities are central to development, including the influence of significant others. Third, coach developers should underscore the centrality of intra- and inter-personal knowledge and skills in fostering successful outcomes. Finally, the nature of high performance coaches' work continues to evolve; therefore recruitment and development of the next generation of coaches requires developers to provide complementary learning opportunities that prepares coaches for adapting to these dynamic contexts.

3. Thursday 16 July, 3.45pm-4.45pm

Sexual harassment and abuse in sport – Implications for sport psychologists

Kari Fasting
Norwegian School of Sport Sciences, Norway

Research over the past 20 years has shown that problems related to sexualized bullying, gender and sexual harassment, and abuse occur in sports. Many people are unaware of how these concepts are defined and their meaning. I will therefore start with defining and discussing these concepts, with a focus on the implications or challenges they may have with respect to methodology.

Central in the definitions is that the behaviour experienced is unwanted or threatening, troublesome, insulting, offensive or forced, and common for sexual harassment, and abuse is-- that they stem from power relationships and the abuse of power by the more powerful person in the relationship. Based on international studies, I will present a brief overview of what we know about the prevalence.

This shows that the prevalence data vary a lot between the different studies, which seems to be due to different definitions and measurements. Further the impact of sexual harassment and abuse, with a focus on the psychological impacts are presented. This is followed by the known risk factors, which primarily include the normalization of what might constitute psychologically abusive coaching practices, and a socio-cultural context with norms based very much on power and hierarchical relations. This review of 'what do we know' will be followed by a short discussion of theories or models that have been developed to try to explain why sexual harassment and abuse occurs.

The focus on the next part of the presentation will be on prevention. One national and one international example will be presented. The national illustration will be from my own country and the work done by the Norwegian Olympic, Paralympic and Confederation of Sports

(NIF). It decided in 2009 that all sports clubs would be "obliged to procure a police certificate of good conduct for persons who are to carry out tasks for the club that entail a relationship of trust and responsibility in relation to minors or persons with mental disability." Ten new guidelines for preventing sexual harassment and abuse were also adopted by NIF in 2010 and will be outlined. The international example is from the International Olympic Committee (IOC). The IOC adopted a position statement in 2007 on the prevention of sexual harassment and abuse in sport. It was followed up by developing interactive educational tools for sport organizations, coaches and athletes. The presentation of some of these videos can be looked upon as an introduction to the final part of the presentation, in which I will discuss implications for sport psychologists, with a focus on the bystander effect. The bystander effect refers to the situation where the victim perceives that others know about, (or suspect) what is going on, but do not do anything about it. Another important implication of the knowledge that has been developed over the last years is the importance of education, for everyone in sport including the psychologists that are working with the athletes. A prerequisite should be that sport psychologists work in an environment in which the organizations have a protection policy and procedure in place, which also should include codes of conduct and the screening of all personnel including the sport psychologists themselves.

4. Friday 17 July, 11.30am-12.30pm

Benefits of physical activity and fitness for lifelong motor and cognitive development – Brain and behavior

Claudia Voelcker-Rehage
Jacobs University Bremen, Germany

The importance of physical activity for the improvement and preservation of cognitive abilities has repeatedly been examined. However, the approaches in these studies vary and the underlying mechanisms are still not clear. One line of research looks at the simultaneous performance of a motor and cognitive task (dual-task paradigms); while others investigate the association between cognitive performance and the overall fitness level of a person or the effects of a (long-term) fitness intervention on cognitive functioning. A third line of research looks at the immediate effects of acute bouts of exercise on cognitive functioning.

Most exercise paradigms have utilized cardiovascular exercise, also referred to as aerobic or cardiorespiratory exercise, where highly automated movements like walking or cycling are performed. Physical activity, however, is manifold. Unlike cardiorespiratory exercise, coordination training comprises exercises for fine and gross motor body coordination such as balance, eye-hand coordination, leg-arm coordination as well as spatial orientation and reaction to moving objects/persons. Coordination training induces less change in energy metabolism than cardiovascular exercise. Instead, coordinative movements require perceptual and higher-level cognitive processes, such as attention, that are essential for mapping sensation to action and ensuring anticipatory and adaptive aspects of coordination. Today there are several neuroimaging methods available to research the effect of physical activity on neuronal changes. Methods used include structural imaging, structural connectivity, resting functioning imaging, and activation imaging techniques. In addition, biochemical approaches are used to disentangle the exercise-cognition-relationships at a cellular level. Results gained by these techniques show different, but in parts complementary results. Different methods provide access to different but interconnected aspects of the neural and physiological basis of activity related changes and how these might be regulated by different cellular mechanisms.

During the past years, our research group has conducted studies in children, young and older adults to address the different lines of research and underlying mechanism. In my presentation, I will provide an overview on selective studies investigating acute and chronic effects of exercise in different age groups and discuss potential underlying mechanisms. Further, I will propose possible mechanisms by which physical activity facilitates cognitive performance.

5. Saturday 18 July, 11.30am-12.30pm

Dr. Nancy Cooke: Interactive team cognition: Focusing on team dynamics

Nancy Cooke
Arizona State University, United States of America

A team is an interdependent group of three or more people who have different roles and who interact with one another toward a common goal. Teams can engage in physical activities as a unit (e.g., move a soccer ball toward a goal), as well as cognitive activities (e.g., strategize about how to best work through the other team's defense).

Team cognition is the execution of these cognitive activities (e.g., perception, planning, decision making) at a team level and is critical for team effectiveness to the extent that a team task requires cognitive processing. Team sports are cognitive tasks in the sense that they require cognitive processing among team members.

One explanation of team cognition involves the concept of a shared mental model. Shared mental model theories posit that team members will be effective to the extent that they share knowledge of the task and team (Cannon-Bowers, Salas, & Converse, 1993). Measures of shared mental models typically involve aggregation of knowledge measured at the individual level. These theories tend to focus on knowledge as opposed to cognitive process and provide reasonable explanations of team cognition for tasks that are heavily knowledge-based such as team research or team writing. However, this rather static knowledge-centric view of team cognition does not explain the more dynamic cognition that plays out over time as a team, such as a soccer team, coordinates and executes plays.

A series of experiments conducted in a synthetic testbed that simulates the team control of a remotely piloted aircraft, supports the importance of cognitive processing over shared knowledge (Cooke, Gorman, Myers, & Duran, 2013). As teams in that environment became more effective, cognitive processing improved, but not knowledge sharing (Cooke, Kiekel, & Helm, 2001). Further, teams who were trained by perturbing the cognitive processing became more adaptive than those who were cross-trained to promote knowledge sharing (Gorman, Cooke, & Amazeen, 2010). These and other results have supported a theory of Interactive Team Cognition with three underlying assumptions: (1) Team cognition is an activity; not a property or product, (2) Team cognition is inextricably tied to context, (3) Team cognition is best measured and studied when the team is the unit of analysis.

This theory has implications for how team cognition is measured and improved. For instance, rather than measuring team situation awareness as shared knowledge of the situation, Interactive Team Cognition would focus on team's perception of a change in the environment and subsequent action through communication (Gorman, Cooke, & Winner, 2006). Interventions to improve team cognition also focus on the team's interactions (e.g., perturbation training). Current efforts are directed at developing additional measures of team interaction and interventions that can improve team adaptability and resilience.

6. Saturday 18 July, 3:45pm-4:45pm

Doing sport psychology? Critical reflections as a scientist-practitioner

Chris Harwood
Loughborough University, United Kingdom

The phrase "Doing sport psychology" can be interpreted and debated in a number of ways through the lenses of varying stakeholders in our profession. We may each "do sport psychology" through our scholarly research activity, our education and teaching activity, and our practitioner consulting activity. In this presentation, this process from applied research-to-teaching excellence-to-applied practice sustains the ongoing health and development of our profession(s).

Drawing from personal experiences and case examples, I will present critical reflections of personal research that has attempted to scientifically inform practice in youth athletes, professional teams, coaches, and parents over the past 20 years. Equally, I will reflect on personal experiences and turning points of consulting within sport teams and organisations, and consider the demands placed upon the practitioner at social, cognitive, developmental, organisational and cultural levels. These reflections incite a range of thoughts, emotions and implications, and will provoke commentary on a range of professional, methodological, and institutional challenges for sport psychology. Ultimately, this lecture aims to promote critical thinking within the community of sport psychologists in research and teaching institutions, sport organisations and businesses about how to collaborate effectively for the long term well-being and growth of the profession.

Invited Symposia, Special Sessions, Symposia, Invited Workshops, and Workshops

Session 1 - Wednesday, 15 July, 8:30am-10:00am

IS1.1: Invited Symposium
Exercise for smoking cessation: A multimethod approach for the development of effective programs

Chair(s): Yannis Theodorakis (University of Thessaly, Greece)

Exercise has been considered as an effective tool for smoking prevention and importantly for smoking cessation. Nevertheless, empirical findings from exercise-based interventions have proved equivocal. Reviews on the relevant research have identified limitations focusing on the lack of theoretically driven interventions, but also methodological shortcomings. The present symposium is based on a research project aimed to address the identified issues, with the development and application of effective smoking cessation program, through experimental studies, interventions and qualitative inquiries. In particular, this symposium consists of five presentations. The first involves an experiment comparing the effects of moderate and high intensity aerobic exercise on smoking delay. The second presentation involves another experiment comparing the effects of assigned moderate and self-selected intensity aerobic exercise on smoking urge. The third presentation, involves an 8-week exercise intervention, based on the premises of the self-determination theory and the findings of the previous experiments, complemented through the use of self-regulation strategies. The fourth presentation involves a qualitative approach to the topic through the exploration of experiences from smokers participating in exercise sessions. Lastly, the fifth presentation involves the development and evaluation of a smartphone application aiming to support people who have recently quit smoking not to relapse through the use of individualized exercise-related messages for action.

- **Acute effects of a short bout of moderate versus vigorous intensity of exercise on smoking behavior**

Nikos Zourbanos, Theodora Tzatzaki, Anastasia Tsiami, Eirini Manthou, Kalliopi Georgakouli, Yannis Theodorakis, Antonis Hatzigeorgiadis
University of Thessaly, Greece

Different treatments have been designed to aid smoking cessation using psychological support, pharmaceutical aids or combination of the both. Consequently the need to develop effective interventions in order to aid people to reduce or quit smoking is very important. Exercise appears to be a healthy and cost-effective intervention for smoking cessation. The purpose of this study was to compare the effects of two different exercise intensities, moderate intensity exercise and vigorous intensity exercise, on smoking behavior. Participants were adults, non-physically active, heavy smokers (26.17 ± 9.75, cigarettes per day). Smoking delay (measuring the actual time of smoking after exercise) examined after the completion of the exercise protocol, whereas physiological measures were implemented before, during and after the completion of a 30-minutes exercise session. In addition, preferences regarding the cycling protocols (moderate and vigorous intensity exercise) were assessed on completion. Examination of the pairwise comparisons showed significant differences between the control and the moderate intensity condition ($p < .05$), and between the control and the high intensity condition ($p < .01$), but not between the moderate and high intensity conditions ($p = .28$). In the control condition participants smoke their first cigarette faster than in the two exercise conditions. Furthermore, the analysis revealed a preference for the moderate intensity exercise protocol. The results suggest that exercise can have a positive impact on smoking delay.

- **Acute effect of exercise on smoking urge and preferences for assigned versus self-selected aerobic exercise intensity**

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Exercise has been considered as a useful intervention for smoking cessation, however research evidence has provided limited support. Towards the development of effective interventions, experimental research can help providing appropriate guidelines. Based on the premises of the self-determination theory (Deci & Ryan, 1985), the purpose of this study was to examine whether smokers preferred a "self-selected" form of physical activity in which they were allowed to determine themselves the intensity of physical activity or preferred an "other-selected" form of physical activity in which the instructor assigned the exercise intensity for them. In addition, we examined effects of assigned and self-selected intensity exercise, on urges to smoke. Participants were 16 adults (8 males and 8 females; mean age 26.62 years), non-physically active, smokers. Results revealed that smoking urge was significantly lower immediately after exercise for both conditions. However, urge to smoke reverted back to baseline levels 30 minutes post-exercise periods and surpassed these levels 40 minutes after the completion of the physical task. Importantly, results demonstrated that smokers exhibited an enhanced preference for self-selected forms of physical activity as opposed to other-selected forms of physical activity. The implication of these findings is that smoking cessation and motivation for physical activity participation can be increased by allowing smokers select intensity of physical activity programs.

- **Exercise for smoking cessation: A self-determination based intervention**

Theodora Tzatzaki[1], Antonis Hatzigeorgiadis[1], Anastasia Tsiami[1], Vassiliki Pappa[1], Levanda Apostolou[1], Nikos Zourbanos[1], Ioanna Oikonomou[1], Nikos Chatzisarantis[2], Yannis Theodorakis[1]
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Exercise has been suggested as an important aid towards smoking cessation. However, the relevant literature on exercise-based intervention has provided equivocal findings. Based on the premises of self-determination theory and through the use of self-regulation strategies, an exercise-initiation smoking-cessation intervention was developed, implemented, and evaluated. Smokers, non-exercising, were randomly assigned into intervention (N = 16; 7 males, 9 females; mean age 39.44 years) and waiting-control groups (N = 8; 3 males, 5 females; mean age 46.00 years). Participants of the intervention group engaged in an 8-week individually tailored exercise program, assisted through the use of goal-setting, breathing exercises, and self-talk. Smoking and exercise behaviour was monitored; in addition exercise self-efficacy, self-efficacy to overcome barriers towards exercise, and smoking abstinence self-efficacy were assessed. The control group was monitored during the same period of time and completed the same measures. On completion of the intervention 10 participants had quitted smoking, whereas six had reduced the number of cigarettes they were smoking to approximately 25% of the cigarettes they were smoking at baseline. The results showed that as the frequency of exercise increased throughout the eight weeks, exercise self-efficacy, self-efficacy to overcome barriers towards exercise, and smoking abstinence self-efficacy were increased, whereas smoking behaviour declined. No changes were observed in exercise or smoking behaviour for the control group. The findings provide support for the value of exercise as a tool for smoking cessation, provide useful directions for the designing and implementation of interventions and encourage further research on the role of exercise in the fight against smoking.

- **Understanding the experiences of heavy smokers on high and moderate exercise intensity in relation to their urge to smoke**

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Exercise is used to counteract the urge to smoke. However, it remains unclear which is the most effective type of exercise for reducing cravings as a wide range of intensities and modes; from isometric exercise and yoga to activity as high as 80–85 % heart rate, have shown positive effects. However, the perceptions of heavy smokers regarding different exercise intensities and their effects on their urge to smoke have not been considered. The aim of this study was to understand the experiences of heavy smokers during and after a medium and vigorous exercise condition in relation to their urge to smoke. Five heavy smokers, physically inactive were asked to abstain from smoking the night before exercising on a cycle ergometer for 30 minutes at two different intensities (medium and vigorous) with a one-week interval between the two sessions. The order of exercise intensity was counterbalanced across participants. Semi structured in depth interviews were conducted upon completion of the second trial. Thematic analysis revealed 3 themes: preferred exercise intensity, urge delay, and other feelings and thoughts during and after exercise. It emerged that the i the ideal intensity, type and duration of exercise in relation to smoking urges is highly related to individuals current and past exercise history.

- **Managing cravings with physical activities: A mobile App**

Mary Hassandra[1], Hanna-Mari Toivonen[1], Taru Lintunen[1], Tarja Kettunen[2]
[1]University of Jyvaskyla, Finland, [2]University of Jyvaskyla & Central Finland Health Care, Finland

There is evidence that physical activity, even in small doses, acutely reduces cigarette cravings in laboratory settings. Nevertheless, data from real life settings are scarce. A free mobile smartphone application has been developed to support people who have recently quit smoking not to relapse by counter-suggesting simple physical activities. Suggested physical activities and motivational messages are matched to the needs and preferences of individuals. Fifty participants have been assigned randomly to 2 groups, with the experimental group using the PoS app as a support tool after the quit day. Follow-up measures up to 6 months are collected. Preliminary results from 15 participants (7 experimental) show that experimental group has better follow-up scores than control on: number of relapses (week 1 & 2), cigarettes smoked (day 3, week 1, 2 & 3), cravings frequency (day 3 & week 1), awareness of cravings (week 3) and cravings control management score (day 3). Results of main analyses, up to 3 months follow-up measures, will be presented followed by a discussion on their implications.

SS-S1.1: Special Session - Symposium: Dual career (part 1): Gold in education and elite sport

Chair(s): Nadine Debois (INSEP Paris, France)
Discussant(s): Paul Wylleman (Vrije Universiteit Brussel, Belgium)

The issue of « dual career » in elite sport has led in recent years to an increasing interest from sport psychology researchers as well as from government bodies. In this context, the present symposium based on the “Gold in Education and Elite Sport” (GEES) project supported by the European Commission will contribute to disseminate recent research results as well as to promote debate on the competences required for succeeding to reconcile educative/vocational path and sport career. In a first communication the main aspects of the GEES project will be presented. Then, a second one will focus on lessons learnt from a longitudinal study involving student-athletes. A third presentation will emphasize the drawbacks and benefits of dual career in female elite athletes. Then a fourth communication will focus on the sources of dual career success versus failure in connection with the polish dual career support organization. Finally, this symposium will be concluded

with a presentation questioning the competences (i.e., experience, knowledge, abilities, attitudes) needed by student-athletes for successfully reconciling elite sport and higher education. This symposium constitutes the first part of a two-part symposium on dual career with the second one more specifically dedicated to specific period or modalities of dual career transitions.

- **Dual career of athletes in Europe: the 'Gold in Education and Elite Sport' project**

Paul Wylleman
Vrije Universiteit Brussel, Belgium

One of the main challenges facing athletes is combining education and high-level sport (EU Guidelines on Dual Careers of Athletes, 2012). As this dual career pathway entails the development and mastery stages of the athletic career (Wylleman, Reints & De Knop, 2013), its impact will not only be on athletes' educational and athletic development but also on their vocational development and employability during as well as after their athletic career (Wylleman & Reints, 2014). Taking into account the benefits of supporting athletes' dual careers (e.g., increased balanced lifestyle, better conditions to develop life skills in sport, education and other spheres of life, enhanced employment prospects, and protection and safeguarding of athletes' position, better career/retirement planning (EU Guidelines on Dual Careers of Athletes, 2012), the project 'Gold in Education and Elite Sport' will investigate the competences required by 12-to-25 year old athletes as well as by dual career experts/services in order to optimize the dual career 'education and sport' pathway in nine European countries (Belgium, France, Italy, the Netherlands, Poland, Slovenia, Spain, Sweden, the UK). A summary of previous research will be presented as an introduction to this symposium. Then, the aim, methodology and intermediate results of the on-going 'Gold in Education and Elite Sport' project will be presented.

- **Searching for an optimal balance: Reflections on the Swedish national dual career project**

Natalia Stambulova, Lukas Linnér
Halmstad University, Sweden

In this presentation the authors will summarize a recent Swedish dual career project and then reflect on lessons learned from this project in terms of a nature of dual career development and related factors. This longitudinal mixed-method study with a set of questionnaires (N=261; N=250) and interviews (N=10) was aimed at examining adolescent student-athletes' dual career experiences during their first year at national elite sport schools with a particular focus on development of their athletic and student identities. It was based on the holistic developmental perspective (Wylleman & Lavallee, 2004), the athletic career transition model (Stambulova, 2003), and the "winning in the long-run" philosophy underlying the Swedish dual career system (Lindahl, 2011). Briefly, the results of the study revealed: (a) significant changes in the transition variables during the educational year and their significant contributions to the student-athletes' perceived quality of adjustment with personal resources as a key predictor, and (b) the participants' search for an optimal balance between their athlete and student roles/identities. Further elaboration on the results led to several conclusions that might inform future dual career studies. First, to clarify a nature of dual career development, the optimal dual career balance was defined as a combination of sport and studies that helped student-athletes achieve their educational and athletic goals, live satisfying private lives and maintain their health and well-being. Second, recommendations for the dual career service providers emphasized: (a) helping student-athletes to develop personal resources (e.g., life skills), (b) planning shifts in prioritizing sport or studies during the educational year/competitive season, and (c) ensuring an empowerment (rather than controlling) approach in social support from coaches and teachers. Third, the Swedish dual career model drafted based on the study might be an example for other countries to proceed with the national dual career guidelines.

- **Dual career of Spanish female athletes: An obligation that became an advantage**

Miquel Torregrosa, Andrea Perez-Rivases, Yago Ramis, Susana Pallarés
Universitat Autonoma de Barcelona, Spain

Elite athletes' exclusive focus on the sporting career neglecting the development of other areas (i.e., education or professional development) often leads to difficult retirements. Both anecdotal and scientific verification of this fact has led to the current political trend to promote Dual Careers (DC) in elite sport. Female elite sport in Spain has traditionally received less attention and financial support than their male equivalent. Thus, in most of elite sports while men were able to focus only in their sporting career women were required to follow DC far before the term was proposed. The impossibility of focusing exclusively in their sport was perceived as a barrier for their athletic performance (Torregrosa, Sanchez & Cruz, 2004). Framed in the developmental and transition models (Schlossberg, 1981; Wylleman & Lavallee, 2004), we conducted a two phase qualitative research exploring the DC pathway and the transition to an alternative professional career in Spanish female elite sport. In the first phase 12 former female elite athletes were interviewed. The interviews were transcribed and qualitatively analyzed. In the second phase we constructed three life stories with selected cases from the interviews on the basis of a series of interviews. Results from the interviews show that most of the female athletes were financially constrained to follow DC and although by the time this was experienced as a barrier to have better athletic results, in the long term it was acknowledged as a facilitator for the transition to an alternative professional career. The life stories allowed going deeper on the trajectories followed both at the athletic and academic-vocational levels and to describe how they converged after retirement. As a conclusion, following DC in sport facilitates the transition to an alternative professional career and the benefits are perceived in the long term. However, to make athletes aware of the benefits of DC in the short term seems to remain as a challenge for policy makers and sport psychologists.

- **Polish system of education (dual career) of top athletes**

Marek Graczyk[1], Tomasz Tomiak[1], Hubert Krysztofiak[2], Waldemar Moska[1], Artur Ziolkowski[1]
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In Poland history of the dual athlete-student career system is over fifty years old. Regarding education for athletes involved in Physical Education Universities, there are five state universities with two of them with a branch: Gdansk, Warsaw (with a branch in Biala Podlaska), Poznan (with a branch in Gorzow Wielkopolski), Katowice and Krakow. These schools educate more than 60% of the athletes representing the Olympic Team in the Olympic sports as well as the National Team in non-Olympic disciplines. Education includes both the Bachelor (first degree), Master (second degree) and Doctoral (third degree) level. These institutions usually have two departments: physical education, and tourism or rehabilitation, and accordingly several vocational opportunities: teacher, coach, management, rehabilitation, physiotherapy and journalism. Athletes are studying both on-site and through distance learning. In addition, due to the nature of Polish Olympic preparation that takes place mainly within the six Olympic Training Centres, remoteness from university cities allows the athletes to get an Individual Organization Studies mode. A few percentage of athletes are studying at private universities in physical education, mainly at the level I, and other athletes are studying at universities funded by the Ministry of Science and Higher Education such as medical, technical, or economic Faculties. The presentation will report the results of research, statistics and comparative analysis, summary of outcomes athletes with different levels of sophistication and sources of success and the reason for their problems and failures that led to the drop out of dual career as an athlete or student. As an example of the Bachelor-Master program in Physical Education, the GUPES study of Union Project "OKO" / "EYE" – "Olivian's Forge Olympians" carried on 66 student-elite athletes (London and Rio de Janeiro Olympic Games) will be presented. As a discussion, in link with the

literature, examples of degree programs that provide for students knowledge as well as social and psychological skills necessary for developing one's dual career.

- **The dual career of elite student-athletes: A competency profile**

Koen De Brandt, Paul Wylleman, Nicky Van Rossem
Vrije Universiteit Brussel, Belgium

Student-athletes perceive challenges in different domains when they make their transition into higher education. To cope with these transitional challenges, student-athletes require specific skills, attitudes, knowledge and experiences to optimize their preparation for and their development throughout their dual career 'elite sport and higher education' pathway. While past research has focused on the topic of dual careers, there is a lack of knowledge with regard to the competences athletes require to successfully combine elite sport and higher education. To explore the competences needed by student-athletes to successfully initiate their combination of elite sport and higher education, this study used the Holistic Athletic Career model from Wylleman, Reints, & De Knop (2013) as a framework. Using a retrospective design, semi-structured interviews were conducted with nine elite student-athletes who 'successfully' initiated their elite sport and higher education pathway. 'Successfully' means that all participants had an academic success rate above average and competed at international level. Preliminary results revealed that elite student-athletes require competences at the athletic, psychological, psychosocial, academic and financial level in order to successfully initiate a dual career in higher education. These include, amongst others, coping with athletic and academic related pressure, goal setting, effective use of time, prioritizing tasks, being able to live alone in a student house, and self-discipline. Further detailed results will be presented. To optimize the transition and integration of athletes into higher education, support services should be aware of the competences that student-athletes require so they can provide their athletes with tailor-made support (e.g. teaching them time management and self-regulatory skills) prior to and during the transition into higher education.

S1.01: Symposium - Can sport include people? Researching on sport as a tool for social inclusion: programs, indicators and evaluation

Chair(s): Caterina Gozzoli (Università Cattolica del Sacro Cuore, Italy)

The symposium aims at stimulating reflections about sport as a tool for developing social integration and community networks. The existing specific literature underlines that it is often assumed without applying a critical approach how sport contributes to processes of inclusion and empowerment of socially vulnerable groups (e.g. Green, 2008). However, recent studies (e.g. Lawson, 2005; Hartmann & Kwauk, 2011) show how often attributing this potential to sport has become almost a fashion and a sort of panacea. While sharing this vision of the functions of social inclusion that sport can assume, we, nevertheless, place ourselves among those scholars who acknowledge the phenomenon of sport as a "complex social phenomenon", which, as such, carries great potential but many risks and problems (Sanchez, Gozzoli and D'Angelo, 2013). Urgent reflection is thus required to highlight the conditions allowing sport to become a really effective tool (Coalter, 2002). The contributions proposed in this symposium are based upon the results of projects and studies addressing different stakeholders and call upon different players involved in program implementation. The first contribution presents an evaluation research on a project addressing children at risk of delinquency in an Italian metropolitan area: it focuses on the evaluation of social networks developed through the program. The second one introduces a program for mentored children using physical activity to develop their emotional intelligence, a crucial skill for young people and their socially integrated development. The third presentation aims to analyse the beliefs of various actors (coaches, managers, athletes) involved in the implementation of sport programs for promoting social inclusion of disabled. Finally the fourth contribution, starting from different studies on elite athletes, presents a reflection on how the promotion of the

responsible togetherness and the sense of community through sport can generate social inclusive processes.

- **Promoting the development of social networks: An Italian study with children at-risk**

Chiara D'Angelo, Caterina Gozzoli
Università Cattolica del Sacro Cuore, Italy

Sport is one of the most practised leisure activities, especially among young people. The potential of the fun and socialising dimension of sport makes it a very attractive tool for different categories of people. Recent studies showed that sport is one of the leisure activities (e.g. youth movements, youth centres, youth out-reach practices) through which it is easier to engage the so called “hard-to-reach youth” (Haudenhuysea, Theebooma & Skilleb, 2014). Proposing sporting activities to the target group of youth population at-risk often works out on multiple levels to promote well-being, by developing opportunities for socialisation, strengthening feelings of effectiveness and membership of peer groups (Coalter, 2002). The primary objective of these projects is to foster processes of social inclusion, by enhancing opportunities for involvement in community life, developing a sense of belonging and activation as well as creating social networks through sports (Schulenkorf, 2012). Starting up projects for children from marginal areas and at-risk groups that use sport as a tool for action means not only working on individuals or on smaller groups, but also calling upon synergistic networks of social players who take charge of the stories and situations of those children and involve them in targeted actions (Collins & Key, 2003; Coakley, 2011, Coalter, 2010). This paper showcases an evaluation research on a social inclusion project of children at risk of delinquency in an Italian metropolitan area from 2013-2014. Its aim is to assess whether and how the project was able to activate and develop a network between sports clubs and local groups, longitudinal, participatory evaluation research project was conducted. For this purpose 4 focus groups (with the operators of 7 sports clubs and 9 social cooperatives) and 8 in-depth interviews (with the implementers of the project) were conducted, with a total of 20 subjects involved. All the material was fully transcribed verbatim, then analysed with the help of the software Atlas.ti (7.0 version) using a grounded theory approach. The results highlight how the process of network creation had gradually increased the perception of complexity in the idea of sports, from the involved subjects’ perspective and a progressive awareness of adult players being effective agents of the process of social inclusion of children through the establishment of a real network. The results of the evaluation research reveal that the success of a project of social inclusion for children at risk strongly depends on the promotion/establishment of a cultural change for the various stakeholders involved at the regional level, both with respect to the concept of the potential of sport and the respective role of different actors in taking charge of the children. The study could be a good starting point to plan policies of social intervention aimed to promote inclusive social networks supporting marginal population.

- **Training in emotional intelligence and social inclusion through sport: A program for mentored children in Catalonia**

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The program herewith presented aims to evaluate the effectiveness of a psychological intervention program (Lizeretti, 2012), including sports activities, intended to develop the emotional competences of tutelary minors who are assisted in Educational Action Residential Centers (CRAEs) in Catalonia. The intervention leads to the development of socio-emotional abilities, which entail a greater acquisition of healthy lifestyles and competencies for the social inclusion. This program is proposed by the Emotional Intelligence (EI) task force of the College of Psychologists of Catalonia – COPC – and Faculty of Psychology and Sports

Sciences (URL). With this project we hope to demonstrate the importance of a program that includes sports activities, and focuses on skills development towards the strengthening of the EI of the children in chancery. The program sees the EI as psychological category that gives us a sufficiently solid basis for organizing intervention plans (Salovey & Mayer, 1990). Research confirms that emotions influence inclusive behaviors in sport and exercise (Duncan, Latimer-Cheung & Brackett, 2014). Moreover, research about emotional skills in the context of sports groups is still limited. To assess the program an experimental design (two groups and control group) has been used, in order to control several dependent variables and to analyze the relationship between them and some independent variables that are part of the intervention program, especially the sport activities. Sampling will be intentional and formed by tutelary children and adolescents of CRAEs (estimated sample: 300 children). We expect the implementation of the program should be useful to the development of EI and social integration competences in minors. The program includes a planned set of activities with the aim of publicizing new forms of action in dealing with children in the community, using sporting activities.

- **The beliefs of athletes, coaches and managers about the integration of the adapted sport in Spain**

Jordi Segura[1], Myriam Guerra-Balic[1], Oriol Martínez-Ferrer[1], Silvia Barnet[1], Ricardo Sánchez[1], Caterina Gozzoli[2], Zuriñe Ibarra[3]
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The European policies are open in order to promote the integration of the adapted sport. The project here presented entitled "Blanquerna Inclusion" tries to bring further knowledge and to propose strategies to facilitate the process of the social inclusion in the sport system. The program uses a participative strategy that encourages the dialogue between the key stakeholders in the sport system. It involves athletes, technicians and managers, who represent the Olympic and Paralympic Spanish federations. The study aims to analyze the beliefs of the participants in the sports system about the inclusion of the adapted sports in the overall sport system. A qualitative methodology is used to investigate the approach of the members of the system. We follow the principle of Integration (Warnock, 1990) and Social Justice across the sport principle (DePauw & Doll-Tepper, 2000). Integration was recognized into the field of Health, by the World Health Organization ("International Classification of Impairments, Disabilities, and Handicaps", WHO, 1980). Integration means joining a group with its own rights, having equal duties as a member of the group, and respecting the special characteristics of each member of the group. The beliefs are considered as a specific pieces of knowledge, which makes the athletes special as well as sustains the identity of the athletes (Geertz, 1996). A focus-group methodology was used: the content of the interviews with the groups has been analyzed through qualitative techniques. In total, 60 participants took part divided into five different groups: 21 of the participants represented the Paralympic federations and 39 represented the Olympic federations, with a total of 22 Spanish national federations. The results present seven categories of meaning. All categories are included in both groups mentioned above, and each category includes several beliefs. Starting from the findings of the study, a guide on good inclusive practices in sport has been developed.

- **Sport community experiences and processes of togetherness for Italian and French adolescent athletes**

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The sport environment is a place that can generate processes able to facilitate the transfer of pro-social skills from sport context to community belonging. Sport provides benefits such as community identity and unity, and can facilitate community development and social inclusion (Vail, 2007). Furthermore, sport is believed to bring together people of diverse backgrounds

into a common community where they can feel a sense of belonging (Wolf-Wendel, Toma, & Morphew, 2001). However, the level of practice of the physical activity must be taken into account, these beneficial effects are connected to a leisure sporting practice, but can we make the same assumptions for competitive and elite sports? The objective of this work is to offer a reflection about the processes of research and intervention designed to promote responsible togetherness (Procentese, 2011) and to identify political lines of socio-cultural growth for adolescents, through physical activity and sport. In a transcultural perspective, we conducted some studies with 250 Italian and 200 French adolescent athletes on the reciprocal relationship among specifics dimensions: Sense of community in sport, sense of interdependence, significant others climate perceived, sport values and sport engagement. All participants completed a questionnaire about the variables mentioned above and a group of volunteers was interviewed about the experience of transferring sporting values in local communities.The results obtained by using mixed methods (i.e., qualitative and quantitative) support the argument that, in actual society, sport community could serve as a resource for local community, through practices aimed at the transmission of a sport culture and the co-construction of a shared representation of the sport experience as a promoter of responsibilities and togetherness. Particularly, in the sport community, sense of community can promote social inclusion. The actors of the sport communities can play an important role in spreading values for the achievement of social inclusion.

S1.02: Symposium - Implicit motives and basic psychological needs: Theoretical considerations and practical application of different need concepts

Chair(s): Julia Schüler (University of Bern, Switzerland), Mirko Wegner (University of Bern, Switzerland)

The symposium consists of five talks dealing with two different concepts of "needs" and their role in sport and exercise. Three presentations are about basic psychologcial needs according to Deci and Ryan's (1985) self-determination theory (SDT) and the two latter presentations are based on the McClelland's (1985) motive disposition theory. The first talk will provide an overview on the examination of basic need satisfaction and need thwarting based on empirical evidence from various studies in the contexts of sport and physical activity. Methodological and analytic issues will be raised to inform for work. In the second talk a one-year group intervention for overweight women based on self-determination theory and the concept of autonomous motivation will be presented. The intervention effects, for example, on participants' physical activity and non-sedentary behavior will be reported. In the third talk amateur soccer players were followed for five consecutive competitive games. They found that perceived autonomy-support by coaches is positively related with pro-social behavior, whereas a controlling coaching style relates positively to anti-social behavior and negatively to coach-ratings of athletes' performance. The following two presentations deal with "needs" in the sense of McClelland's (1985) concept of implicit motives. In the fourth talk it will be shown that the implicit power motive predicts shooting performance in an experimentally induced socio-evaluative stress condition but not in a control condition. In the final presentation a theoretical integration of the concepts of basic needs and implicit motives will be suggested. Three studies show that implicit motives interact with corresponding basic needs to predict motivation and well-being in sport. Taken together, the five presentations will demonstrate the potential of the different "need" concepts for theoretical development and practical applications in sport psychology.

- **Basic needs satisfaction and needs thwarting in sport and physical activities**

Paul Appleton[1], Isabel Balaguer[2], Carme Viladrich[3], Joan Duda[1]
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The talk is about basic needs satisfaction and needs thwarting in sport and physical activities. It presents an overview of findings and a critical look at assessment and analytic strategies and their implications. Grounded in Basic Needs Theory (Deci & Ryan, 2000), a

considerable amount of research has been conducted in sport and other physical activity settings. Employing longitudinal and primarily cross-sectional designs, studies have focused on the social environmental predictors of composite need satisfaction (BNS) and the implications of the individual basic needs (i.e., competence, autonomy, and relatedness) for motivational processes (such as motivation regulations) and outcomes. In terms of the latter, a plethora of studies have focused on the prediction of indicators of well-being but engagement and performance have also been targeted. With the aim of providing greater insight into 'the darker side of athletic experience,' an assessment of psychological need thwarting (BNT) in sport has been developed (Bartholomew et al., 2011) and contemporary studies have examined the differential prediction of indicators of well-being and ill-being as a function of variability in BNS and BNT as well as the hypothesized meditational role of the satisfaction and thwarting of the basic needs. In this presentation, we will provide a brief overview of the findings in this area of work. Approaches taken to assessing and analyzing BNS and BNT will be critically discussed. A particular focus will be on how and why we need to disentangle specific contributions (e.g., via EFA/CFA or Bi-Factor Analysis) of each of the constructs necessary to testing Basic Needs Theory, even when they are highly correlated (which is often the case for BNS and BNT). Findings from different data sets and published studies will be used to illustrate the points made.

- **Self-determined motivation, need satisfaction, and weight control**

Pedro Teixeira
University of Lisbon, Portugal

The present chronic disease model of health and health care puts a high burden on long-term behavioral self-regulation by individuals. Paradoxically, interventions aimed at promoting individual and sustained health behavior change, in areas such as diabetes, obesity, and physical activity, have not been sufficiently successful. Providing a detailed and qualitative analysis of motivational dynamics, self-determination theory explains why and how people can develop ownership over and effectively self-regulate particular behaviors patterns in a sustained way. It also provides guidance to design behavior change interventions, based on the relation between the level of psychological need satisfaction, the goals sought by the behavior, and the nature of the motives underlying it. In this presentation, a 1-year group intervention for overweight women based on self-determination theory will be described, and 3-year results for body weight and key motivational and behavioral outcomes, including different forms of physical activity and "non-sedentary" behaviors, will be presented. Results showed clinically-meaningful changes in body weight (-4% of initial weight vs. controls, $p<.05$) and in physical activity (+83 min/week of moderate and vigorous physical activity vs. controls, $p<.001$), which were sustained for three years. Mediation analyses showed autonomous and especially intrinsic motivation partially explained the effects of the intervention on behavioral outcomes. The discussion will focus on theory-based mechanisms by which the intervention produced its long-term results, on the motivational underpinnings of lasting (autonomous) behavior change in the area of weight control, and on implications for future interventions.

- **Game-to-game variation in coaching style and the influence on pro- and antisocial behavior in soccer players: A longitudinal study**

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While soccer players frequently engage in verbal and physically aggressive play during the game, they also display prosocial behavior, both towards their own teammates as well as their opponents. Grounded in Self-determination Theory (SDT; Ryan & Deci, 2000; Vansteenkiste, Niemiec, & Soenens, 2010), the current longitudinal study, including multiple game-specific assessments, sought to investigate whether the game-to-game variation in players' anti- and prosocial behavior as well as their performance would covary with players'

game-to-game variation in their motivation and the perceived autonomy-supportive versus controlling style of the coach. 197 Flemish amateur soccer players (Mean age = 26.57; SD = 5.97) were followed for five consecutive competition games. Specifically, players reported their autonomous and controlled motivation, the perception of the coach style of holding a pre-game speech and their objectifying attitude towards their opponent. Immediately following each game, players reported on their pro- and antisocial behavior and the perceived coaching style during the game, while coaches rated their players' performance. Given the nested structure of the data, multilevel Structural Equation Modelling was used to analyze the data. Results show that variation in soccer players' controlled motivation and the perceived pre-game controlling coaching style positively related to variation in players' objectifying attitude, which, in turn, related positively to antisocial behavior during the game. Variation in perceived autonomy-supportive and controlling coaching style during the game showed, respectively, a negative and positive relation with anti-social behavior, while yielding the opposite pattern with pro-social behavior. In addition, a perceived controlling coaching style related negatively to coach-rated performance. The current study indicates that coaches' autonomy-supportive and controlling coaching style varies substantially from game to game, with resulting implications for soccer players' antisocial and prosocial behavior and performance. The study highlights costs associated with the use of coach pressure, both prior to and during the soccer game.

- **Children's motor performance under socio-evaluative stress: The role of the implicit power motive**

Mirko Wegner[1], Henning Budde[2], Julia Schüler[1]
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The implicit power motive has previously been linked to different behavior in response to contest situations and socio-evaluative stressors. Although this link has been repeatedly reported for adults, only few studies have examined the predictive value of the power motive for children and adolescents. One of the underlying assumptions of the Motive Disposition Theory (McClelland, 1985) is that individuals differ with regard to the extent to which they derive pleasure from having mental, physical, and emotional impact on others (power motive) and respond to contest situations in which their performance is evaluated by others. In an experimental study with ten-year-old children, we examined the precision of their soccer shooting performance under no and social-evaluative stress. The task was to shoot at a target as precisely as possible. The mean error from the target was used as a performance index. The implicit power motive was measured using the Operant Motive Test (OMT). In the social evaluative condition, children were told that the results of their shooting performance would be reported to their teammates and coaches. Children's shooting performance in soccer was significantly affected by their implicit power motive only in the socio-evaluative stress condition but not in the control condition. Our findings support the assumption that the implicit power motive is an important individual difference variable that is involved when performances in sports are evaluated by peers or coaches. The power motive seems to be of relevance even at a young age.

- **Implicit motives and basic needs as predictors of motivation and well-being in various sport contexts**

Julia Schüler, Vanda Sieber, Mirko Wegner
University of Bern, Switzerland

Although in the last years dispositional and environmental aspects have successfully been used to predict motivation in sport and exercise, the theoretical approaches have rarely been linked so far. The present research aims to integrate the basic psychological need approach as defined in the Self-Determination Theory (Deci & Ryan, 1985) and the implicit motive approach of the Motive Disposition Theory (McClelland, 1985). We hypothesized that individuals high in a certain implicit motive should benefit more strongly from the satisfaction of the corresponding basic need.

Study 1 used a sample of extreme endurance sport athletes to test whether the implicit achievement and affiliation motives interact with the need for competence and for social relatedness satisfaction, respectively. Study 2 analyzed effects of autonomy support provided by recruit instructors in the Swiss Armed Forces. Study 3 used a sample of physically inactive persons to test the interaction effect and additionally examined whether an autonomy Study 1showed that highly achievement-motivated (/affiliation-motivated) individuals benefited more from the need for competence (/need for relatedness) satisfaction in terms of well-being. In the Swiss Army study people with a high implicit autonomy disposition benefited more strongly from the satisfaction of the need for autonomy in terms of intrinsic motivation and flow. A longitudinal effect on self-control strength, perceived tension, and joy was found in retests after two months. Study 3 revealed that perceived autonomy-support leads to autonomy-satisfaction, which in turn has positive effects on well-being. This indirect effect held at high and average but not at low implicit autonomy disposition. It will be discussed that considering individual differences in implicit motives comes with challenges as well as chances for applied sport psychology.

S1.03: Symposium - Eating disorders in sport: Self harm, mistreatment, or both?

Chair(s): A.P. (Karin) de Bruin (Karin de Bruin Sportpsycholoog, The Netherlands)

The work activities of applied sport psychologists and sport psychology researchers are often centered around performance enhancement and, therefore, the “dark side” of elite sport participation remains somewhat underexposed. In spite of the well-known benefits of sport and exercise, there is also evidence of several negative experiences that can accompany elite sport participation. Among these side effects of sports are far-reaching high-impact experiences such as sexual harassment, emotional abuse, and disordered eating. These phenomena are not unique to the sports environment but at least equally present when compared to society at large. Research shows that the prevalence of clinical and subclinical eating disorders in men and women athletes is even significantly higher than among non-athletes. Aesthetic sports (e.g., figure skating and dance), endurance sports (e.g. middle/long distance running and cycling) and weigh-class sports such as judo, seem specifically at risk for the development of eating disorder symptomatology.

In this symposium, several quantitative and qualitative research presentations will raise awareness to the impact of this other side of sport, particularly to the topic of eating disorders. The presented studies have been executed in the three at-risk sport types and will provide us with an insight into the sport-specific dynamics of its development. Furthermore, we will specifically focus on the influence of both personal and situational factors in the occurrence and impact of such severe experiences. The aim of this symposium is to let the audience reflect on and discuss whether this “other side of the medal” could be described as a form of personal self harm, situational mistreatment or a combination of both. What, then, are the consequences for our work as sport psychologists?

- **The prevalence and correlates of disordered eating, depressive and comorbidity symptoms in endurance athletes**

Vaithehy Shanmugam, Stuart Holliday
University of Central Lancashire, UK

Distance running is the largest participatory sport in the UK, with over 250,000 ranked UK runners participating in over 50,000 races per year, not including all recreational runners. However, endurance athletes are considered to be at increased risk of developing eating disorders than the general population (e.g., Sundgot-Borgen & Torstveit, 2004). A noted precursor for eating disorders is the concurrent presence of another psychiatric condition, particularly, mood disorders (e.g., Swanson et al., 2011). Therefore the first aim of the current study was to determine the prevalence of self-reported eating disordered, depressive and comorbidity symptoms in elite, developmental, and recreational endurance athletes against a sample of British non-athletes. The second aim was to examine demographic

correlates of such symptoms. A total 407 endurance athletes and 211 non-athletes completed the Eating Disorders Examination Questionnaire 6.0 (EDE-Q 6.0) and the Hospital Anxiety and Depression Scale (HADs). An overview of the prevalence of eating disorders, depressive and comorbidity symptoms among endurance runners and the general population will be presented. Furthermore, relevant correlates such as competition level, nature of endurance sport, gender will also be highlighted. Conclusions related to practical and theoretical implications will be addressed.

- **Personality traits and self-regulation of eating behaviors in dancers: The mediating role of internalization of norms of thinness**

Stéphanie Scoffier-Mériaux[1], Peter Lewton-Brain[2], Fabienne d'Arripe-Longueville[1]
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Dancers are at high risk of developing disordered eating attitudes (DEA), in part through internalized thinness norms (Sherman & Thompson, 2009). According to Shroff and Thompson's (2006) model, social comparison, internalization of the thin ideal and body dissatisfaction mediate the social influence on DEA. However, little is known about the contribution of psychological factors in this model. Although personality traits have been shown to be related to DEA (e.g., Cumming & Duda, 2012), the potential mediating role of internalized norms of thinness in this relationship has not been explored. This study thus aimed to fill this gap in the literature. The study included 180 intensively training dancers with an average age of 15.66 years (SD = 2.80). Following consensual agreements and protocols, the dancers completed an online survey including the Big Five, Internalization of Sociocultural and Thin-Ideal Standards in Sports (ISTIS) and self-regulation of eating attitudes in sport (SREAS). A two-stage hierarchical multiple regression analysis with SREAS as the dependent variable indicated that at stage 1 the personality neuroticism dimensions of the Big Five contributed significantly to the regression model ($R2=.121$, $F(174) = 4.81$, $p<.01$). Introducing the norm internalization variable explained an additional 13% of the variation in SREAS and this change in R^2 was significant ($R2=.252$, $F(173) = 9.73$, $p<.01$). Mediation analysis using Hayes's (2009) process showed that norm internalization totally mediated the relationship between neuroticism and SREAS. These results indicate that neuroticism may be an indirect risk factor of DEA through the mediating role of the internalization of thinness norms, which in turn suggests the need to consider both personal and social influences in Shroff and Thompson's (2006) model.

- **Making weight in Dutch competitive Judo. A study into the nature of making weight and its consequences on health and performance**

A.P. (Karin) de Bruin[1], Jessica S.I. Gal[2], Peter J. Beek[3]
[1]Karin de Bruin Sportpsycholoog, The Netherlands, [2]Jessica Gal Sportartsen, The Netherlands, [3]VU University Amsterdam, The Netherlands

Research has shown that eating disorders are significantly more prevalent in elite sports and that certain sport types are specifically at risk (Sundgot-Borgen & Torstveit, 2004). So far, studies into this area were mainly executed in aesthetic sports, endurance sports, and body-focused sports, and studies into weight-class sports seem to be an exception. Anecdotal evidence suggests that the repeatedly necessity for cutting weight could be damaging for the physical and mental health of these athletes and their performance. Therefore, more insight is needed into the antecedents and consequences of making weight in judo. The weight making questionnaire of Artioli et al. (2010) was translated, adjusted and validated. In addition, the Eating Disorder Examination Questionnaire (EDE-Q, Fairburn & Beglin, 1994) and Symptom Check List 90 (Arrindell et al, 2003) were included. Subsequently, a quantitative study was executed among 467 Dutch elite and non-elite competitive judokas of all age groups and weight classes, which allowed us to compare the extent and nature of weight making between different background characteristics. It was found that weight making is a very common behavior and often executed unsupervised, last minute and with extreme

unhealthy methods such as fasting and dehydration. Some athletes may lose more than ten percent of their weight before competitions and this weight cycling can repeat itself up to 30 times a year. The most extreme behaviors were found among male athletes, at the elite level, and in the senior age class. Relationships were found between extreme and unhealthy weight making and performance variables, as well as several health complaints, among others eating disorder symptomatology. Both intention to diet in a responsible manner and perceived behavioral control, variables derived from the Theory of Reasoned Action and Planned Behavior (Fishbein & Ajzen, 1975), seemed important variables to explain the variance of extreme and unhealthy weight making. Furthermore, many athletes and trainers believe that a lower weight class gives them more chances to perform successfully and therefore weight making is considered as standard. The unhealthy methods are often learned from other judokas and transferred from generation to generation and thus deeply embedded in judo culture. In sum, crucial factors have been identified that are useful for both early signalling of problems and identification of preventive strategies.

- **Experiences of weight pressure among competitive female figure skaters**

Dana K. Voelker[1], Justine J. Reel[2]
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Pressure to lose weight or maintain an ideal body has been identified as an important correlate in the development of disordered eating among aesthetic sport athletes (e.g., Krentz & Warschburger, 2011; Voelker, Gould, & Reel, 2014). Among female figure skaters, research indicates that sport-related weight pressures exist (e.g., Taylor & STE-Marie, 2001), but when skaters become aware of these pressures, how they are experienced, and methods of coping with them has not been explored. In depth interviews with 15 competitive female figure skaters ages 14 to 21 (mean = 17.3 years) were used to understand the lived experience of weight pressures specific to the figure skating environment. Skaters reported experiencing weight pressures in skating for the first time between ages 12 and 14, with one skater indicating this experience at age seven. Events that triggered this weight pressure awareness included receiving body-critical comments, learning advanced elements requiring height and speed, reaching a higher competitive level, and recognizing the existence of an ideal skating body through form-fitting skating dresses. The most salient source of weight pressure came from coaches who conducted weigh-ins, regulated skaters' food intake, or publicly scrutinized skaters' bodies. Other sources of weight pressure included parents, judges, skating partners, and a body-focused environment centered on appearance and fat-talk. These weight pressures were reported to impact skaters' decisions to engage in unhealthy weight management strategies and feel self-conscious about their bodies. Sport psychological principles were cited as a means of coping with skating-related weight pressures, including building confidence, social support networks, and body acceptance. These results suggest that weight pressure experiences are complex, multi-faceted, and deleterious for female skaters. However, the experience of weight pressures may be helped by equipping youth female skaters with coping skills rooted in sport psychology principles.

- **The impact of maltreatment on high performance athletes**

Emma Kavanagh
Bournemouth University, UK

Sport is generally viewed in positive terms, with participation leading to a variety of desirable outcomes such as improved health, a sense of achievement, teamwork, social inclusion, social capital and 'fair play'. It does, however, provide an environment within which the exploitation of power and authority may lead to the maltreatment of performers. Although a relatively recent addition to the sports research agenda, it is widely acknowledged that athletes can experience a variety of types of maltreatment in performance environments including sexual, emotional and physical abuse, neglect and bullying in both face-to-face and virtual environments (Brackenridge 1994, 2001, 2004; Kerr and Stirling 2008; Stirling 2009; Kavanagh and Jones 2014). Examples of such abuse include the abusive or coercive

control of coaches through the use of threatening language and comments made by coaches concerning the physical appearance and weight management of athletes resulting in maladaptive behaviours. Although awareness of the types of maltreatment athletes can experience is increasing, the potential impact of maltreatment is less well understood. Athlete narratives gained through in-depth interviews were completed in order to capture both male and female elite athletes' experiences of being maltreated within performance environments. The participants of this study were 12 elite athletes between the ages of 19 and 35 years (mean = 27 years), who had represented England, Wales and/or Great Britain within their chosen sport. A variety of sports and sports types were included within the sample. The findings demonstrate that maltreatment can have a significant negative impact on the individual both during the experience and in the aftermath. The immediate impact of maltreatment can be sub-categorised into emotional, psychological and performance related impacts. Such impacts included the emotional withdrawal of the individual, development of negative eating behaviours to gain personal control and an increase performance anxiety. In addition, maltreatment was seen to have a longer lasting legacy on participants. The findings suggest that maltreatment in sport is complex and multifaceted and that an individual's perception of impact is reliant on their personal appraisal of the situation. Maltreatment has the potential to pose a significant threat to athlete wellbeing, highlighting the importance of athlete safeguarding in order to protect individuals from harm.

S1.04: Symposium - Attention, visuo-motor control and performing under pressure: Implications for theory and practice

Chair(s): Arne Nieuwenhuys (Radboud University, The Netherlands), Johan Koedijker (VU University Amsterdam / InnoSportLab Papendal, The Netherlands)

Sports competitions and other high-pressure situations can elicit strong emotions that may interfere with attention, goal-directed behaviour and performance. Moving from theory to practice this symposium will (i) outline new theoretical considerations explaining the stress-performance relationship; (ii) present novel empirical findings which highlight the role of attention and cognitive resources; and (iii) discuss how sport psychological science may be used to help (elite) athletes and other professionals optimally prepare for their performances. After a short introduction by the chairs, our first speaker will outline a new theoretical model that seeks to explain the stress-performance relationship from the early unconscious evaluation of demands and resources through to the attentional disruptions that cause sub-optimal information pick-up in visuo-motor tasks (e.g., golf-putting, surgery). Following up on this account, the second speaker will present empirical data which shows how – besides attentional disruptions – (automatic) motivational responses to threat may directly interfere with goal-directed movement. After this, the third and fourth speakers will discuss recent work showing that the availability of cognitive resources may serve as an important buffer in the stress-performance relationship, as individual differences in working memory capacity and situational changes in self-control strength significantly influence distractibility and selective attention in several demanding sports situations (e.g., basketball, ice-hockey). To close the symposium, our final speaker will summarize insights and findings from each presentation and – drawing on experience as an embedded scientist in several elite sports programs – discuss how sport psychological science may be used to support elite athletes and other professionals performing in high-pressure situations.

- **Challenge and threat states, attentional control and performance: the development of a stress-performance model**

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The Biopsychosocial Model of Challenge and Threat (BPSM; Blascovich, 2008) suggests that how an individual responds in a stressful situation is determined by their evaluations of situational demands and personal coping resources. If the individual determines that resources are sufficient to meet the demands of the situation, then it is evaluated as a

challenge (challenge state). If resources are judged to be insufficient, then the situation is evaluated as a threat (threat state). The current talk presents data from a number of recent studies that have examined the role of impaired attentional control as an important underlying mechanism for explaining why a threat state tends to lead to poorer performance. These hypotheses were guided by the predictions of attentional control theory (ACT; Eysenck, Derakshan, Santos, & Calvo, 2007). Measures of in-vivo gaze control (using mobile eye tracking technology) revealed differences in focus of attention between challenge and threat states, with threat states being associated with impaired inhibition of task-irrelevant cues. For example, we have revealed that threat evaluations are associated with a disruption to gaze control during the performance of precision aiming tasks like laparoscopic surgery and golf putting. The talk concludes with the presentation of an integrative model that seeks to explain the stress-performance relationship from the early unconscious evaluation of demands and resources through to the attentional disruptions that cause sub-optimal information pick-up in visuomotor tasks.

- **When fear makes fast: avoidance effects in fast goal-directed movements**

Arne Nieuwenhuys[1], Leonie Oostwoud Wijdenes[2], Raoul Oudejans[3], Jeroen Smeets[3]
[1]Radboud University, The Netherlands, [2]University College London, UK, [3]VU University Amsterdam, The Netherlands

Strong emotions are believed to give rise to automatic motivational orientations that facilitate specific behavioural responses (e.g., approach and avoidance). To date, approach and avoidance responses have mostly been investigated in isolation of concurrent goals or interests. The aim of the current study was to test (i) whether a stressor that is known to reliably increase threat and anxiety (i.e., threat of shock) generates avoidance responses that are strong enough to interfere with goal-directed movement; and (ii) – if so – whether these avoidance responses would be based on subcortical or cortical processing. To this end, eleven participants performed a reaching task that required them to execute fast and accurate movements to a target. Using a within-subject design, participants could receive a mild electroshock at either the starting position or target location on 'threat' trials but not on 'no-threat' trials. Trial type (threat vs. no-threat) and location of the stressor (start vs. target) were indicated at 1500 ms (cortical processing likely) or 250 ms (cortical processing not likely) before trial start. A significant three-way interaction between trial type (threat vs. no-threat), location (start-target) and time (1500 ms vs. 250 ms), $F(1,10) = 13.46$, $p = 0.004$, $\eta 2 = .574$, showed that threat caused a significant decrease in movement times when participants moved away from the stressor ($p = .006$) but not when they moved towards the stressor ($p = 0.22$). Interestingly, these results were only observed in the 1500 ms condition ($p = 0.006$) and not in the 250 ms condition ($p = 0.34$). Movement times show that threat-induced avoidance may significantly interfere with goal-directed movement. Because effects were restricted to the 1500 ms condition it is suggested that rather than being completely 'automatic', threat-induced avoidance may involve at least some degree of cortical processing.

- **The link between working memory capacity and attention in sports-related performance**

Philip Furley, Daniel Memmert
German Sport University Cologne, Germany

Both experimental and differential psychological studies have established a close link between working memory capacity (WMC) and attention. Drawing on findings from the controlled attention theory of WMC (CAT; Engle, 2002) we report a series of studies investigating the relationship between WMC and attention in various sports situations. In a first study we show that WMC is positively associated with selective attention as a group of high WMC basketball players were superior at staying focused on task performance and blocking out external auditory distraction. In a second study we demonstrated that high WMC

ice-hockey players were more successful at adapting their tactical decision-making according to the situation instead of relying on prepotent inappropriate advice they got during a simulated team time-out. In addition to WMC being related to interference resolution, a third study showed that several measures of WMC are strongly related to measures of spatial breadth of attention, i.e. high WMC individuals are able to distribute their spatial focus of attention more widely. Given these findings, a fourth study explored the predictive value of WMC in creative decision making in soccer. Previous studies have reported both positive correlations—high WMC assumed to be associated with keeping a variety of novel information in a heightened state of activity—and a negative correlation between WMC and creativity—high WMC individuals focusing attention too effectively and not thinking outside the box. Presently, we do not find evidence that domain-general WMC was associated with creativity in a soccer-specific creativity task among experienced soccer players. Theoretical implications of the presented findings are discussed within dual-process theories of attention.

- **The effect of ego depletion on distractibility**

Chris Englert[1], Alex Bertrams[2], Philip Furley[3], Raoul Oudejans[4]
[1]University of Heidelberg, Germany, [2]University of Mannheim, Germany, [3]German Sport University Cologne, Germany, [4]VU University Amsterdam, The Netherlands

Athletes in a state of ego depletion do not perform up to their capabilities in high pressure situations (e.g., Englert & Bertrams, 2012). We assume that momentarily available self-control strength determines whether individuals in high pressure situations can resist distracting stimuli. In the present study, we applied a between-subjects design, as 31 experienced basketball players were randomly assigned to a depletion group or a non-depletion group. Participants performed 30 free throws while listening to statements representing worrisome thoughts (as frequently experienced in high pressure situations; Oudejans, Kuijpers, Kooijman, & Bakker, 2011) over stereo headphones. Participants were instructed to block out these distracting audio messages and focus on the free throws. We postulated that depleted participants would be more likely to be distracted and would perform worse in the free throw task.The results supported our assumption as depleted participants paid more attention to the distracting stimuli and displayed worse performance in the free throw task. These results indicate that sufficient levels of self-control strength can serve as a buffer against increased distractibility under pressure. Implementing self-control trainings into workout routines may be a useful approach (e.g., Oaten & Cheng, 2007).

- **Training visual attention in olympic athletes**

Johan Koedijker
VU University Amsterdam, The Netherlands

Drawing from experiences as an embedded sport scientist working with several Olympic programs, the current presentation aims to interweave insights on the relationship between visual attentional control and goal-directed behavior with the applied practice of improving visual skills of elite athletes. Two types of case studies will be presented of applied work with i) Olympic archers and ii) Olympic decathletes in high jump and discus throw events. For both cases the steps involved with setting up training programs that are specifically tailored to the demands of the athlete will be discussed. First, a description of athlete-specific visual control characteristics will be presented with the aim to identify potential suboptimalities in visual control strategies. Second, the effectiveness of different types of interventions aimed at improving or maintaining task-related visual control in practice and in competition will be discussed. Despite the abundance of empirical work on the relationship between visual attentional control and goal-directed behaviour, evidence-based visual skill training programs in elite spots settings are still relatively scarce. This presentation concludes by discussing the existing discrepancies between the current standing of empirical work and the needs and concerns of trainers and coaches to further their athletes' visuomotor skills, both in practice and competition. This will concern (i) the difficulties associated with measuring and

quantifying visual skill in actual sports settings; and (ii) the lack of a guiding theoretical framework on how visual skill should develop over expertise.

S1.05: Symposium - Sleep, dreams and athletic performance

Chair(s): Daniel Erlacher (University of Bern, Switzerland), Felix Ehrlenspiel (Technische Universität München, Germany)

Sleep has increasingly been recognized as an important resource for athletic success as it plays an important role for such relevant processes in sport as recovery, motor skill learning or physical fitness. In this thematic symposia a wide variety of the interplay between sleep and sport will be presented. In the first talk, an overview on sleep research and sleep disorders in athletes will be given which shows that sleep and exercise reveals a reciprocal interaction that involve different physiological and psychological factors. The second talk discusses the problem that sleep medicine requires extensive polysomnographic measures to gain insight in sleep quality which limits the wide use in athletes. A possible solution might be the measure of heart rate variability which shows a close correlation to EEG recordings during sleep. An important factor affecting sleep in athletes is thought to be the participation in competitions, however, beside anecdotal reports this observation still faces a lack of empirical research on the effects of anxiety on an athlete's sleep, whereas the third talk tries to fill this gap. After initial training of certain motor skills, and in the absence of any further physical practice, sleep can produce significant improvements in performance at later retesting. The fourth talk will show that the notion of sleep-related offline motor learning can been extended to gross motor tasks involving multi-joint limb movements of the upper as well as of the lower extremities. Finally, the last talk will provide an introduction to motor skill learning in lucid dreams which is a form of mental rehearsal where the dreamer can consciously rehearse motor skills in the dream state while being physically asleep.

- **Sleep disorders and elite athletic performance**

Henk Hassing
Medical Centre VieCuri Venlo, The Netherlands

Sleep has been identified by elite athletes, coaches and sports trainers as a critical component for training and competition (cf. Samuels, 2008). Still there are few good data in literature how sleep affects training and competition psychological states and performance and visa versa. The majority of sleep studies used non-athletic populations and total or partially sleep deprivation and showed increased sleepiness and impaired cognitive performance and mood. The effect of total sleep deprivation on elite athletic performance is largely inconsistent and also scarce. A large clinical review by Chennaoui, Arnal, Sauvet, and Leger (2014) showed that "sleep and exercise influence each other through complex, bilateral interactions that involve multiple physiological and psychological pathways." Physical activity can be beneficial in aiding sleep but sleep disturbances can also influence cognitive and physical performance and cause injuries. In our review we use the MESH Terms: sleep disorders and circadian rhythm and maintenance disorders, dyssomnias, sport, sports and athletic performance. We found 105 reviews and 1135 articles.Only 30 studies about prevalence of sleep disorders and elite athletic performance were found. Almost no RCT were seen. In our presentation we will give an overview of these studies. Several sleep- and sport specialists (e.g. Chennaoui et al., 2014) advise more joint-ventures between these disciplines and start future research with for example the following objectives: (1) Quantify athletes precompetitive sleep/wake schedule quality including how their precompetitive sleep quality compared with with a usual night's sleep quality. (2) Identify factors which contribute to the disruption of athletes' sleep on the night's prior to competition. (3) Asses whether perceived relative athletes' sleep quality and total sleep time on the nights' prior to competition influences athletes mood on the morning of competition. (4) Determine whether athletes' perceived relative sleep quality and total sleep time on the night before competition has any impact on their subsequent sporting performance.

- **Nocturnal heart rate variability measurements: A valid tool for monitoring sleep quality in Elite Athletes?**

David Herzig[1], Moreno Testorelli[1], Daniela Schäfer[1], Daniel Erlacher[2], Peter Achermann[3], Prisca Eser[1], Matthias Wilhelm[1]
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Home monitoring of sleep quality is highly desirable in athletes. Slow-wave sleep (SWS) is characterized by a high delta wave power of the electroencephalogram (EEG) and is an indicator of sleep quality and depth. The aim of this work is to identify heart rate variability (HRV) parameters that distinguish SWS phases as well as HRV parameters that reflect Delta power over the course of the night. Eleven elite alpine skiers (age 25±3 yrs) were recruited. In each athlete, HRV and EEG activity were measured in 2-4 nights. Power spectral density of the EEG was calculated and the delta frequency (DF) band (1-4.5 Hz) of 30 s segments was further analyzed. Time- and frequency-domain parameters of HRV were calculated for each 30 s segment over the entire night. Using data of the first 4 h of the night, Pearson correlation coefficients were determined between DF power (relative to total EEG power) and simultaneous HRV parameters, and also with HRV parameters shifted by multiple time lags (from -6 min to +1 min, at 30 s intervals). The highest correlation between HRV and EEG determined the optimal lag. Data of 15 nights (between 1 - 4 nights per athlete) was of sufficient quality to be included in analysis. Best correlation was found between DF power and the HRV high frequency power in normalized units. Median time lag between EEG and HRV was 285s (IQR 120s), implying that HFn.u. increased steeply at a mean 5 min before DF power increased. The time course of different HRV parameters is presented over the course of the night. This study highlights the close relationship between HRV and cortical activity during sleep. Parameters of HRV can reliably distinguish SWS phases and may have the potential to approximate sleep quality.

- **Sleep and anxiety in the week leading up to a competition**

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Recent studies show that athletes report that their sleep is deteriorated before competitions (e.g. Erlacher et al., 2011). Although external causes for sleep disturbances have been examined (e.g. jet lag), athletes report that “internal” factors such as nervousness play a critical role (e.g. Lastella et al., 2014). We therefore examined the relationship between changes in sleep and anxiety in the week leading up to a competition. A convenience sample of 85 male elite athletes from various team- and individual sports participated in the study. On 4 days before a competition (T1) and on the day of the competition (T2) they filled out two questionnaires immediately after waking up in the morning: A questionnaire assessing quantitative and qualitative aspects of the sleep in the previous night (SFA, Görtelmeyer, 1986) and a competitive anxiety questionnaire assessing somatic and cognitive anxiety (WAI-S, Ehrlenspiel et al., 2009). Data were analyzed using latent change score models. Athletes reported no changes in quantitative aspects of sleep, for example sleep duration, but reported decrements in sleep quality (e.g. increased sleep onset latency), and sleep quality ratings. They also reported increased levels of somatic anxiety. With respect to cross over effects, on the one hand, somatic anxiety at T1 appears to prevent decrements in sleep quality across the week. On the other hand, sleep quality at T1 prevent the development of cognitive anxiety. Results indicate that it is less the sleep itself but the perceptions related to sleep that are affected by the competition and the anxiety it increases. But favorable perceptions related to sleep also seem to prevent the development of anxiety. Thus, sleep quality could be a mediator in the development of anxiety symptoms. Sleep education could consequently help athletes with competitive anxiety.

- **Sleep-dependent motor memory consolidation from adolescence to adulthood**

Kerstin Hödelmoser
University of Salzburg, Austria

Despite profound experience supporting the hypothesis that sleep plays a functional role in the consolidation of fine-motor sequence learning, the impact of sleep on the consolidation of motor adaptation tasks as well as complex gross-motor learning is still debated. Furthermore, in children (7-11 years) it has been shown that there is a lack of sleep-dependent motor memory consolidation. We here examined effects of sleep and wakefulness on 3-ball-cascade juggling in adolescents (12-15 years) in comparison to adults (19-29 years). Juggling requires accurate bimanual arm movements, grasping and visual tracking in the periphery; thus constituting a complex visuo-motor skill. Similar to earlier results in children we found that sleep in adolescents does not lead to an increase but to a decrease in motor performance, whereas across the wake retention interval performance remained stable. This was exactly contrary to the findings in our adult population: juggling performance after sleep was stabilized but deteriorated after wakefulness. Whereas the sleep-dependent stabilization in the adults was positively associated with fast sleep spindle activity (13-15Hz) but negatively with REM sleep during sleep after training, no such relationships were revealed for the adolescents. This absence of overnight consolidation in adolescents can be interpreted in terms of diminished capabilities to integrate complex sensory and sensorimotor inputs into already existing motor representations especially at an early stage of implicit motor learning (also see Wilhelm et al., 2012). Astonishingly, data contradicting the classical sleep-dependent memory consolidation hypothesis seem to be accumulating, particularly when focusing on motor learning and early development.

- **The lucid dreaming athlete**

Daniel Erlacher[1], Tadas Stumbrys[2], Melanie Schädlich[2], Michael Schredl[3]
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Mental practice is the cognitive rehearsal of a physical activity in the absence of overt physical movements (Richardson, 1967). It is a well-established technique in sports and several meta-analyses demonstrated that mental practice significantly improves performance, albeit to a smaller extent than actual physical practice. A novel and relatively unknown type of mental rehearsal is motor practice in lucid dreams (Erlacher, 2007). Lucid dreams are dreams in which the dreamer is asleep but aware that he or she is dreaming and often can influence the dream plot (LaBerge, 1985). This ability to be aware in the dream state and deliberately perform actions while physically asleep opens up opportunities to use lucid dreams for sports practice, for example, to consciously rehearse specific motor tasks without waking up (Tholey, 1990). In this talk, anecdotal reports, questionnaire surveys, as well as qualitative and quantitative studies will be presented which underpin the possibility of practice in lucid dreams. For example, in one experiment it was shown that practice of a sequential finger tapping task during lucid dreaming led to superior performance as compared to mental (visual & kinaesthetic) imagery, a physical execution and a no-practice control condition. While only a limited number of athletes have lucid dreams on a frequent basis (Erlacher et al., 2011-2012), there is a wide range of techniques that can be used for lucid dream induction (Stumbrys et al., 2012), yet none of them has been verified to induce lucid dreams reliably and consistently. This is one the main challenges facing lucid dream research in general. Future studies should establish reliable techniques for lucid dream induction and examine the effects of lucid dream practice in controllable sleep laboratory conditions.

S1.06: Symposium - Relevance of psychosocial and environmental preconditions of being physically active in different populations

Chair(s): *Petra Wagner (University of Leipzig, Germany)*

Children and adults could benefit of regular PA both in physical and psychological development. However, sedentary lifestyle and insufficient physical activity are common for younger as like as for older people or for special groups like obese people. There is a need to increase the number of people who reach the recommendations for physical activity and reduce the time of sedentary lifestyle. Theories and models are useful to understand and to explain individual's behavior change and to develop interventions. Ecological Models have received strong attention during the past two decades. These models focus on the environmental and psychosocial influences on PA. This symposium aims to explore the contribution of selected psychosocial and environmental preconditions on PA. The first presentation focuses on the relationship between psychosocial preconditions, stages of change of PA and health outcomes in a sample of young adults. Secondly, the relevance of perceived built environment for taking up cycling in an adult sample will be reported. The next two presentations deal with intervention studies on the modification of selected preconditions of the motivational or volitional process. One has a focus on planning strategies and the effect on psychosocial determinants. The other presentation describes the effects of an autonomy-supportive coaching within an exercise program.

- **Psychosocial correlates, stages of change for physical activity and health outcomes in a cross-cultural young adult sample**

Yanping Duan[1], Walter Brehm[2], Petra Wagner[3]
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A successful transition from late adolescence to adulthood is essential. Physical activity (PA) can support this process and lead to positive health outcomes. The change in PA from inactive to active stages is influenced by psychosocial correlates. However, the relationships among psychosocial correlates, stages of change for PA and health outcomes among late adolescences in different cultures haven't been systematically tested. The Four Steps from Inactivity to Activity Model (FIT) is useful to understand the relationships described above. The FIT model consists of (1) self-reported PA behavior; (2) a stage algorithm to assign individuals into six stages of PA; (3) ten psychosocial correlates including outcome expectations, affective attitude, barriers, self-efficacy, body-concept, plans, intrinsic motivation, activity emotions, assessment of activity situation, and social support; and (4) five health outcomes including fitness, subjective well-being, health satisfaction, physical complaints, and BMI. Hong Kong (n=404) and Germany (n=366) university students, aged 17-24 years, completed questionnaires that assessed PA quantity, intensity, type and stages of change. Ten psychosocial correlates and five health outcomes were also measured. Barriers and intrinsic motivation were the critical psychosocial variables related to stages of change. Specific planning was more important for Hong Kong students' stage progression within inactive stages. Competitive or enjoyable PA programs were more effective for male students moving from inactive to active stages. The link between stages of change for PA and health outcomes (i.e., fitness, health satisfaction) was well established. Public health researchers should conduct effective psychosocial interventions that motivate young adults to engage in PA for positive health outcomes.

- **Predicting uptake of cycling for transport in adults. Attitude as a moderator of the perceived environment**

Sylvia Titze[1], W.J. Brown[2], Pekka Oja[3], W.J. Stronegger[4]
[1]University of Graz, Austria, [2]University of Queensland, Australia, [3]UKK Institute of Tampere, Finland, [4]Medical University of Graz, Austria

Cycling for transport represents an opportunity to regularly integrate moderate-intensity physical activity into everyday life. Little is known about the factors that predict uptake of this type of cycling in adults. Purpose of the study is to investigate the social-ecological-model's predictors of taking up cycling. Telephone interviews were used to ask a representative population sample (N=1000) of adults (16-60 years) about cycling for transport, and about individual incentives and barriers for cycling, as well as distance, social support, and built environmental characteristics along the route. They were also asked to report socio-demographic characteristics and height and weight. Four years later they were contacted again and were asked the same questions. Potential predictors for the adoption of cycling were examined using logistic regression models. Out of the 1000 initial participants, 293 (29.3%) (mean age 37.1 years, SD=12.2; mean BMI 23.5, SD=3.8) completed the full interview at both t1 and t2 and were included in this analysis. The majority were stable non-cyclists (n=170, 58.1%), 61 (20.7%) were stable cyclists, 40 (13.7%) adopted and 22 (7.6%) relapsed from cycling as a means of transport. After controlling for gender and age, the strongest baseline predictors of adopting cycling in this four year period were the perceptions that cycling is a highly flexible transport mode (OR=4.1, CI=1.5-11.6), and that it causes little physical discomfort (OR=4.3, CI=1.6-11.6). However, after stratification of the participants into those with negative and positive attitudes towards cycling the built environment becomes a statistically significant predictor of uptaking cycling. Individual perceptions about comfort and flexibility were strong predictors of taking up cycling. These findings suggest that 'marketing' cycling for transport could focus on the ease and convenience of this mode of transport. However, the findings also demonstrate that the built environment is associated with cycling, depending on the participants' attitude towards cycling.

- **One-year follow-up of a multidisciplinary intervention program for obese adults**

Wiebke Göhner[1], Nicole Grützmacher[2], Petra Wagner[2]
[1]Catholic University of Applied Sciences, Germany, [2]University of Leipzig, Germany

We evaluated the effects of a one-year multidisciplinary group intervention for obese adults. Contents of the program were psychological training (12 units/90 minutes), information about healthy diet (7 units/90 minutes), and physical exercise program (45 units/60 minutes). Special focus lay on the volitional aspects of behaviour change (action and coping planning); these are known to be the key components of health behaviour change. Obese persons were invited by Germanwide public calls to participate in the ambulant intervention. Questionnaires (psychological and behavioural variables, weight) were completed at baseline, at 6 months follow-up and 1 year follow-up. 35 obese persons participated in the intervention. Mean BMI at baseline was 34.86. At 12 months follow up, participants lost substantial weight (BMI at t3: 32.34; t-test t1-t3: $p<.005$). Results yielded that leisure-time physical activity increased significantly from 4.69 hours/week up to 6.48 hours/week (t1-t3: $p<.05$); whereas physical exercise (sport) increased only between the first two measurements (t1, t2, t3: 1.58, 2.79, 1.51 hours/week, resp.); t1-t3: n.s.). The intervention group showed stable high values with regard to motivational variables over the whole year (self-efficacy, intentions, positive consequence expectations; stable low values for negative consequence experiences) and significant increasing values with regard to volitional variables ($p=.03$, $p<.001$, resp.). The results yield significant increasing (decreasing) values for the variable positive (negative) consequence expectations ($p<.03$; resp.). The results support the effectiveness of an intervention with focus on volitional aspects in obese patients. This is in line with actual research results that emphasizes the differentiation between motivational and volitional behaviour change techniques.

- **Health literacy in exercise programs**

Elke Knisel[1], Helge Rupprich[1], Andreas Heissel[2]
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Health literacy is defined as the degree to which people have the capacity to obtain and understand information to make health decisions. Three levels of health literacy are illustrated: (1) Functional literacy refers to the transmission of information about e. g. physical activity or nutrition; (2) interactive literacy implies the development of personal and social skills to adopt health-related behaviour and (3) critical health literacy indicates advanced cognitive skills connected with personal empowerment to critically analyse health information, to define self-determined goals and taking action in various situations accordingly. Nutbeam pointed out that the achievement of the third level refers to self-determination and autonomy which are outcomes of psychological interventions in exercise programs. We adopted a quasi-experimental design with group (psychological intervention, control) and session (pre-test, intervention, post-test, and follow-up-test). Young people at the age of 8-14 years (N=40) received a 6-month (20 sessions) exercise program with a psychological intervention including an autonomy supportive coaching style implemented by the coaches and sandwiched between pre-test and post-test. All participants (N=92) completed the German version of the Basic Needs Satisfaction Scale Sport and Exercise. Participants in the intervention group perceived their autonomy as moderate in the post-test and the follow-up-test. However, the psychological intervention failed to develop a high autonomy, as both groups show moderate perceived autonomy from the pre-test to the post-test. Young people can acquire autonomy using a psychological intervention. However, research identifying the extent they achieve critical health literacy is required to implement an autonomy-supportive coaching into exercise programs.

S1.07: Symposium - Psycho-social processes in competitive association football

Chair(s): *Erkut Konter (Dokuz Eylül University, Turkey)*

Association football is regarded the most popular sport in the world. Despite sharing several psychological similarities with other sports, football has many unique features in need of specific types of psycho-social investigation and intervention (e.g., courage, prosocial and antisocial behavior, intrinsic and extrinsic motivation, talent detection and development, homo advantage and ethical motives of leaders in competition). This symposium represents contemporary research examples from four Nations (i.e., Turkey, Germany, Russia, and The United Kingdom) as regard with psycho-social processes in competitive association football. Each study seeks to uncover particular psycho-social processes within this sport, with significant implications for athletes (studies 1 and 2), coaches (studies 3 to 5), and officials (studies 2 and 3). The first study examines courage in relation to prosocial and antisocial behaviours in male association footballers (n = 176) indicating significant differences (e.g., players with higher points of prosocial behaviors towards their opponents have higher sport courage scores). Study two investigates the reward system in association football, specifically, the impact of the “three-point-rule” on reducing the fraction of draws. Empirical results are compared with theoretically deduced draw ratios from 24 countries during 20 seasons. Matches yielded a slight reduction in the ratio of draws. Study three takes an applied perspective and explores the talent identification system in Russia based on observations, interviews and psycho-diagnostics. Study four investigates home advantage in competitive association football. Archival data of 5,904 games within high level youth association football and interviews from 199 youth players concerning home and away games will also be presented. The final study, examines implicit transformational leader authenticity and leader ethical integrity as predictors of the coach (n = 22) motive – athlete (n = 82) commitment relationship. Findings suggest that implicit transformational leader authenticity and perceived coach ethical integrity can significantly predict footballer commitment.

- **Courage of association football players in relation to prosocial and antisocial behaviors towards their team mates and opponents**

Erkut Konter
Dokuz Eylül University, Turkey

The exact nature of the relationship between courage and prosocial and antisocial behaviors in association football are still uncovered. More research is needed regarding how association football courage and antisocial and prosocial behaviors are involved in performance. Therefore, purpose of this study was to research courage of male association football players in relation to their prosocial and antisocial behaviors towards their team mates and opponents. Data were collected from 178 male soccer players aged 14 to 35 (M=20.96 ± 4.78 yrs; 119 amateur, 54 professional). Association football players administered the "Sport Courage Scale-31" (Konter & Ng, 2012) and adapted version of the "Prosocial Antisocial Behavior in Sport Scale" (Balcikanli, 2013; Kavussanu & Boardley, 2009). These scales were administered to association football players with the personal information form to collect data. Collected data was analyzed by various parametric and non-parametric tests, and revealed a number of significant ($p<.05$) and non-significant differences between courage score of association football players and their prosocial behaviors towards teammates (players with lower points of prosocial behaviors towards their opponents have higher Venturesome score), prosocial behaviors towards opponents (players with higher points of prosocial behaviors towards their opponents have higher Mastery, Determination, Assertiveness, Self-Sacrifice Behavior and Total Courage Scores than lower ones), antisocial behavior towards team mates (No Significance) and antisocial behavior towards opponents (players with higher points of antisocial behaviors towards their opponents have higher Mastery, Assertiveness, Venturesome, Self-Sacrifice Behavior and Total Courage Scores than lower ones). More research is needed to have more conclusive results.

- **Why the three-point rule failed to sufficiently reduce the number of draws in association football:**

Dennis Riedl, Andreas Heuer, Bernd Strauss
University of Münster, Germany

Incentives guide human behavior by altering the level of external motivation. We apply the idea of loss aversion from Prospect Theory (Kahneman & Tversky, 1979) to point reward systems in association football and investigate the controversial impact of the "three-point-rule" on reducing the fraction of draws in this sport (Moschini, 2010). Making use of the Poisson nature of goal scoring (Heuer & Rubner, 2010), we compared empirical results with theoretically deduced draw ratios from 24 countries with 20 seasons each (N=118,148 matches). The rule change yielded a slight reduction in the ratio of draws, but despite adverse incentives, still 18% more matches ended drawn than expected ($t(23)=11.04, p<.001, d=2.25$), in line with Prospect Theory assertions. Alternative point systems that manipulated incentives for losses yielded reductions to or beneath statistical expectation. This provides support for the deduced concept of how arbitrary aims, like the reduction of draws in the world's association football leagues, could be more effectively accomplished than currently attempted.

- **Youth association football in Russia: System of psychological selection**

Natalia Kostikova[1], Lira Ulyaeva[2]
[1]Moscow City Teacher Training University, Russia, [2]FSMC FMBA Moscow, Russia

The main purpose of our research is to determine what practical use of psychological search and selection in modern association football could be in comparison with conventional ways of selection, which Russian professional football teams currently use. We have conducted a psychodiagnostic research of 128 football players aged 14 to 17 in youth sport schools run by CSKA (professional football team from Moscow, Russia) and Saturn (professional football team from the city of Ramenskoye, Moscow region of Russia) between the years of 2008

and 2013. We have used following main instruments: “diagnostics of an individual on his motivation to success and to avoid failure” (Ehlers,1965), “diagnostics of readiness for risk” (Schubert, 1930), “the study of nervous system strength relative to the excitation characteristics and performance” (Ilyin, 1975), “determination of individual’s direction” (Bass, 1985), “temperament type determination technique” (Eysenck, 1957), “multifactorial study of individual №105” (Cattell, 1970), “diagnostics of individual predisposition to conflict behavior” (Thomas,1974). Based on these observations, we have drawn a psychological portrait of a promising football player. 11% of those who showed high results due to the profile of the perspective player were chosen to continue their careers in the main team, 61% of them continue their professional career now. In conclusion, research showed that our system of psychological search and selection are sufficient in approval of contemporary selection of association football players which seems better way of identification of talent than conventional methods.

- **Home advantage in high-level youth football - From archival data to the perspective of players**

Kathrin Staufenbiel, Dennis Riedl, Bernd Strauss
University of Münster, Germany

Home teams win 60% of decided games. This home advantage is more relevant in football than in other sports (Jamieson, 2010). However, not much is known about home advantage in youth leagues. Further, the causes of home advantage are unresolved. There is a shortcoming of research concerning the psychological processes (e.g. learning) of competitors (Allen & Jones, 2014; Carron, Loughhead, & Bray, 2005). We examined home advantage in youth football in two studies. First, we investigated the extent of home advantage in the highest football leagues of the age groups U9 (under 9 years), U11, U13, U15, U17 and U19 in Germany. Altogether, N = 5.904 games of the seasons 2011/2012 and 2012/2013 were investigated. In all age groups but the U9 a significant home advantage was found (altogether M = .55, SD = .02), that was smaller than the home advantage of the German Bundesliga (M = .59). In the second study N = 199 youth players of the same leagues filled in a questionnaire on home and away games. Generally, youth players prefer to play at home and believe to play better on the home field. Their estimation of the extent of home advantage is close to what was found in archival data. Further investigations on the athletes’ learning concerning home and away games could lead to an understanding of the psychological processes underlying home advantage.

- **Coach ethical virtues and integrity as predictors of amateur football participants’ sport commitment.**

John Mills
University of Birmingham, UK

Research examining the ethical intentions of leaders is lacking (Christie, Turner & Barling, 2013; Barling, Turner, & Christie, 2008). Applying Bass and Steidlmeier's (1999) transformational lead¬ership framework, indirect transformational leadership ethical virtues and direct leader ethical integrity were assessed as predictors of the coach motive - athlete commitment relationship. Adult Coaches (n = 31) primarily involved in football (e.g., Association Football, Gaelic Football, Rugby League and Union etc.) completed the transformational leadership ethical virtues - implicit association test (Mills, Oliver, & Boardley, 2015.) and the leader ethical integrity scale (Craig, & Gustafson, 1998), while their athletes (n = 122) completed the athletes' opinion survey (Scanlan et al., 1993) and the perceived leader ethical integrity scale (Craig, & Gustafson, 1998). Regression analyses indicate that of the three predictors (i.e., the transformational leadership ethical virtues, perceived leader integrity, and self-reported leader integrity) only the TLEV-IAT ($F(1,28)=8.02$, $p =.01$) predicts athlete commitment (Beta = .48, p = .01); explaining 20% of the variance – self-reported leader ethical integrity and perceived leader integrity were non-significant. In sum, the

automatic transformational ethical virtues of coaches appears to predict reported athlete commitment within team sports.

S1.08: Symposium - Psychological analysis of trail and ultra trail running races using a situated activity research program

Chair(s): Denis Hauw (University of Lausanne, Switzerland)
Discussant(s): Brett Smith (Loughborough University, UK)

For the last ten years, trail races have become very attractive for a wide range of athletes, from elite athletes to recreational runners. Trail and ultra-trail races are completed over the space of multiple hours or days, covering distances that range between 50 km and 330 km in a single stage on natural tracks. Despite the recent research in physiology, sports psychology has provided few complementary studies investigating how these athletes are able to perform trail running for such long periods and with very limited sleep time. The aim of this symposium is to present the recent studies on trail and ultra-trail racing that are included in a wide situated activity research program (Hauw, 2009). These studies analyzed critical elements involved in the performance of trail races (i.e., pushing oneself to the limits, renunciations, runner-equipment interactions). They also used and crossed various methodological approaches (i.e., narrative, ecological dynamics, course of action) (Bruner, 1989; Davids, Button, Bennett, 2008; Theureau, 2008) compatible with the hypothesis that performance results from several levels of interaction between athletes and their situations. After a brief presentation of the theoretical hypothesis shared by these studies, the first paper presents the contents and problems of the activity emerging from the “Raidlight community company trail runners” based on their blog posts and forum discussions. The second paper presents an analysis of the dynamics of psychological energy during “Le Tor des géants” ultra-trail race. The third details a psychological analysis of the renunciations during “La diagonales des fous” ultra-trail race, and the last one offers an analysis of the dynamic interactions between the individual and his/her backpack in trail running. Last, a discussion on the complementarity of these approaches for research in sports psychology is proposed.

- **Analysis of the activity of Raidlight community trail runners based on their blog posts and forums discussions contents**

Nadege Rochat
Raidlight Outdoor lab., France

The use of blogs and forums in order to share experience is becoming an inherent practice in trail runners’ daily activity. The aim of this study was to investigate what fraction of trail running activity can be extracted from these contents. To do so, we used narrative approaches to characterize these kinds of content and define in what dimensions they might portray runners’ activity and their lived experience. Although these two online tools allow sharing experience about trail running practice, each of them has a distinct role: while blogs provide a space in which the runners can have narrative activity about a race experience (e.g. post-race accounts), forums are used to create contact with other runners in order to debate or obtain information about a specific topic or issue encountered in their practice. We observed that some blog contents have similar characteristics with a self-confrontation interview used in the course action methodology. Indeed, runners describe chronologically the events that marked their lived experience during the achievement of their race and/or withdraw. Forums were used to identify concerns and problems emerging in trail running practice about various topics, such as use of equipment, training, and injuries. Primary results of blog posts analysis reporting abandons highlight some typical dynamic patterns in the process that leads to withdraw. Primary results of forum posts analysis report issues mentioned by the runners about the backpack bouncing while running: this issue will be the objet of further ecological dynamics studies. These two sources of data collection are used to complete other sources of lived experience data, such as self-confrontation interviews used in the methodological course of action framework. This study provides a innovative

methodology for processing narrative data to document the conscious part of the trail runners' activity and their lived experience in trail running.

- **Analysis of the psychological adaptations by trail runners: Understanding renunciations**

Roberta Antonini Philippe[1], Michaël Vauthier[2], Hauw Denis[1]
[1]University of Lausanne, Switzerland, [2]ESPE La Réunion, France

This study analyzed expert trail runners in a competitive situation (Grand Raid de la Réunion, 2014). Based on the course of action approach, the aim of this study was to analyze runner's activity during the race in order to set their global activity in particular by renunciations (in 2014 the rate of abandon reached 50%). We proceeded with a race data collect through an interview with the runners to provide a reconstruction of the past activity traces. The data processing consisted in coding the self-confrontation interview to identify the elementary units of meaning (EUM) and their components, then grouped together by sequential or serial links. Materials are gathered from 21 runners participating at one of the three races of the Grand Raid de la Réunion (67, 93 and 172 km). Results showed that the renunciation is a progressive construction based on various steps: feelings of physical problems, progressive emerging thoughts in relationship with the difficulty of the race situation, confirmations of the harshness of the situation and at the end the appearance of renunciation. These steps corresponded to various interpretants that occurred during trailers' courses of action. They characterized how they lived the inefficiency of their attempts to finish the trail. This study suggests a new qualitative analysis of performance in a long lasting efforts with the aim to propose some new recommendations.

- **The dynamic of psychological energy during ultra-trail running**

Denis Hauw, Roberta Antonini Philippe
University of Lausanne, Switzerland

Running an ultra-trail race requires careful planning and special effort. The athletes have to set a particular speed in order to be under the watershed defined by the race organization and to be able to finish the race. They also can use nutritional supplements during race and choose the time and length of time for sleeping. This organization is set up in relation to energy expenditure that is grounded in the expectation of finishing the race. Although runners know that energy will be nearly depleted during the race, they do not know exactly how the process will occur. This presentation is an analysis of the psychological activity in relation to this question of energy expenditure via a case study of a top athlete in an ultra-trail running race. Data were collected from secondary sources and self-confrontation interviews. They were coded using course of action methodology, which consists of identifying units of activity and ranking them in patterns. They were then analyzed in relation to the energy they were associated with for the athlete. Results indicated the emergence of three patterns of activity: (a) running without physical problems focusing on the management of his own race, (b) adapting to emergent tiredness demanding specific reorganization of the activity, and (c) experiencing tiredness and difficulties of adaptation. While some patterns reduced the energy expenditure, others renewed the effects on energy or increased the emptying process. These results suggested that the athlete enacted the energy components of the situations in which he was living by modifying their sense making. And thus athletes' activity is not only a coping process in relation to the inevitable energy expenditure, but also a more proactive management of energy. These results are then discussed in relation to coping strategies and mental toughness research.

- **Behavioural dynamics in trail running: interaction between individual and equipment**

Ludovic Seifert
University of Rouen, France

Research in the field of motor control following Ecological Dynamics framework has emphasised continuous organism-environment interactions through the circular coupling between perception and action, as the relevant scale of analysis for understanding human behaviours in performance environments (e.g. an athlete-performance environment relationship). Ecological Dynamics theory seeks to explain and predict how patterns of coordination emerge, adapt, persist, and change in humans when they interact with various constraints in order to satisfy task-goals. In this talk, it is exemplified by studying the adaptive coordination between an athlete and his equipment (e.g., backpack) during trail running in order to analyze how an athlete perceived the tightness of his backpack on his back, and thus adapted his hip vertical acceleration in order to run efficiently (i.e. best compromise between running speed and comfort relating to the backpack oscillation). For that, the optimum values and the amplitude of the vertical acceleration in the Earth reference were compared between the hip and the backpack by using two inertial measurement units. Then local correlation was computed to assess the cycle-to-cycle coupling between the vertical acceleration of the hip and the backpack. Additionally, we have interviewed the athlete right after running in order to explore how he has perceived the task constraint (i.e., tightness of the backpack on the back). The interplay of such phenomenological and behavioral data helped to interpret the perception-action coupling relating to the hip-backpack coupling time-series during running. Our results showed that the level of backpack tightness impacted on the coupling between the hip and backpack vertical acceleration and help to interpret the relation between comfort and performance. Finally, this pilot study provided new insights regarding perception-action coupling when an individual interact with sportive equipment and opened new approach of research regarding motor control in ecological context of performance.

IW1.1: Invited Workshop - Supervision as an intimate relationship: The core business of training sport and exercise psychologists (Max 24 participants)

Mark Bille Andersen
Halmstad University, Sweden, Australia

This workshop will include a brief didactic introduction to the history and models (e.g., cognitive-behavioural, phenomenological, psychodynamic) of supervision used in the training of sport and exercise psychologists along with transtheoretical stances that form foundations of supervision regardless of the specific model used (e.g., mindfulness in supervision, the working alliance). Supervision holds a central position in the education of practitioners and has many features of other long-term intimate relationships (e.g., coach-athlete, teacher-student, psychologist-client). The quality of this professional relationship has the potential to profoundly influence sport and exercise psychologists' development. After the introduction, there will be a role-play demonstration of a supervision intake session. The workshop participants will then break into small groups to discuss what they observed and report back to the whole group on what they discussed. Supervision intakes are opportunities to come to mutual agreements on the processes and goals of supervision so that expectations do not operate in default, and possibly conflicting, modes. In the spirit of "see one, do one," the workshop participants will break into groups of three (supervisee, supervisor, and observer) and role-play a supervision intake. Each group will first come to a consensus about which model of supervision they will be using and then proceed from there. After the intake, participants will discuss what happened and then report back to the whole group. Time permitting, the workshop organiser will then demonstrate what an advanced supervision session looks, sounds, and feels like from a psychodynamic and mindfulness perspective with whole-group discussion to follow. At the end, there will be a group discussion and evaluation of what was accomplished during the workshop. The participants will also be

supplied with a reading list of research articles and book chapters on supervision in sport and exercise psychology.

W1.1: Workshop - Athlete-centered coaching: A solution-focused approach

Elaine Cook, Gretchen Kerr
University of Toronto, Canada

This applied and experiential workshop will provide participants with the opportunity to learn the principles of solution-focused coaching (SFC). SFC is a unique, future-focused, goal directed approach that concentrates on a client's strengths, resiliencies and competencies (Trepper, Dolan, McCollum & Nelson, 2006). There is a growing body of evidence-based SFC emerging in the literature (Visser & Butter, 2008; Grant, 2006; Szabo & Meier, 2009), especially with regard to sport. For example, positive results have been seen with sport psychology (Høigaard & Johansen, 2004), golfer's putting skills (Bell, 2009), and the Chinese national diving team (Zhang, Liu, Franklin, Chen & Kim, in press). The premise of this workshop is based on the understanding that SFC skills will help sport coaches develop coaching behaviours that align with athlete-centered practice and philosophy. Decades of research point to the coach-athlete relationship as one of the most influential in a young person's life (McCallister, Blinde, & Weiss; Becker, 2009; Kerr & Stirling, 2008; Brake, 2012). Yet the prevalence of harmful coaching behaviours (Cook & Dorsch, 2014) in youth sport suggests there is a disconnect between coach learning, behaviour and philosophy, while various coach learning situations and practices have done little to resolve the problem (McCullick et al., 2009). Through interactive group work, participants will learn SFC skills that support and encourage athlete/coach collaboration, power sharing, athlete autonomy, decision-making, and well-being, all fundamental principles of athlete-centered practice (Jenny, 2012; Penney & Kidman, 2014). Participants will receive a workbook with summary notes of important principles and space for personal notes. It has been argued that there is a difference between great coaches and effective coaches - great coaches are athlete-centered (Becker, 2009; Gearity, 2009). This workshop will demonstrate in a practical manner how SFC can help effective coaches become great.

W1.2: Workshop - To coach or not to coach: Application of GROW model into sport setting

Tomáš Gurský[1], Michala Bednáriková[2]
[1]*Top-Fit, sport-psychological counselling, Slovakia;* [2]*Pro Performance, private consultancy, Slovakia*

Coaching belongs to many approaches which professionals can use to develop the abilities of their clients. Although the concept of coaching originated in the sport environment (Whitmore, 2009), over the last few decades it has been developed and used mostly within the business area (Szabo & Meier, 2009). One of the basic premises of being able to use a coaching approach properly is one's belief in one's clients' potential (Atkinson & Chois, 2007; Whitmore, 2009). If this precondition is achieved then the space of coaching application is broader than one would expect. Presenters of this workshop use the coaching approach within two different settings. In the first one, sport coaches are taught this method to use it further with their athletes as an alternative to the directive approach. Since 2011 the seminar attended almost 60 coaches, parents and psychologists. In the second one, this technique is used during sport psychology interventions as a substitution for classical counseling work. The GROW model was developed by John Whitmore (2009). GROW is an acronym of the interview phases in which one sets Goal, describes Reality, finds Options and shows the Will for action steps. In the first part of the workshop we will introduce to participants a necessary theoretical framework and then let them practice when and how to use the GROW interview in the "face-to-face" situations. We will use methods of coaching circles and small group discussion whereas space will be created to practice using the right questions at the right time. Our main learning objective will be to provide participants with a method that they can use in different settings. Our target audience will be broad as one can use this technique in

developing sport or mental techniques of their athletes, guiding their supervisees, or even in a teaching setting.

W1.3: Workshop - Brief brain-based coaching to prepare athletes mentally for peak performance

Sylvia Kurpanek
Palo Alto Institute for Systemic Coaching, United States of America

How can you help athletes avoid leaving their best performance in the locker room but instead successfully deploy their skills in competition? Mental strength is a key factor in athletic performance and needs to be integrated in training for individual athletes and teams to ensure skills and (mental) resources to be available the split-second it counts. Many of us learn the hard way that in most cases it is not possible to “talk ourselves out of” an emotion, a mental block, or self-doubts. This simply has to do with the way our brain works and responds to external stimuli. As one of the evolutionarily oldest parts of our brain, the limbic system, which plays a key role in performance, is not accessible through language, logic and rationale but needs to be addressed in a different way. Therefore, other ways to get through need to be sought. This workshop will cover three ways to effectively include the limbic system in the work of psychologists and coaches. Attendees will learn how the emotional brain determines athletes’ performance and why it is important to include the limbic system in athletes’ mental coaching pushing past their inner limits and achieving the desired results. The goal is to mentally and emotionally process and overcome performance anxiety, past defeats, criticism and/or injuries. The session will cover the key role that the limbic system plays in athletic performance. Participants will be guided through three exercises of bilateral brain hemisphere stimulation to reduce stress and overcome mental blocks. The presenter will do a live demonstration with one or two attendees.

Session 2 – Wednesday 15 July, 2pm-3.30pm

IS2.1: Invited Symposium - Stress, recovery and performance

Chair(s): Michael Kellmann (Ruhr-University Bochum, Germany)

In sports, the importance of optimizing the stress-recovery cycle is underestimated. Effective recovery from intense training loads is often the difference between successful performance and failure in sport. In the past decades, athletes, coaches, and sport scientists have been creative and energetic in finding new ways to raise the quality and optimize the frequency of training for athletes. These efforts have consistently come up against the limiting factors of overtraining, fatigue, injury, illness, and even burnout. Physiological and psychological limits dictate a need of research on avoiding these syndromes, maximizing recovery, and successfully negotiating the fine line between high training loads and excessive loads. Although, the importance of competently dealing with stress and regaining an adequate working state for consistent performance is widely recognized, thorough applications of inventories and interventions is not at its boundaries. While sport performance can be one indicator, the prevention of health associated risks could be another important aspect within the framework of recovery research. Regardless of the field of application, time is a scarce resource and the potential of designing recovery periods according to one's favor is promising. Therefore, the goals of the symposium "stress, recovery and performance" are fivefold: 1) to provide an overview and recommendation of stress and recovery assessments for research and for monitoring in the applied field (first presentation); 2) to highlight the importance of monitoring stress and recovery during a 4-week training camp (second presentation); 3) to evaluate different psychological recovery techniques on performance and its impact on applied practice (third presentation), 4) to address the long-term effects of stress and underrecovery on the career of junior athletes, and 5) to introduce pathways to enhance the engagement in recovery in the applied field (fifth presentation).

- **Measuring stress and recovery in sport**

Michael Kellmann
Ruhr-University Bochum, Germany

Balancing training stress and recovery is essential to achieve optimal performance, and to avoid overtraining. Underrecovery often leads to poor psychological and physical outcomes, including overtraining and burnout. Specifically, a prolonged imbalance of stress (including competition, training, and surrounding events outside of sport) and recovery, in addition to an increase in the intensity and duration during training, can result in overtraining. Interindividual differences in recovery potential, exercise capacity, non-training stressors, and stress tolerance may explain the different degrees of vulnerability experienced by athletes under identical training conditions. The key is to evaluate athletes individually, monitoring them regularly and comparing the obtained data longitudinally. Stress and recovery should be monitored during the training process to prevent negative impact of training. Research in sport psychology on monitoring training/overtraining/underrecovery has mainly included the Profile of Mood States (McNair, Lorr, & Droppleman, 1992), Borg's Rating of Perceived Exertion (Borg, 1998), Total Quality Recovery (Kenttä & Hassmén, 1998) or the Recovery-Stress Questionnaire for Athletes (Kellmann & Kallus, in press). Recently, the Acute Recovery and Stress Scale and the Short Recovery and Stress Scale were developed to satisfy the request of the sports practice for an economic, valid and change sensitive psychometric instrument to quantify recovery and stress. This presentation will provide an overview of the instruments measuring stress and recovery in sport along with their advantages and disadvantages. Also recommendations will be provided when to use which instrument in performance settings and how feedback to coaches and athletes will be addressed.

- **Stress-recovery balance and psychobiosocial states monitoring in a rink hockey team**

Maurizio Bertollo, Claudio Robazza
University G. d'Annunzio of Chieti-Pescara, Italy

The relationship between training load and recovery-stress balance has received great attention in sport and exercise psychology literature. The notion of recovery-stress balance refers to the ratio between one's resources (e.g., physical, mental, contextual) and demands (e.g., training load, social pressure). The purpose of the study was to monitor stress and recovery of rink hockey players (N = 13) of the Italian team during a 4-week training camp, in preparation of Under 20 European championship. Measures included the Recovery-Stress Questionnaire for Athletes (RESTQ-Sport; 19 scales), the psychobiosocial states (PBS) questionnaire (8 functional items and 8 dysfunctional items), and session-RPE scale (0-10 ratings). The session-RPE scale was administered half an hour after each daily practice session, while the PBS questionnaire was administered on Friday evening at the end of the weekly training. Finally, the RESTQ-Sport data were collected on Sunday after a day of rest. Findings showed a significant increase in the session-RPE scores across the 4-weeks training camp, whereas the RESTQ-Sport and PBS scores remained quite stable over time. Correlation coefficients of data gathered in the last week were moderate ($r > .40$) to high ($r > .80$) in most variables. In particular, positive correlations were found among session-RPE, stress scales of the RESTQ-Sport, and dysfunctional PBS scores. Negative relationships were shown among session-RPE, recovery scales of the RESTQ-Sport, and functional PBS scores. Taken as a whole, the results suggest that monitoring recovery-stress balance, PBS states, and perception of internal load can enable practitioners to adjust physical, mental, and social loads in order to facilitate the athletes' recovery and prevent dysfunctional stress, injuries, and illness.

- **Effects of psychological relaxation techniques on sprinting performance**

Maximilian Pelka, Sarah Kölling, Michael Kellmann
Ruhr-University Bochum, Germany

The concept of recovery strategies includes different ways to achieve a state of well-being, distract from daily hassles and sport specific stressors and prevent underrecovery syndromes from occurring. The quality of firmly scheduled recovery time (such as half-time breaks) could be enhanced through systematic application of relaxation techniques. In applied settings these interventions are used frequently (Kudlackova et al., 2013), but to what extent are those methods based on empirical evidence in sports? Following a counterbalanced cross-over design 27 sport science students (Mage=25.22, SDage=1.08; 8 females) were randomly assigned to series of PMR, breathing regulation, power nap, yoga, and a control condition. Over the course of five weeks they underwent a specially designed procedure testing their repeated sprint ability once a week (with a different intervention every week). Tests (6x4s sprints) were executed on a non-motorized treadmill twice during that day intermitted by 25min breaks. Repeated measurements ANOVA revealed significant interaction effects between the relaxation conditions and the two sprint sessions with regards to achieved average maximum speed over all six sprints, $F(4,21)=3.46$, $p<.01$, and to average maximum power over all six sprints, $F(4,21)=3.59$, $p<.02$. Post-hoc tests indicated that after breathing regulation interventions (av. max. speed: $F(1,24)=5.02$, $p<.05$, $\eta^2=.18$; av. max. power: $F(1,25)=4.83$, $p<.05$, $\eta^2=.16$) participants performed significantly better compared to the control session. The application of randomized controlled trials in sport settings provides academics as well as practitioners with first evidence that breathing regulation and power naps lead to improved quality of short-term recovery and consequently better performances. At least in those single session relaxation approaches, breathing regulation stands out and seems to be a suited method for breaks during high-intensity training or competition.

- **Long-term effects of stress and underrecovery on the career of junior athletes**

Jürgen Beckmann
Technische Universität München, Germany

High stress load accompanied by underrecovery was shown to lead to overtraining and performance decrements. Recently, research has started to address physical and mental health as determinants of athletes' career impediments. Injuries, infectious diseases but also psychological disorders can interfere with an athlete's career. Nixdorf et al. (2013) conducted an online study with 162 elite athletes. The general depression scale (ADS) was used to assess depressive symptoms in athletes. With a cut-off of 23 (representing a conservative cut-off for clinically relevant depression) 14% of the athletes in the sample were diagnosed as being depressive. This percentage equals the percentage in the general German population. For athletes below the age of 18 a higher percentage was found (19%). Whereas in the general population guilt is a major factor in the development of depression, in the elite athletes sport-related stress and sport-related (under)recovery measured with the RESTQ-Sport were the main determinants. Because junior athletes appeared to be most affected, 2 longitudinal studies with junior athletes were conducted. One of the studies focused mainly on physical health, the other on mental health. In study 1 146 junior athletes in different sports participated. Over a period of 2 years high stress load and low recovery (RESTQ-Sport) was found to be significantly related to susceptibility to infection (Wisconsin Respiratory Symptoms Survey, WURSS) which is associated with a drawback in career advancement. Social support, volitional competence (Volitional Component Questionnaire, VCQ-Sport) and coping ability (Proactive Coping Inventory, PCI) were found to be associated with high resilience. The second longitudinal study was conducted with 300 adolescent football players who were members of the talent development centres of 2 German first league football clubs. Underrecovery (RESTQ-Sport) was the major determinant of depressive symptoms (ADS) in these young players. To prevent health related problems leading to underperformance and early career termination individualised intervention programmes will be implemented in the talent development centres to increase players' abilities to cope with stress as well as finding adequate recovery.

- **ACT – a way to enhance engagement in recovery**

Göran Kenttä
Swedish School of Sport and Health Sciences Stockholm, Sweden

Elite athletes train and perform at increasingly higher levels. It is argued that elite sport is continuously getting more competitive at the international level, and training load is peaking at about 1200 hours a year in many sports. Consequently, prevention of overuse injuries, overtraining syndrome and burnout is becoming a greater challenge. Recovery strategies are crucial in order to prevent maladaptive outcomes and to enhance adaptation (Hausswirth & Mujika, 2013; Kenttä, Hassmén & Raglin, 2006). A limited number of systematic approaches have been developed to conceptually understand and monitor recovery in contrast to stress load (Kellmann, 2002; Kenttä & Hassmén, 1998). When monitoring recovery it is important to distinguish between the process of recovery driven by recovery activities such as sleeping, energy and fluid intake (i.e., eating and drinking) and relaxation exercises and the following outcomes (i.e., well rested, fueled up with energy and fluid and relaxed). This can be conceptualized as a psychosociophysiological recovery process aiming to eliminate all levels of fatigue and regaining vitality (Lundqvist & Kenttä, 2010). It should be noted that aiming to eliminate all levels of fatigue and regaining vitality is not likely to happen very often, but it represents a desired direction especially when striving for peak performance. The purpose of this presentation is apply Acceptance Commitment Therapy (ACT) based on professional experience as means to enhance recovery. In brief interventions of ACT, open, aware and engaged represent three core pillars (Strosahl, Robinson, & Gustavsson, 2012). Open is determined by the ability to accept distress without struggle and resistance. Thus, when open, behavior is shaped by direct results rather than rigid rules. Awareness is determined by the ability to experience present moment and to take perspective on self and story about

self. Finally, engaged is determined by strong connection with values and the ability to sustain value-consistent action. Values can be explored specifically in relation to recovery and sustainable health, and will provide intrinsic motivation and reinforcement. Moreover, it will guide principles of living that organize recovery behavior long term. Committed actions are specific behaviors that arise as "reflections" based upon values. Ultimately, guided by ACT-principles, athletes should be able to stay connected to valued recovery behaviors, on purpose, in the present moment, and do it with full acceptance.

IS2.2: Invited Symposium - The 50th anniversary of the ISSP: Learning from the past and looking to the future

Chair(s): Gangyan Si (Hong Kong Institute of Education, Hong Kong S.A.R.)

The International Society of Sport Psychology (ISSP) celebrates its 50th anniversary in April this year. One of the main missions of ISSP is to promote and develop sport and exercise psychology from a global perspective with special attention and support to the less developed regions, valuing the contributions from cultural perspective. This symposium has been produced to take stock of progress made to date and look into the future of the ISSP that will have a lasting impact on the sport and exercise society. Four interrelated topics will be delivered by four MC members of the ISSP. The first topic will be delivered by Dr. Gangyan Si, the president of ISSP, discussing the past, the present, and the future of the ISSP over a five-decade history in terms of the statutes, activities, and publications of ISSP. Further collaborating with international societies, supporting less developed regions, and further promoting the development of global sport and exercise psychology are highlighted. The second presentation will be conducted by Dr. Athanasios Papaioannou, the ISSP vice-president and editor in chief of the International Journal of Sport and Exercise Psychology (IJSEP). He will give us a full picture of how ISSP promote an international focus in sport and exercise psychology education and publications through its official Journal, the ISSP-initiated books and the ISSP position stands. The third topic, delivered by Dr. Natalia Stambulova, the ISSP vice-president and chair of the ISSP Relations Committee, will introduce us epistemology and approaches of culturally informed knowledge in athlete career research. The fourth topic will be given by Dr. Tatiana Ryba, the chair of the ISSP Cultural Committee, on how ISSP promote culturally competent sport and exercise psychology research and practice. She will discuss the challenges and implications of the delivery of a culturally competent research and practice.

- **The ISSP five-decade history: Bridging the past, the present, and the future**

Gangyan Si
Hong Kong Institute of Education, Hong Kong S.A.R.

During the last 50 years, the ISSP has made great strides on the way to accomplish its mission: to promote research, practice, and development in the discipline of sport and exercise psychology throughout the world, and to foster peace and understanding among people from all countries. The scientific and humanistic aims stated in the ISSP statutes have been partially achieved through ISSP activities. Indeed, the ISSP World Congresses, regional conferences, and symposia have increasingly become scientific windows and communicative platforms for the broad range of sport psychology professionals, and ISSP publications (IJSEP (Papaioannou et al., 2013), ISSP Newsletter, ISSP books, ISSP Position Stands, and the ISSP website) have consistently contributed to its mission. From a developmental perspective, the ISSP has evolved from its early political persuasions (Morris et al., 2003; Vanek, 1994) to democratic reform (Serpa et al., 2015), to cultural diversity (Ryba et al., 2013; Stambulova et al., 2013). One of the current ISSP targets is to promote culturally competent sport and exercise psychology research and practice. Looking ahead to future perspectives, three aspects are highlighted: (a) increased collaboration with other International Societies, not only sport psychology societies, but also influential world organizations, such as the IOC, the IVV (International Society of People's Sport), in order to advance the ISSP mission; (b) continued provision of sport & exercise psychology support to

professionals in less developed regions, to address the global differences in the level of professional development; (c) continued promotion of sport & exercise psychology from a global perspective. This includes (a) increasing the quality of ISSP publications and ensuring that the IJSEP remains the most international sport & exercise psychology journal; (b) increasing the ISSP global membership; and (c) establishing an ISSP international certification for sport psychology practitioners.

- **Promoting an international focus in sport and exercise psychology education and publications**

Athanasios Papaioannou
University of Thessaly, Greece

The promotion of publications in sport psychology with a global perspective is a central aim of the International Society of Sport Psychology (ISSP). Decision making about the development of ISSP publications is made by the ISSP Managing Council and the work is managed by an ISSP standing committee. ISSP is particularly active in the promotion of excellence in international sport psychology research and practice through (a) the International Journal of Sport and Exercise Psychology, the official journal of the ISSP, (b) the ISSP-initiated books in sport and exercise psychology with a global perspective, and (c) the ISSP position stands on important and common issues that sport and exercise psychology researchers and practitioners face across the world. Across these lines the ISSP publications in the last 15 years are presented for important issues in Sport.

- **Towards culturally informed knowledge in athlete career research: The ISSP project on athletes' careers across cultures**

Natalia Stambulova
Halmstad University, Sweden

This presentation will be focused on the ISSP contributions to promoting cultural epistemology of knowledge in athlete career research and also cultural sensitivity in career assistance to athletes. The initial step was made by the ISSP Position Stand on athletes' career development and transitions (Stambulova et al., 2009) in which the authors emphasized cultural diversity in athletes' careers, identified major cultural traditions in career research, and concluded that researchers (being aware or not) internalized their objectives from socio-cultural contexts they belonged to. The next and much bigger step was the ISSP monograph "Athletes' careers across cultures" (Stambulova & Ryba, 2013) with several pioneer contributions to further promotion of culturally informed career research and assistance. First, this ISSP project allowed creating state of the art reviews of career research and assistance in 19 countries conducted by cultural insiders who (through this book) could provide international visibility to the career studies published in national languages as well as to the career assistance programs available in their countries. Second, the editors traced the evolution of incorporating cultural context into career research in sport psychology using the metaphor of waves with the cross-cultural wave, the cultural mindset wave, and the emerging cultural praxis wave under consideration (Ryba & Stambulova, 2013). Third, based on the analysis of the existing career literature and also ongoing changes in the global sport context, a new paradigm for career research/assistance termed cultural praxis of athletes' careers was suggested (Stambulova & Ryba, 2013; 2014). In conclusion, an impact of the new paradigm (e.g., new trends in career research) and the monograph as a whole (e.g., increased interest in career research internationally) will be discussed with the acknowledgement to the ISSP efforts to support cultural diversity and decolonizing approaches in sport psychology research and applied work.

- **Promoting culturally competent sport and exercise psychology research and practice**

Tatiana Ryba
KIHU – Research Institute for Olympic Sports, Jyväskylä, Finland

Since its inception, the International Society of Sport and Exercise Psychology (ISSP) has been strongly influenced by the socio-political and cultural diversity of its constituency (Morris et al., 2003; Serpa, 2013; Vanek, 1994). It is therefore unsurprising that the need for understanding and communicating across cultural difference is imprinted in the organization's institutional history. ISSP is also committed to the study of culture in the field, as evident by the promotion of cross-cultural research in its official journal, International Journal of Sport and Exercise Psychology, which published the first special issue on cultural sport psychology (Ryba & Schinke, 2009), as well as the endorsement of the recent anthology, Athletes' Careers Across Cultures (Stambulova & Ryba, 2013), in the ISSP book series. Grounding my paper in ISSP Position Stand on cultural competence (Ryba et al., 2013), I will highlight challenges in various philosophical aspects of the concept, especially in progressing from a definition to the delivery of a culturally competent research and practice. A shift to culturally competent sport and exercise psychology implies: (a) recognizing hidden ethnocentric philosophical assumptions permeating much of the current theory, research and practice, (b) transitioning to professional ethics in which difference is seen as not inherent and fixed but as relational and fluid, and (c) focusing on meaning as reflected in theoretical and methodological assumptions of cross-cultural and cultural research, and of cultural praxis. Central to this discussion is the process of unearthing the normative position of 'whiteness' through which 'other' voices and experiences are explained in much sport psychology literature. Hence, the cultural policies of ISSP advocate for addressing cultural difference as a form of ethical and moral engagement with collective and individual subjectivities that do not yet share the privileged sociocultural space of dominant discourses in the international sport and exercise community.

SS-ME2.1: Special Session - Meet the Expert: Dr. Panteleimon Ekkakakis

Panteleimon Ekkekakis
Iowa State University, USA

Questions & discussions

SS-S2.2: Special Session - Symposium: Perspectives on acculturation through physical activity

Chair(s): Antonis Hatzigeorgiadis (University of Thessaly, Greece)
Discussant(s): Xavier Sanchez (University of Cumbria, UK)

Migration is a worldwide phenomenon that poses serious challenges to contemporary societies. Acculturation, the process of cultural and psychological change that follows intercultural contact, is important for the smooth functioning of culturally pluralistic societies. Sport is considered to be an effective socializing agent and, recently, policies have given relevance to the role of sport as an integrative agent in multicultural societies. Nonetheless, research on the integrative role of sport in society has been scant. The present symposium is based on a FEPSAC initiative to promote research on this topic in Europe. In particular, the purpose of this symposium is to shed light on the perspective of the host culture, and also to provide preliminary findings from physical activity based interventions developed to promote social and ethnical integration of migrants. Following previous research with migrants, in an attempt to address the interactive nature of acculturation between the migrants and the host population, the first presentation focuses on the perspective of the host population and explores acculturation attitudes and perceptions of the host population as a function of sport participation and the sport motivational climate. The second presentation involves the implementation of a motivational climate- based intervention exploring the extent to which team sport activities within multicultural Physical Education classes can facilitate social

inclusion of students with differing cultural backgrounds. The third presentation introduces a large-scale intervention based on a group coaching approach aiming at empowering migrant boys through sport. Lastly, the fourth presentation, also part of the group coaching approach, focuses more specifically on the role of football as a social tool for the development of life and social skills in young boys living in an area with major social challenges.

- **Acculturation through sport: The view of the host culture**

Eleftheria Morela[1], Antonis Hatzigeorgiadis[1], Anne-Marie Elbe[2], Xavier Sanchez[3]
[1]University of Thessaly, Greece, [2]University of Copenhagen, Denmark, [3]University of Cumbria, UK

Migration and the emergence of culturally plural societies is a worldwide phenomenon involving many million people. Sport has been considered an effective socializing tool and latest policies tend to embody sport activities as a vehicle to promote social integration and intercultural dialogue. The scant research on the integrative role of sport has focused on the perspective of the migrant population, thus neglecting the important role of the host population in the acculturation process. The purpose of the present study was to explore acculturation attitudes and perceptions of the host population as a function of sport participation. In particular, differences in attitudes and perceptions between young athletes and non-athletes were explored, and the relationship between motivational climate in sport teams and acculturation attitudes and perceptions were investigated. Participants were 622 secondary education students, who completed the Host Community Acculturation Scale (Bouhris, Moise, Perreault and Senecal, 1997), of which 273 athletes also completed the Perceptions of Coach's Emphasis on Goal Orientations (Papaioannou, Ampatzoglou, Kalogiannis, & Sagovits, 2008). Multivariate analysis of variance showed a non-significant multivariate effect for sport identity (athletes vs non-athletes) for the host community acculturation scale dimensions (p=.24). Regression analysis revealed that motivational climate could predict 6% of attitudes towards cultural maintenance, 3% of attitudes towards contact, 5% of perceptions regarding outgroup attitudes towards cultural maintenance, and 5% of perceptions regarding outgroup attitudes towards contact. For all analyses, mastery oriented climate was a significant predictor (positive relationship); in addition, performance approach climate was a significant predictor of attitudes towards cultural maintenance (negative relationship). The results suggest that, similarly to findings for migrants, sport participation per se does not necessarily relate to adaptive acculturation attitudes, but that the motivational sport environment may be important in promoting desirable acculturation practices.

- **Promoting inclusion through team sport activities: A motivational climate intervention in multicultural physical education classes**

Silke Dankers[1], Anne-Marie Elbe[2], Xavier Sanchez[3], Sabine Otten[1], Nico van Yperen[1]
[1]University of Groningen, The Netherlands, [2]University of Copenhagen, Denmark, [3]University of Cumbria, UK

Research has identified team sport participation as a promising approach to socially integrate individuals from diverse cultural backgrounds (Hatzigeorgiadis et al., 2013). These results might be a reflection of the cooperative nature of team sport activities. However, knowledge on how to develop and organize inclusive sport activities within the multicultural school context is still scarce. This study aims at exploring to what extent team sport activities within multicultural PE classes can facilitate the social inclusion of students with differing cultural backgrounds. For this purpose, specific teaching methods aiming at an inclusive PE environment were developed and implemented. More specifically, by applying the TARGET framework (Ames, 1992), the physical education environment was manipulated in order to create a 'mastery motivational climate', which is characterized by a focus on cooperative learning, individual effort, and individual progress. A four-month PE class intervention program was implemented in the 7th-, 8th- and 9th-grade (Intervention group: N=47, two classes; Control group: N=63, three classes) in a middle school in Silkeborg, Denmark. The

PE class lesson plans included all of the proposed TARGET structures (Task, Authority, Reward, Grouping, Evaluation, Time). During sport classes, pupils participated in a variety of new and cooperative tasks, engaged in own decision-making processes, and performed all exercises in small, mixed-ability groups with sufficient time for task completion. Reward of effort, persistence, cooperation and learning, as well as evaluation of students´ progress by the teacher was given individually. In order to identify the impact of the intervention, pupils' perceptions of the motivational climate, perceived inclusion at the class- level, as well as ethnic and cultural identification, were assessed at pre-mid- and post-intervention. The results of this intervention will be presented as well as discussed on the basis of existing research.

- **The group coach as a socializing agent for integration?**

Reinhard Stelter, Knud Ryom
University of Copenhagen, Denmark

This project's goal was to strengthen the life situation of migrant boys through the involvement of voluntary coaches. For this aim, group coaching was introduced as part of a two-year intervention for migrant boys (6th to 9th graders) at a lower secondary school in Copenhagen with 80+% of pupils having a non-Danish ethnic background. Besides coaching the boys had the opportunity to play soccer in a cooperative and mastery-oriented climate, organized by a local sports club. Group coaching sessions were implemented in this study to develop the boys' social resilience and to support their awareness and readiness to act actively and responsibly in their own lives and in the communities they are part of. The sessions were conducted in groups of 4-6 participants with two voluntary and well-educated coaches and began in September 2013. All boys from 6th to 9th grade were offered group coaching on a regular basis as part of their school education. The intervention will finish in June 2015. The ambition was to provide a reflective and collaborative space where the whole group helped to support each other in this process. The focus of the intervention was on identity, on cultural, social and school issues, and on personal development. Qualitative interviews were conducted with ten 7th grade boys and complemented by observations. The (preliminary) results indicate a polarization of the boys' experience of coaching: One part of the boys was engaged in the coaching sessions and mentioned them in positive terms. These boys clearly developed resilience and saw benefits in regard to their school, personal and social development. The other part was more critical, because they did not fully overcome to see the voluntary coach as an agent of the system.

- **The experience and effect of team sport in a migrant culture**

Knud Ryom, Reinhard Stelter
University of Copenhagen, Denmark

Boys with migrant background have major difficulties to adjust and participate in the Danish school system and society (OECD, 2010). This study aimed to investigate the possible effects of team sport as a social tool, used to develop social capability, identity and active citizenship in an area with major social challenges in Denmark. A team sport (football) was chosen because of positive results in social integration for individuals with a diverse cultural background (Hatzigeorgiadis et al, 2013). The overall aim was to develop life-skills and social resilience by being part of a team sport. Furthermore, the goal was to enhance social capability and to increase the possibilities for acting actively and responsibly in one's own life and in the local community. A multidisciplinary approach was applied using theory from a community psychology perspective (Kloos et al, 2011), adding social capital (Putnam,2000) and psychosocial resilience aspects aiming towards active citizenship. The football activity was organized by a local sports club as part of a two-year intervention (6th to 9th graders,N=33,age: 12-16) at a lower secondary school in Copenhagen (80+% non-Danish ethnic backgrounds). Three weekly training sessions (1-1½ hours), matches and coach education were part of the study in addition to social activities outside of football. Qualitative interviews and observations showed that participants had developed their social capabilities

in the school environment. By comparing the interviews before, during and after the intervention, participants indicated a more profound understanding of the structure of the local society. Participants in the coach education stressed better self-confidence, commitment and collaboration skills in interviews. Interviews also concluded that the social and cultural coherence was enhanced by the intervention. Results indicate that football could be a tool to affect active citizenship and possibly also personal development in an area with major social challenges. Research implications will be discussed at the symposium.

SS-S2.3: Special Session - Symposium: EU funding in sport and exercise psychology – Best practice, recommendations and strategies

Chair(s): Markus Raab (German Sport University Cologne, Germany)

Funding of research activities is an important aspect of academia processes and especially new programs such as Horizon 2020 from the EU receive high interests among researchers. In this symposium we would like to present such best practice projects from FEPSAC members in EU research programs serving as a motivation to foster good applications from Sport and Exercise Psychology to EU calls. Cathy Craig will present process and content of an ERC grant for young investigators, Paul Wylleman will present his experience in preparing a successful new EU Sport project on dual career of athletes. Joan Duda will present her expertise with the submission and management of the PAPA project. Secondly, we would like to share insights from experts in Brussels who work at or for the commission gaining an advantage for Sport and Exercise Psychology submissions. Michal Rynkowski from the Sport Unit of the European Commission will present his view on the EU sport policy and the new possibilities within “Erasmus +”. Finally, from a organizational standpoint Markus Raab will present experience from an EU grant task force of EFPA (European Federation of Psychological Associations) and activities within FEPSAC Management Council how organizations can be helpful to support projects and thus provide support in application as well as dissemination of results for a long-lasting impact.

- **The European Research Council (ERC): My experience**

Cathy Craig
Queen’s University Belfast, N. Ireland

Established in 2007 by the EU, the European Research Council (ERC) is the first European funding organisation to fund excellent frontier research. Its mission is to fund the very best, creative minds of any nationality and age, to run 5-year ideas based research projects that are based in Europe. It aims to attract top researchers from anywhere in the world to come to Europe to carry out their research. Unlike other EU funding programmes that tend to be driven by priority areas, the ERC funds ‘investigator-driven' research that explores new and exciting opportunities in any field of research that will help push the boundaries of science. ERC grants are awarded through open competition and are designed to support researchers who are starting, consolidating or advancing their careers in research. The ERC aims to recognise the best ideas, and increase the visibility of the best brains in Europe, while also attracting new talent from abroad. In this short talk I will talk about my experience of applying for and securing a 5-year Starting Independent Researcher grant from the ERC (TEMPUS_G - 2008-2013). I will briefly outline the stages of application that I experienced and what my project, TEMPUS_G (Temporal enhancement of movement performance using sensory guides), was about. I will also offer some advice on what I believe is important to consider when applying for this type of funding.

- **Erasmus+ Sport funding for the ‘Gold in Education and Elite Sport’ project**

Paul Wylleman[1], Koen de Brandt[1], Michel Goddard[2], Veronique Leseur[2], Nadine Debois[2]
[1]Vrije Universiteit Brussel, Brussels, Belgium, [2]INSEP Paris, France

In order to assist 12-to-25 year old athletes in preparing for and/or going through a dual career ‘education and high-performance sport’ pathway nine European countries submitted,

under coordination of the Vrije Universiteit Brussel (Belgium) and INSEP (France), successfully the 'Gold in Education and Elite Sport' project for funding under the Erasmus+ Sport programme. The process entailed a structured preparatory phase including reading and up-dating all relevant documents made available through the Erasmus+ website, attending several preparatory meetings in order to check whether possible new sources of information, preparatory meetings of the coordinators and with the partners, keeping a tight timing for completing and assembling from the partners all relevant (and signed) documents, and finalizing and submitting the dossier before the deadline set. The funding of €500,000 will allow the partners (Belgium, France, Italy, the Netherlands, Poland, Slovenia, Spain, Sweden, the UK) to (1) identify and use methods to develop, formulate recommendations on, and promote those competences (i.e. knowledge, skills, experience and attitude) required by (a) athletes to maximize their capability to successfully prepare, manage and finalize their dual career 'education and sport' pathway and (b) dual career experts/services in order to optimize the support they provide to athletes preparing, managing and/or finalizing a dual career 'education and sport' pathway; and (2) identify, develop, make available and formulate recommendations on the use of instruments and methods which allow the assessment, development and evaluation of the quality of dual career-services provided to athletes in preparation of, during and after finalizing their dual career 'education and sport' pathway. This project will allow the participating countries to successfully prepare, manage and finalize dual career 'education and sport' pathways within their specific context of structural and organizational initiatives provided by the educational institute and/or sport organizations and according to their own needs and specificities.

- **The European Commission funded Promoting Adolescent Physical Activity project: Background, delivery, impact and lessons learned**

Joan L. Duda
University of Birmingham, UK

'PAPA' (www.projectpapa.org) is a European-based project committed to enhancing young peoples' health and well-being, via positive experiences in youth sport. Across five European countries (i.e., England, France, Greece, Norway and Spain), and within the context of grassroots youth football, the project set out to develop, and apply, a multi-method approach to evaluating the implementation and impact of a theory and evidence-based coaching programme, i.e., Empowering Coaching™ (www.empoweringcoaching.co.uk; Duda, 2013b). In the PAPA project, we examined the effect of the Empowering Coaching™ workshop on changing the climate in youth football, children's motivation, well being, and intentions to continue their engagement (see details on protocol, Duda et al., 2013). PAPA involved a collaboration between leading researchers and football associations in the UK, Norway, Spain, France and Greece. The PAPA Project Partner Leads included the University of Birmingham: Joan L. Duda (Project Director), Eleanor Quested (Project Manager); University of Bergen: Bente Wold, Oddrun Samdal; Universitat de València: Isabel Balaguer, Isabel Castillo; Université Joseph Fourier – Grenoble: Philippe Sarrazin; University of Thessaly: Athanasios Papaioannou; Norwegian School of Sport Sciences; Yngvar Ommundsen; York St John University: Howard Hall; Universitat Autònoma de Barcelona: Jaume Cruz. The PAPA Project was funded by the European Community's Seventh Framework Programme FP7/2007-2013 (under grant agreement no. 223600). In this presentation, the background to the PAPA project and how this proposed work met the FP7 Health funding call will be highlighted. Details will be given on what PAPA entailed in terms of delivery and meeting project objectives. Current and future strategies for dissemination of Empowering Coaching™ training programmes and project methods and results will be described. I will conclude with some lessons learned in terms of ensuring the successful completion of a EU-funded, multi-country and multi-method project.

- **The EU sport policy: New possibilities given by Erasmus +**

Michal Rynkowski
EU Sport Unit, European Commission

Erasmus+ is a new Programme for Education, Training, Youth and Sport for 2014-2020. Within this Programme, a dedicated sport chapter allows co-funding of sport projects, mainly not-for-profit sport events or collaborative partnerships. This funding stream (ca. 17m Euro per year, increasing over the years of the Programme) is open to various stakeholders, incl. universities and academic world. While basic information may be found in the Programme Guide on the website of the Programme http://ec.europa.eu/programmes/erasmus-plus/documents/erasmus-plus-programme-guide_en.pdf this presentation aims at focusing on information relevant to the academic stakeholders.

- **How organizations improve success of EU grant submissions: Examples from EFPA and FEPSAC**

Markus Raab
German Sport University Cologne, Germany

Funding of research activities is a competitive and unpredictable exercise for most in our field. For EU funding, impact to society is an important facet to be judged. From an organizational point of view, such as FEPSAC or the European Federation of Psychologists' Associations (EFPA), it is desired that submissions from the field can be supported from the organizations for two reasons: first, before the applications organizations can be helpful by supporting projects and thus providing support in the application process, also by finding potential partners within science or sport institutions. Secondly, during and after the project organizations can provide platforms for dissemination and evaluation of impact for a long-lasting effect. In this presentation, I will present activities from a EU grant task force at EFPA as well as activities from the FEPSAC management council when and how organizations such as EFPA or FEPSAC can support EU grant submissions, impact evaluations and thus in joint action allow societal changes where expertise from the sport and exercise psychology field is needed.

S2.01: Symposium - Mental toughness: Current research, applications and future directions

Chair(s): Robert Stephen Weinberg (Miami University - Ohio, USA)

The purpose of this symposium is to present some of the latest research in the area mental toughness along with some recommendations for best practice. Five papers will be presented that address different aspects of mental toughness, providing current research and potential applications. After overviewing the purpose of the symposium, the first paper will discuss a cross-sectional field study investigating the relationship between mental toughness and different football behaviors. Results revealed that persistence and effort were behavioral indicators of mental toughness. The second paper discusses two studies (laboratory and field) that investigated the personality characteristic, which reflected sensitivity to punishment and insensitivity to reward and their relationship to mental toughness. Results revealed that mentally tough athletes were seen as sensitive to punishment and insensitive to reward as well as demonstrating a lower psychophysiological stress response when performing under pressure. The fourth paper attempted to extend mental toughness research to a non-Western culture since virtually all previous research has involved Western athletes. Results revealed initial support for the cross-cultural validity of a direct measure of mental toughness. The fourth paper will discuss an intensive intervention for a youth wrestling camp where athletes were exposed to and taught how to deal with adversity. Quantitative and qualitative findings revealed athletes improved on a number of psychological self-regulation skills that have been identified as important for mental toughness. The final paper focused on exploring sport psychologists' views of different

mental toughness issues because virtually all previous research has been conducted with coaches and players. Some of the issues discussed included trait vs state mental toughness, building mental toughness, types of mental toughness, and its definition. Results revealed that despite some similarities there were also significant differences between the views of the sport psychologists and coaches and athletes.

- **When the going gets tough: Mental toughness and its relationship with behavioural perseverance**

Daniel F. Gucciardi[1], Peter Peling[2], Kagan J. Ducker[1], Brian Dawson[2]
[1]Curtin University, Australia, [2]University of Western Australia, Australia

In an attempt to advance conceptualisations of mental toughness, researchers have turned their attention to the behavioural features of this psychological concept, that is, observable behaviours or actions that are typically demonstrated in challenging or demanding situations (i.e., person-situation interaction). Persistence, effort, or perseverance is often reported as a behavioural signature of mentally tough individuals; for example, pushing through challenging situations, refusing to give up or quit, and sustaining high effort levels over time. Accordingly, the purpose of this study was to examine the association between self-reported mental toughness and behavioural perseverance among a sample of male Australian footballers. We conducted a cross-sectional field study, with the multistage 20 m shuttle run test (MST) employed as a proxy for behavioural perseverance. Participants were 330 male Australian footballers aged between 15 and 18 years (M = 16.86; SD = .71) with between 2 and 14 years playing experience (M = 9.32; SD = 2.51). Initially, footballers completed a mental toughness questionnaire, before having their height and body mass measurements taken. Subsequently, a performance testing session was completed, which included the 20 m sprint, Australian football-specific agility run, vertical jump, and the MST. Bayesian structural equation modeling was performed in Mplus to allow for the simultaneous examination of existing findings with our new data in a way that provides an automatic meta-analysis of evidence in this area. The analysis indicated a 95% probability that the association between mental toughness and behavioural perseverance lies between .14 and .34, even when controlling for other factors known to influence MST performance, including age, height, body mass, and years playing experience. Taken together with previous research, these findings support the theoretical proposition that persistence, effort or perseverance represents a behavioural signature of mental toughness.

- **Reinforcement Sensitivity Theory and mental toughness**

Stuart Beattie
Bangor University, UK

Recent research has examined the role that personality plays in the development of Mentally Tough Behaviour (MTB). Hardy et al. (2014) found that cricketers who displayed MTB (rated by their coach), had personality characteristics that reflected sensitivity to punishment and insensitivity to reward (rated by the Eysenck Personality Questionnaire–Revised Short version; EPQR-S). Two studies are presented where Hardy et al.'s findings are explored in the context of swimming in study 1, and a lab study where psychophysiological responses to an acute stressor are assessed in study 2. In Study 1, one hundred and ninety-six swimmers completed the EPQR-S. Their respective coaches (n = 14) completed a specifically designed MTB Swimming Inventory. Results found support for Hardy et al.'s findings where swimmers rated as MT by their coach were characterised with being sensitive to punishment and insensitive to reward. In Study 2, fifty participants completed a golf putting study and were cash rewarded upon making successful putts (50 putts in total). To induce an acute stressor, upon completion of the final putt participants were told that they had to make one more putt. Further, they would double their money if they made the final putt, but would lose all their money if they failed. Sympathetic and parasympathetic activity were recorded across the whole experiment. Results revealed an interaction between punishment and reward sensitivities on sympathetic and parasympathetic activity in the high stress condition. The

pattern indicated a lower stress response in the high punishment and low reward sensitivity participants. Results replicated Hardy et al.'s MT behavioural findings in a sample of competitive swimmers. Further support demonstrated that at the psychophysiological level, participants with a MT profile (high punishment and low reward sensitivity) showed a lower psychophysiological stress response when putting under pressure.

- **Cross-cultural validation of the Mental Toughness Inventory**

Vellapandian Ponnusamy[1], Daniel F. Gucciardi[2]
[1]National Sports Institute of Malaysia, [2]Curtin University, Australia

Over the past 15 years, there has been considerable interest in the concept of mental toughness among performance psychology scholars. With few exceptions, much of this interest and associated output has been dominated by investigations involving Western athletes (e.g., Australia, United Kingdom). Research is needed to ascertain the extent to which mental toughness generalises to non-Western cultures. Accordingly, the purpose of this study was to test the cross-cultural validity of the mental toughness inventory (Gucciardi, Hanton et al., in press). We conducted a cross-sectional survey with Malaysian (n = 258; 39% females; Mage = 20.31) and Australian athletes (n = 293; 52% females; Mage = 23.25) from a range of individual (e.g., tennis) and team sports (e.g., hockey). Both samples completed the mental toughness inventory; the Malaysian athletes also provided reports of state and trait anxiety. Measurement invariance analyses were conducted within a confirmatory factor analysis framework in Mplus to examine a series of increasingly stringent invariance tests, namely configural (i.e., number of factors), metric (i.e., factor loadings), and scalar (i.e., factor loadings and intercepts). Correlational analyses were also performed to examine the associations between mental toughness and state and trait anxiety in the Malaysian athletes. Results revealed that the 8-item, unidimensional model of mental toughness was reliable in both the Australian (ω = .85) and Malaysian samples (ω = .92), and the factor structure was invariant across cultures. Convergent validity analyses with the Malaysian athletes indicated that mental toughness was inversely related with intensity perceptions of somatic ($r = -.31$, $p < .001$) and cognitive state anxiety ($r = -.28$, $p < .001$) and trait anxiety ($r = -.33$, $p < .001$), but not directional interpretations of state anxiety. These results provide initial evidence to support the cross-cultural validity of a direct measure of mental toughness.

- **Training young athletes to cope with adversity: A strategy for fostering mental toughness related attitudes and skills**

Daniel Gould
Michigan State University, USA

There has been increased interest in examining phenomena like mental toughness and the psychological antecedents associated with athlete talent development in recent years (Gould & Cowburn, 2015). Several investigators (e.g., MacNamara et al., 2010) have suggested that experiencing and learning to deal with adversity is central to the development of mental toughness and related psychological dispositions. This paper will discuss a mixed-method study of an intensive youth wrestling camp specifically designed to develop psychological skills and dispositions associated with mental toughness. In addition, we conducted extensive interviews with the camp founder, a highly successful elite collegiate coach and former US Army Ranger. Results from the ACSI-28, given prior to, at the end of the camp, and nine months later after the high school wrestling season revealed that the athletes developed a number of psychological skills (Driska et al., 2014). Qualitative assessments further verified and extended the quantitative findings and demonstrated that the young athletes acquired a number of important psychological skills and, most importantly identified the process by which the camp experience influenced the development of these young wrestlers (Pierce et al., 2014). Specifically, the importance of providing in-depth psychological training on a variety of self-regulation related topics like goal setting, motivation, discipline and stress management was identified along with having the athletes

live within a totally immersive environment while engaging in planned systematic stress inoculation and adverse environments. Finally, individual case study analyses were conducted with eight participants and showed that while all wrestlers improved their mental skills as a result of the camp experience, the degree of their psychological development varied greatly depending in their maturity going into the camp, awareness of the camp goals and willingness to reflect on their learning (Cowburn et al., 2014). Results are discussed relative to current mental toughness research and theory.

- **Mental toughness issues as perceived by sport psychologists**

Robert S. Weinberg, Valeria Freysinger, Kathleen Mellano, Elizabeth Brookhouse
Miami University - Ohio, USA

Mental toughness research over the past 15 years has predominantly used coaches and athletes as sources of information and the information
has often been contradictory (Gucciardi & Gordon, 2011). However, coaches and athletes don't study mental toughness; they simply report on what constitutes mental toughness or try to build it based on what they think. Therefore, the purpose of the present investigation was to assess sport psychologists' views on different issues regarding mental toughness. Participants were 14 sport psychology professionals who had extensive experience regarding research and/or practice in mental toughness. Semi-structured interviews were conducted which focused on several different issues. These included (a) definition of mental toughness, (b) trait vs state mental toughness, (c) different types of mental toughness, and (d) generalizability/transfer of mental toughness. Interviews were tape recorded and transcribed verbatim. Each transcript was content analyzed by three investigators following procedures recommended by Miles and Huberman (1994) and Patton (2002). Raw data themes were individually identified and consensually validated in meetings with the three investigators. As a final step, concept maps were developed to summarize and explain the relationships between the different issues noted above regarding mental toughness. Results revealed that sport psychologists defined mental toughness as a mindset or internal resource (informed by research and practice) in terms of their behavior and being mindful which helps athletes manage and cope with adversity to obtain a consistent, effective, and optimal performance. Regarding building mental toughness, coaches' were seen as the central person who through being mindful and their actual behavior, provide adversity training to teach athletes mental skills, which will help them become mentally tough. Physical vs. mental toughness was seen on a continuum from being totally separate to intertwined and integrated. Results are discussed in terms of previous research involving coaches and athletes' perceptions of mental toughness.

S2.02: Symposium - Talent identification and development in football. Results from longitudinal talent research projects

Chair(s): Achim Conzelmann (University of Bern, Switzerland)

Multidimensional talent models and long-term monitoring of potential talents are regarded as appropriate approaches when addressing questions concerning the identification and promotion of talents in sports. Complex longitudinal research projects in football have already been implemented in several countries. Some of these have been ongoing for several years now. The aim of these projects is to trace the development of the players involved and to identify potential talent predictors. At this symposium, results from these longitudinal research projects will be presented concerning the prediction of athletic performance and success in football. The focus lies on psychological and motor personality variables, whereby their significance for success has been analysed using a variable- as well as a person-oriented approach. The first speaker deals with the predictive value of the psychological personality variables goal orientations, intrinsic motivation and reflection in Dutch football players. For this, a structural equation model covering six years from youth to senior level was used. In the second speech, an overview of the relationships between the psychological personality characteristics motivation, volition, self-referential cognition, and emotion and

performance criteria in the German football talent identification and development programme will be given. For this, cross-sectional as well as longitudinal data for four years were used. The next two speaker will present results from the Swiss talent research project in football. They both use a holistic perspective together with a person-oriented approach. Their focus therefore lies on the structural and individual stability of patterns formed by the selected variables and their linkage to performance levels at the age of 15. Whereas the focus in the third presentation is on motor variables, in the final presentation variables from the different personality dimensions motor behaviour, motivation and stage of development were considered.

- **Who will make it to the top in soccer? The predictive value of goal orientations, intrinsic motivation and reflection**

Marjolein Torenbeek[1], Marije Elferink-Gemser[2], Laura Jonker[3], Chris Visscher[2]
[1]HAN University of Applied Sciences, The Netherlands, [2]University of Groningen, The Netherlands, [3]Royal Dutch Football Association, The Netherlands

Many talented soccer players dream of becoming a professional soccer player. However, relatively few succeed in fulfilling this dream. To better help talented players in their development, it is important to gain insight in the performance characteristics that distinguish the players who ultimately make it to the top. The road to the top in soccer is long, while the time is relatively short. What an athlete gains from available training time seems therefore of great importance. Goal orientations, intrinsic motivation and reflection are separately related to future performance level in previous studies. Unknown is the combined predictive value of these variables for future performance level in soccer. Based on educational research and a recent study in ice skating, it is hypothesized that future performance level is directly predicted by reflection, ego orientation and training volume and that task orientation and intrinsic motivation underlie reflection. 162 male youth soccer players (Mage = 14.68 years, SD = 1.34) participated in this study by filling out questionnaires on task and mastery orientation (TEOSQ), intrinsic motivation (SMS) and reflection (SRL–SRS). In addition, information about training volume was gathered (M = 8.16 hours/week, SD = 1.87). Outcome measure was soccer performance in senior competition. The hypothetical model was tested by means of Structural Equation Modelling. Performance level in senior soccer competition was identified for 109 players (67%), ranging from Dutch fifth class to UK Premier League. Analysis of the hypothetical model in LISREL 9.1 resulted in a reasonable fit ($\chi^2(6) = 9.42$, $p = .152$, SRMR = .055, CFI = .968, NNFI = .919, RMSEA = . 072). Future performance level was directly related to reflection ($\beta = .22$), ego orientation ($\beta = .19$) and training volume ($\beta = .32$), and indirectly (via reflection) by intrinsic motivation ($\beta = .28$) and task orientation ($\beta = .63$). These results suggest that it is important, while ensuring sufficient training time, to stimulate task orientation and intrinsic motivation in talented soccer players, in order to develop reflection and thereby optimize the process of talent development in soccer.

- **Relationship of personality characteristics with current and future performance criteria in talented soccer players**

Philip Feichtinger, Oliver Höner
University of Tübingen, Germany

Psychological characteristics are considered to be important for athletic performance and performance development. This study examines the relationship of talented soccer players' personality characteristics with current and future performance criteria. The sample consists of 2,677 U12-players in the talent development program of the German Soccer Association. Self-report questionnaires captured personality characteristics assigned to the areas of motivation, volition, self-referential cognition, and emotion (Feichtinger & Höner, 2014). Performance in soccer was operationalized in the following ways: A motor score represented the U12-players' speed abilities and technical skills (Höner et al., 2015); the developmental potential of the players in the U12 was captured by coaches' subjective ratings (A=highly promotion-worthy, B=promotion-worthy, C=partly promotion-worthy); four years later, the

players' U16-performance level was assessed by examining whether the individuals were selected for professional clubs' youth academies. The results consistently reveal small relationships between psychological scales and motor score. Only the specific physical self-concept as part of the players' self-referential cognition reached a medium effect size (r2=0.14). The players in the subjectively rated categories A, B, and C differed significantly in 10 of 17 psychological scales (3.22≤F≤17.14; p<.05; .01≤η2≤.03). Across all scales, A-players showed higher values in positively connoted personality characteristics, and lower values in negatively connoted characteristics compared to the other groups. Additionally, logistic regressions demonstrated the personality characteristics' prognostic relevance for the players' U16-performance level. In sum, the present study illustrates the relationship of personality characteristics and soccer performance. Hence, these findings provide important insight for talent identification and development.

- **Patterns of motor abilities and technical skills as predictors of success for young elite football players**

Marc Zibung, Claudia Zuber, Achim Conzelmann
University of Bern, Switzerland

Sport-motor tests play an important role in football talent selections. However, single tests represent only parts of the complex game performance. The best game performance therefore does not necessarily need to go hand in hand with the best results in all tests of a test battery. Considering the complexity of the game performance appropriately, a holistic perspective together with a person-oriented approach are applied. Thereby, systems consisting of several variables are identified and analysed in a longitudinal study. Following this idea, six sport-motor tests were aggregated into a subsystem. 106 young male elite football players were tested three times (2011, 2012, 2013; Mage, t2011=12.26, SD=0.29). One year later (2014) their performance level was enquired. Data were analysed using the LICUR method, a cluster analytical method. Four patterns were identified, which remained stable at all measuring points. The players frequently show intraindividual and structurally similar patterns over time. At the third measuring point, a pattern occurred out of which the players are significantly more likely to advance to the highest performance level one year later. This pattern appears consistently above average, but does not always show best test performances. The significantly frequent development along structurally stable patterns suggests a predictive validity of the subsystem sport-motor tests between the ages of 12 to 15. Above average, but not necessarily outstanding performances both in the motor abilities as well as in the football specific tests appears to be particularly promising. This finding emphasizes the need of a holistic perspective in the talent selection.

- **Holistic patterns as an instrument to predict performance of promising young football players**

Claudia Zuber, Marc Zibung, Achim Conzelmann
University of Bern, Switzerland

Multidimensional talent models represent the current state of the art. However, it remains unclear how these different dimensions interact. Based on current theories of human development, person-oriented approaches seem to be particularly appropriate for talent research. The present study adopts this approach by looking at how a holistic system consisting of the different dimensions motivation, motor behaviour and the stage of development goes along with athletic performance. For this purpose, it has to be examined which patterns were formed by the constructs net hope (Elbe et al., 2003), motor abilities (3 motor tests; Höner et al., 2014), technical skills (3 motor tests; Höner et al., 2014) and the so far achieved percentage of the predicted adult height (Mirwald et al, 2002) and how these patterns are related to subsequent sporting success. 119 young elite football players were questioned and tested three times at intervals of one year, beginning at the age of 12. At the age of 15, the performance level the players had reached was examined (national, regional or no talent card). At all three measuring points, four patterns were identified which displayed

partial structural and high individual stability. As expected, the players showing values above average in all factors were significantly more likely to advance to the highest performance level (Odds ratio = 2.2, p < .01). Physically strong, precocious developed players though having some technical weaknesses, have good chances to reach the middle performance level (OR = 1.6, p = .01). Players showing values under average, have an one and a half times higher probability to advance to the lowest performance level (p < .01). The results point to the importance of holistic approaches for the prediction of performance among promising football talents in the medium-term and thus provide valuable clues for their selection and promotion.

S2.03: Symposium - Imagery research in sport: Around the world in 90 minutes

Chair(s): Tony Morris (Victoria University, Australia)

Imagery is the most-widely used technique in sport performance enhancement. Imagery is a ubiquitous process; people use imagery every day in many and diverse contexts. Because imagery is an unobservable mental process, researchers and practitioners continue to seek to understand how imagery works, so they can use it more effectively. In this symposium, researchers present their latest work on various aspects of imagery. It is important to measure imagery in meaningful, reliable, and valid ways in order to understand how it functions in sport contexts. In the first presentation, the authors describe the development and validation of a Spanish version of the Sport Imagery Ability Measure (SIAM; Watt et al., 2004). Recognising the need for faster and more efficient ways to deliver such questionnaires, the authors also explain how they have developed an on-line version of the SIAM in Spanish. The SIAM is also involved in the second presentation, this time in Polish, in concurrent validation of another imagery measure, the Imagination in Sport Questionnaire (Kwestionariusz Wyobraźni w Sporcie –KWS). The authors of this presentation describe the structure of the KWS and their preliminary validation of the measure, including test-retest reliability, internal consistency, and model fit using confirmatory factor analysis (CFA). In Presentation 3, the authors report on a study of internal and external imagery perspectives of a finger-movement task that provides unique evidence for the functional equivalence of imagery and movement based on S-R compatibility of imagery processes. The final presentation involves examination of the effect of relaxing music played during imagery on sport performance in two studies, one involving archers and the other study involving pistol-shooters. In different ways, each of these original studies increases understanding of imagery processes in sport.

- **Development of the spanish version of the Sport Imagery Ability Measure (SIAM) and its on-line administration**

Montse Ruiz[1], Anthony P Watt[2], Tony Morris[2]
[1]Jyvaskyla University, Finland, [2]Victoria University, Australia

Researchers in sport psychology have shown substantial interest in the assessment of mental imagery in relation to athlete performance in sport. Accurate assessment of imagery ability can assist in the implementation and evaluation of future imagery training programs. The Sport Imagery Ability Measure (SIAM; Watt et al., 2004) is a 48-item self-report questionnaire that uses four sport related scenes to examine five dimensions of imagery (i.e., vividness, control, duration, ease, and speed of generation), six senses (visual, auditory, olfactory, gustatory, tactile, and kinesthetic) and the experience of emotion. To develop the Spanish version of the SIAM, back translation procedures and expert review were utilized. A bilingual person, not familiar with the instrument conducted a direct translation. The translated version was examined by a panel of four academics in sport psychology whose first language was Spanish, competent in both written and spoken English. Each expert examined the translated version ranking each item as 1 (no change), 2 (minor change required), 3 (major change required), and 4 (reject and retranslate). Discrepancies between items were discussed and efforts made to ensure that the underlying meaning remained unchanged. The modified Spanish version was back-translated into English, and compared

to the original version to finalise translation. A comprehensibility study was conducted with seven (6 male, 1 female) athletes competing in individual or team sports. Minor changes were made to clarify Spanish language items. An on-line version of the Spanish SIAM was then constructed using the Qualtrics programme. A characteristic of the hardcopy SIAM is the need for an administrator to manage the protocols associated with participant completion. The on-line version incorporates an electronic administration process to simulate the timing and sequencing requirements of the original measure. In this paper, we report on the construction steps and psychometric outcomes of the administration of the on-line SIAM.

- **Reliability and validity of the Imagination in Sport Questionnaire with Polish athletes**

Dagmara Budnik-Przybylska
University of Gdansk, Poland

Imagery is well-established as an effective performance enhancement technique. Measuring imagery is critical in research and practice in sport. Self-report questionnaires are the most-regularly used method to measure imagery. I examined reliability and validity of the Imagination in Sport Questionnaire (Kwestionariusz Wyobraźni w Sporcie –KWS), which combines features imagery ability and aspects of imagery use. Three-hundred-and–twenty-six Polish athletes (169 male, 156 female), aged between 12 and 57 years (M = 22.08, SD = 8.18) completed two questionnaires, the KWS and the Sport Imagery Ability Measure (SIAM; Watt et al., 2004). The athletes competed at different competitive levels from novice to elite. They were recruited from a variety of sports disciplines, including football, sailing, basketball, track and field, volleyball, and swimming. The KWS is a 51-item measure, comprising seven subscales, namely physiological feelings, modalities, easy/control, perspective, affirmations, visual, and general. The SIAM measures imagery ability of six sense-modalities, five dimensions, and emotion. Results indicated that the KWS maintained good stability (test-retest reliability ranged from r = 0.55 to r = 0.74) over a 3-week period and sound internal consistency (Cronbach's alpha, ranged from 0.64 to 0.79). Confirmatory factor analysis indicated acceptable model fit indices of the 7-factor structure of the KWS (NC = 2416.63, df = 1203, GFI = 0.944, AGFI = 0.944, RMSEA = 0.056). Concurrent validity was supported by examination of relationships between KWS subscales and the SIAM in Polish. Although there was a relationship in the expected direction between questionnaire subscales (r = 0.11 – 0.47) they measure different variables. Athletes from higher competition levels reported higher imagery ability. Gender differences appeared on three subscales and there were no significant age differences, in accordance with previous studies. Overall, results supported reliability and construct validity of the KWS.

- **Stimulus-response compatibility and imagery perspective: New evidence for functional equivalence of mental imagery**

Soni John Thanikkal[1], Tony Morris[2], Joseph Ciorciari[3]
[1]Christ College, India, [2]Victoria University, Australia, [3]Swinburne University, Australia

We examined the Stimulus-Response (S-R) compatibility of physical movement and imagery perspectives (Mahoney & Avener, 1977). We screened 22 student volunteers for vividness of motor imagery using VMIQ-2 (Roberts et al., 2008). The experimental task comprised video stimuli presented from internal and external views. The views exhibited an index finger pressing the white triangular ready key on a custom built keyboard, then moving to one of four blue rectangular task keys. The experimental task contained eight video stimuli in random sequences, four showing an internal view (IV; the participant's perspective) and four showing an external view (EV; the perspective from the monitor). Participants responded to 40 video clips in each of three research conditions, namely movement, internal imagery, and external imagery. We recorded decision and response time for movement, and response time for imagery conditions. For movement and internal imagery, IV was predicted to be highly compatible, whereas EV had low compatibility. For external imagery, EV was more compatible. For the movement condition, t-tests showed significant differences for decision

time, t(21) = 13.51, p < .001, and movement time, t(21) = 4.83, p < .001, both favouring IV. The results of a two-way repeated measures ANOVA for internal and external imagery showed an interaction effect, F(1,21) = 4.59, p = .04, η2 = .18, reflecting that response times for internal imagery were significantly faster for IV than EV, whereas external imagery response times were faster for EV than IV. Thus, responses during internal imagery showed a pattern that mirrored physical movement responses, whereas, notably, responses for external imagery showed the reverse, namely higher compatibility for the external view. This suggests that internal and external imagery followed different, yet predictable, S-R compatibility patterns, providing evidence for the functional equivalence theory of imagery.

- **The effects of using relaxing classical music during imagery for novice archers and elite shooters**

Garry Pei Een Kuan[1], Tony Morris[2]
[1]University Sains, Malaysia, [2]Victoria University, Australia

Imagery is a form of mental practice that affects athletes' performance often increasing success. Athletes frequently use music to enhance their sporting experiences. Despite the frequent use of music in many sports, little research has examined the effect of music on imagery, and the consequent impact of this combination on sports performance. Thus, the purpose of this paper is to examine the role of relaxing classical music during imagery on subsequent sports performance in two linked studies. In Study 1, participants were 27 novice Malaysian archers with moderate imagery ability, measured by the Sport Imagery Ability Measure (SIAM; Watt et al., 2004). They were randomly assigned into two groups: relaxing music during imagery (ARI), and no music during imagery (ANI - control). In Study 2, participants were 26 elite Australian shooters with moderate to high imagery ability measured by SIAM. They were assigned at random to: relaxing music during imagery (SRI), and arousing music during imagery (SAI). All participants in both studies completed 12 sessions of imagery over 4 weeks before the post-test was conducted. In both studies, GSR, PT, and HR were measured in Session 1 and Session 12 to examine physiological arousal. In Study 1, archery gain scores were ARI = 22.92 ± 16.50, and ANI = 16.38 ± 18.03. Although performance improved in both conditions, t-tests indicated that there was no significant difference in gain scores for competitive performance t(25) = 0.98, p = .33. In Study 2, for pistol shooting, results from an independent samples t-test showed that differences across type of music used with imagery were significant for gain scores for competition performance t(24) = 2.71, p = .01, with a significantly larger increase in performance for SRI than SAI. Results suggest that music during imagery is more effective with skilled athletes than novices.

S2.04: Symposium - Interpersonal violence against youths in sport

Chair(s): Sylvie Parent (Université Laval, Canada)

Recently, interpersonal violence toward youth in sport has received more and more attention from the scientific community. However, studies on populational samples remain scarce and few research have been conducted on different types of interpersonal violence (Parent, D'Amours, Flynn & Fortier, 2015; Stirling, 2009). Moreover, few studies have documented disclosure and consequences of interpersonal violence in the sport context. This symposium gives answers to these limitations by presenting five studies using various methodologies in order to achieve a better understanding of the phenomenon. The first presentation reports results of a large-scale prevalence study on psychological, physical, and sexual violence experienced by young athletes using a retrospective design. The second presentation reports results of a retrospective study aimed at investigating the associations between self-reported sickness, stress, and depression (SSD) and characteristics of athletes (e.g.: age, sex, and victimization in sport). The third presentation reports results from a prevalence study on self-reported sexual violence in sport within a representative sample of the general population of adolescents. The fourth presentation reports the results of a study aimed at describing sexual violence experienced by athletes and includes information about the ways

of coping, the physical and psychological reactions of the victims, and the divulgation strategies. The fifth presentation aims to gain an understanding of how female athletes victims of sexual exploitation in sport negotiate the dominant female narrative of living the elite sport dream and experience the consequences of living their dream. Thus, the symposium will highlight practical implications of these studies, especially in terms of prevention. Some methodology issues will also be discussed.

- **Interpersonal violence against children in sport in Belgium and the Netherlands**

Tine Vertommen[1], Nicolette Schipper-van Veldhoven[2], Filip Van Den Eede[1]
[1]University of Antwerp, Belgium, [2]Netherlands Olympic Committee, The Netherlands

Notwithstanding the difference in prevention policy between Belgium and the Netherlands, both regions suffer under the lack of reliable prevalence rates on interpersonal violence against children in sport. This presentation reports the first large scaled prevalence study in both countries. In accordance with the UN Convention on the Rights of the Child, this study defines interpersonal violence against children as “all forms of physical or mental violence, injury and abuse, neglect or negligent treatment, maltreatment or exploitation”. A cross-sectional, retrospective design, using an online survey, provides a quantitative assessment of psychological, physical and sexual violence in a representative sample of adults, prescreened on having participated in organized sport before the age of 18 (N=4043). Because of the broad definition of violence, experiences are classified into severity categories, based on the intensity and frequency. Hypotheses of increased risk of victimization related to sex, sport type and level, sexual orientation or disability are tested using chi square tests and binary logistic regression. 37% of the total sample reported at least one experience with psychological violence in sport. Physical violence is reported by 11% of respondents, sexual violence by 14%. When only considering the most severe category, psychological violence is reported in 9%, physical in 9% and sexual violence in 6%. Competing at international level, LGB (lesbian, gay, bisexual) and disability proved to be risk-increasing factors for all types of violence. These results are in conformity with international prevalence rates on sexual violence in sport. We suggest that Dutch and Flemish safeguarding policy should focus on all forms of interpersonal violence against children, with particular attention to peer-to-peer violence, elite level athletes and minority groups. The development of a uniform methodology to measure and internationally compare the prevalence of interpersonal violence is now required, to legitimize continuing efforts in child protection in sport.

- **Emotional abuse in Danish organised sports**

Jan Toftegaard Stockel
University of Southern Denmark

The purpose of this retrospective study was to investigate the associations between selfreported sickness, stress and depression (SSD) and, sport level, gender, age and physical, emotional, social, financial and sexual factors. This study was carried out as a post-enquete among 4,000 athletes aged 18-55 years (current and retired, elite to recreational level, team and individual sports, male and female). 1705 athletes completed the questionnaire yielding a response rate of 53 pct. Based on existing studies by Fletcher and Hantons 2003-studies of organizational stress in elite sports, sport related-SSD was chosen as the key dependent variable to pinpoint the opposite of positive psychological wellbeing. Results show that 57 pct. (N=961) of athletes experienced emotional abusive behaviours as youth athletes, but only 16 pct. of these recognized the experiences as emotional abuse. A total of 16 percent of athletes (N=263) reported they have suffered from sickness, stress and depression because of experiences in sport. Using the recreational sport level as reference, odds ratio (OR) for SSD at regional level was 2,787 [CI: 1,574-4,932], national level OR 4,651 [CI: 2,646-8,176] and international elite level 6,560 [CI: 3,889-11,066]. Using male athletes as reference, female athletes had OR 1,5 for SSD. Regression analyses with 21 variables belonging to the framework of organisational stressors revealed that athletes’

perception of emotionally abusive coaching behaviours remained in the model along with lack of peer support during periods of injury. Intimate coach-athlete relationship issues was only borderline significant in relation to SSD. Implication: Athletes fail to identify emotionally abusive as abuse, and subsequently a high tolerance towards authoritarian power behaviour, neglect and power behaviour seem to prevail in the sporting culture regardless of sports level. There is a strong potential for coaches, talent development programs and Elite sport support systems to prevent sport drop-out by addressing athlete welfare issues.

- **Sexual violence experienced in the sport context by a representative sample of Quebec adolescents**

Sylvie Parent[1], Francine Lavoie[1], Marie-Ève Thibodeau[1], Martine Hébert[2], Martin Blais[2]
[1]Université Laval, Canada, [2]Université du Québec à Montréal, Canada

Sexual violence against children and youth under the age of 18 years have received increasing attention in recent years. Despite this growing interest, we can observe significant methodological limitations in existing prevalence studies, including a lack of statistical representativeness and low response rates, especially with regard to male athletes. In addition, these studies have, in almost all cases, used a retrospective design whereby adults were interviewed about their experience with sexual violence throughout their athletic careers. To our knowledge, this is the first study to report the prevalence of sexual violence in sport within a representative sample of the general population of adolescents aged between 14 and 17 years (N = 6450). The questionnaire used in highschools includes self-reported measures on a variety of dimensions relevant to the study of victimization, including sexual abuse, sexual contacts perceived as consensual, sexual harassment and involvement in organized sport. Descriptive and chi-square analyses were performed. The results show that 0.5% of adolescents suffered sexual abuse by a coach (0.4% for girls and 0.7% for boys). These adolescents also reported experiencing sexual harassment from a coach (0.4%) (0.2% for girls and 0.6% for boys) and consensual sexual contacts (1.2%) with a coach in the year preceding the study. In regard of sexual contacts perceived as consensual, boys account for 67.7% of the victims. Questions are raised on the overrepresentation of boys in various forms of sexual violence and on the way research is conducted especially in regard to gender.

- **A psychological study of sexual violence in sport: ways of coping and psychological reactions of abused sportsmen**

Greg Décamps[1], Anne Jolly[2]
[1]Université de Bordeaux, France, [2]Independant clinical psychologist, France

Scientific studies specializing in sexual violence and harassment are rare in sport psychology. Whereas some sociological studies described the diversity of the assaults encountered by sportsmen, its psychological consequences remain unfrequently documented. This statement conducted the French Ministry of Sports to propose a large investigation of sexual violence in sports. This study included 1407 male and female sportsmen (aged from 14 to 27) who were asked to describe the nature of the sexual assaults they had to face with a specific questionnaire (Jolly & Décamps, 2006) including the assessment of the ways of coping described by the victims when facing violent acts, the physical and psychological reactions of the victims and the divulgation strategies. Results revealed that 17% of the sportsmen declared at least one situation of sexual violence since they started their own sport practice. Data gathered amongst the 157 victims showed that minimization was the most frequent way of coping and that social support seeking was the less used. Emotional and social reactions are more frequently described than physical reactions. 24% of the victims never revealed being abused before answering the study. Those who did mainly told it to friends (73% of them) and very few of them told it to adults (23%). The results will be discussed in terms of prevention of maladaptive reactions among victims of sexual violence: even if the minimization of the violent acts can be considered as a protective reaction, this coping strategy suggests that group norms might lead to the

acceptance of sexual violence by sportsmen. Then, psychosocial and educative interventions should be proposed in order to improve cohesive and protective regulation within sport groups.

- **Negotiations of female athletes sexually exploited by their coaches: «To live or to lose the dream?»**

Ani Chroni
Hedmark University College, Norway

An intricate choice, accompanied with imperative consequences, is faced by female athletes who are sexually exploited by their coaches: “To speak out and jeopardise the elite career dream, or put up with the exploitation and live the dream?” The study attempts to answer this question using multiple athlete-victims’ voices in order to draw attention to a problem that requires further immediate action. Through narrative, analysis, reflexivity, and interpretation the overall aim was to gain an understanding of how ordinary female athletes negotiate the dominant female narrative of living the elite sport dream, reach a decision to act or not to act, and experience the consequences in the process of living their dream. Existing documents (internet published interview texts, athlete blogs) narrating the stories of six elite female athlete-victims were used. These six cases were selected as these women publicly voiced their perspective over the experience, the negotiations endured with self and significant others, the consequences faced as well as decisions made and actions taken. The findings presented here focus on (a) the minimum choices viewed by the athletes and their increased vulnerability toward the choice “not to lose the dream”, and how these relate to the absence of laws and policies, and lack of empowerment of the female athlete, and (b) the negative aftermath that blights the lives of the women who experience abuses of power by the coach, which relates to the complex dynamics characterizing the coach-athlete relationship. In conclusion, the need for alternatives among the infrastructures of sport (grass route and elite) will be discussed as crucial for the retention and life of the female athlete. These alternatives can allow the female athlete to follow a “safer” path for sport experience and success, a path that will not ask her to sacrifice particle of her self-esteem and dignity.

S2.05: Symposium - The influence of personality-trait-like individual differences on performance under pressure

Chair(s): Sylvain Laborde (University of Caen, France), Fabrice Dosseville (University of Caen, France)

Individual differences at the psychological level make each individual performing under pressure unique. Going beyond the classical dimensions of the Big 5, this symposium will introduce the concept of personality-trait-like individual differences (PTLIDs), regarding their role to explain and predict behavior under pressure. After a review of the different PTLIDs influencing behavior in pressurized performance contexts, we will focus on specific PTLIDs such as emotional intelligence, reinvestment, and resilience. At the theoretical domain, we will underline the challenges of combining PTLIDs instead of considering them separately, in order to uncover common shared mechanisms. Regarding the application domains, we will cover a broad range going from sport competitions to public speaking. The exciting question of whether PTLIDs are fixed or can be trained will also be addressed. Finally, practical implications will be given regarding the use of PTLIDs in research settings, as well as with coaching individuals, taking into account their uniqueness to help them achieve peak performance under pressure.

- **Personality-trait-like individual differences and their influence on performance under pressure: A review**

Emma Mosley[1], Sylvain Laborde[2]
[1]Bournemouth University, UK, [2]University of Caen, France

Personality, for the most part, is a stable construct and therefore an individual's personality is not likely to change and can have an underlying influence over behaviour irrespective of the situation or conditions faced. Subsequently, this advocates personality as a useful predictor of performance in pressurized environments. The current research focus shifts away from broad measures of personality, such as the big five personality dimensions, as this may not account for the unique individual differences that influence the behavioural outcomes and experience of pressure. The emphasis, therefore, is placed upon an individualized approach that focuses on the many other individual differences located at the trait level; an umbrella term known as personality-trait-like individual differences. The highlighted group of PTLIDs were selected for their influence on performance under a range of pressured environments. These include traits such as hardiness, which help a person cope and withstand stressful events, and trait emotional intelligence, which is the way individuals deal with their own emotions and with others' emotions. The current research provides a theoretical perspective of PTLIDs in order to further understand individuals' behaviour under pressure and suggests pathways for future research.

- **Predicting a failure of public speaking performance using psychological and physiological assessments**

Jiewen Hua, Christine Le Scanff, Edith Filaire
University of Paris-Sud 11, France

The aim of the study was to better understand the psychological determinants of a public speaking task failure, and then to find methods to prevent it.
The Trier Social Stress Test (TSST, Kirschbaum et al., 1993) has been developed to induce the acute psychosocial stress in laboratory setting by using a public speaking task. For an ecological reason, an adapted protocol was proposed and the objective performance has been evaluated. Participants were 43 healthy university students (19 males and 24 females). Psychological measurements included using the Big 5, State Trait Anxiety Inventory, Positive and Negative affect Schedule, Brief version of COPE, and threat and challenge appraisals. Physiological measures included the collection of salivary samples at six time points for the analysis of cortisol and DHEA, as well as a cortical to DHEA ratio. Objective performance was evaluated by three qualified assessors following certain criteria adapted from Harb et al., (2003) to judge a speech among patients with social phobia. Objective performance was associated negatively with state and trait anxiety, threat appraisal and dysfunctional coping, negative affect and a unique physiological parameter: cortisol to DHEA ratio. Moreover, there was an indirect effect of trait anxiety on the objective performance through the dysfunctional coping. Implications for training will be discussed: using the stress protocol to practice, help people to better know their psychological characteristics and to use adaptive coping.

- **Psychological resilience in sport and performance psychology: A review of protective factors**

Mustafa Sarkar
University of Gloucestershire, UK

Psychological resilience has been defined as "the positive role of individual differences in people's response to stress and adversity" (Rutter, 1987, p. 316). These "individual differences", which are more commonly referred to as protective factors in the resilience literature, have been examined by scholars seeking to identify the qualities of resilient individuals. The purpose of this presentation is to review the findings from recent research in this area particularly focusing on a study examining psychological resilience in Olympic champions (Fletcher & Sarkar, 2012) and recent research exploring resilience and thriving in

high achievers (Sarkar & Fletcher, 2014). The first described study sought to explore and explain the relationship between psychological resilience and optimal sport performance. Twelve Olympic champions were interviewed and a grounded theory approach was employed throughout the data collection and analysis. Findings indicated that Olympic gold medalists possessed several psychological-related phenomena (viz. a positive personality, motivation, confidence, focus and perceived social support) that underpinned the stress-resilience-performance relationship. The second described study sought to identify and explore resilient qualities that enable high achievers to thrive in pressured environments. Thirteen high achievers from eleven professions were interviewed and interpretative phenomenological analysis was used to analyze the data. Results revealed six superordinate themes that characterized resilience and thriving: positive and proactive personality, experience and learning, sense of control, flexibility and adaptability, balance and perspective, and perceived social support. In terms of the implications of these findings, practitioners should identify and monitor the protective factors that an individual needs to develop in order to exhibit resilience, and intervene in weaker areas that could greater protect aspiring elite performers from negative consequences.

- **Alexithymia, performance satisfaction, cortisol and alpha-amylase in international tennis players during a chronic stress**

Edith Filaire, Jiewen Hua, Christine Le Scanff
University of Paris-Sud 11, France

Alexithymia is a personality trait characterized by difficulties in identifying, describing and communicating one's own emotions. Recent studies have associated specific effects of this trait and its subfactors with hypothalamo-pituitary-adrenal (HPA) axis markers during stress. The aim of this study was to analyze the association between alexithymia and its subfactors with HPA and sympatho-adrenal medullar (SAM) activity after an intensive training and matches period. Nineteen international tennis players completed the Alexithymia questionnaire at the beginning of the experimentation (T1). The State and Trait Anxiety Inventory (YB) and the collection saliva for cortisol and alpha-amylase analyses were realized at T1 and T2 (after the training program). Salivary samples were scheduled on several occasions during a resting day on awakening, 30 min after, 1h after, and on the evening. Satisfaction of the performance during the period of the experimentation was evaluated using a likert scale from 1 (totally dissatisfied) to 10 (totally satisfied). Tennis players reacted to the training period with a lower overall ouput of cortisol and higher SAM responses compared to T1. Alexithymia and its subfactors were specifically related to cortisol responses. Regression analyses revealed that the decreased HPA activity was related to only one alexithymia subfactor, the difficulties in describing feelings (DDF) and to the satisfaction of performance. Implications for mental coaching will be discussed. Further investigations are needed to understand the role of emotion regulation on the neuroendocrine responses during chronic stress.

- **Reinvestment: Examining convergent, discriminant, and criterion validity using psychometric and behavioral measures**

Lisa Musculus[1], Sylvain Laborde[2]
[1]German Sport University Cologne, Germany, [2]University of Caen, France

Reinvestment is associated to performance breakdown under pressure. However, to date, only scarce external validity is available concerning the reinvestment construct. Therefore, the aim of this four-study research project was to further explore the validity of the Movement-Specific Reinvestment Scale and the Decision-Specific Reinvestment Scale, using psychometric and behavioral measures. Study 1 showed that deliberative participants had a higher reinvestment tendency than intuitive participants. Study 2 showed that reinvestment was linked to self-consciousness, rumination, perfectionism, and had satisfactory test-retest reliability. Moreover, it provided some potential insights on the development of reinvestment due to parental criticisms. Study 3 indicated that high decision

reinvestors performed worse than their low decision reinvestor counterparts in a visual search task under pressure. Study 4 showed that older participants had a lower reinvestment score, and that reinvestment was associated with higher motor imagery ability, challenging the idea that reinvestment can only be seen as detrimental to performance.

IW2.1: Invited Workshop - Want to publish qualitative research? Tips on how to do and publish quality qualitative research

Brett Smith
Loughborough, United Kingdom

This workshop is concerned with how to publish high quality qualitative research in sport, exercise and health psychology journals. It will cover key elements that constitute 'good' and 'bad' qualitative research. These elements include a cohesive literature review that critically funnels down to a valued purpose, relevant topic, epistemology, methods, analysis, interpretation of results, and a critical discussion. Throughout the workshop various 'tips' will be offered with regard to how to publish qualitative research. These 'tips' are not magical recipes for achieving instant or any success. Rather, the 'tips' are modest thoughts about how to increase chances to publish quality qualitative research. The tips are based on Brett's failures and successes of publishing qualitative research in both sport and exercise psychology journals as well as mainstream journals, such as Health Psychology. The tips are also based on the 'hidden secrets' he has learnt as an international journal editor for over 6 years (Qualitative Research in Sport, Exercise and Health), as an associate editor for 5 years (Psychology of Sport and Exercise), being an editorial board member of 9 journals (e.g., Sport, Exercise and Performance Psychology), and reviewing over 1500 papers for 57 international journals. Workshop participants are invited throughout to ask questions regarding what they consider pertinent in terms of doing qualitative research and getting this work published.

W2.1: Workshop - Building successful and effective coach-athlete relationships

Sophia Jowett
Loughborough University, UK

Examples of extraordinary coaching success, where the coach-athlete relationship has seemingly been at the heart of this process, can be found in the likes of Jessica Ennis and Toni Minichiello (athletics), Alex Ferguson and Cristiano Ronaldo (football), as well as Andy Murray and Ivan Lendl (tennis). The common thread of these examples and others outside the United Kingdom (e.g., Mourinho & Materazzi – Spain; Isinbayeva & Trubnikov – Russia; Bob Bowman & Michael Phelps - USA) is the strong connection that exists between coaches and athletes. These real-life examples coupled with empirical evidence underline that neither the coach nor the athlete can make the long and arduous journey to performance success alone. The quality of relationship developed and maintained helps create a shared sense of purpose that can energise and drive coaches and athletes. This practical-focussed workshop is based on leading edge research. It discusses the power of relationships for growth and development as well as present effective strategies to strengthen them by offering practical research-based tools, skills and knowledge.The workshop provides practical ways that assist in the diagnosis and prognosis of the quality of coach-athlete relationships and highlights practical ways that allow their improvement. A newly developed software programme is presented to achieve these objectives. Overall, participants (consultants and trainees, sport scientists, managers, coaches/athletes) will have the opportunity to learn new insights and practical skills that can dramatically improve the relationship quality and in turn the performance and satisfaction of those involved in the relationship.The workshop will integrate formal teaching moments as well as informal group discussions including interactive and experiential (individual/group) tasks. The attendees will require to bring along a laptop or similar device. Internet connection will be required.

W2.2: Workshop - Cooperative learning approach to enhance sport psychology courses

Diana Elizabeth Avans
Vanguard University, USA

The purpose of this workshop is to demonstrate a cooperative learning approach to teaching sport psychology concepts. Undergraduate sport psychology courses predominately use lectures with some class discussion. In order to facilitate more active learning a team/cooperative learning approach can be used. Slavin (1991) reviewed 67 studies utilizing cooperative learning and found that 61% of cooperative learning classes had higher exam scores. Additionally, classes that had group goals and individual accountability were more effective. Students in cooperative learning style classes have shown improved reasoning and critical thinking skills (Johnson & Johnson, 1989). Students in diverse groups (gender, ethnicity, learning styles) demonstrate a deeper understanding of material versus homogeneous groups (Wenzel, 2000). At smaller universities, classes usually have a mix of majors (e.g. Kinesiology, Psychology, Business), men and women, athletes and non-athletes, various ethnicities which encourages the forming of heterogeneous base groups. This workshop would introduce the instructional strategy utilizing base groups to complete an integrative team assignment to reinforce learning obtained through reading and lecture. The assignment briefly entails the following: the student completes the assigned case study from Case Studies in Sport Psychology (Rotella, 2008) individually as a homework assignment. They then work with their base group to complete the integrative team assignment (concept map). They are evaluated on their individual, group, and feedback responses with the opportunity to earn an extra “reward”. Participants in this workshop would complete the exercise in the same manner, experience creating a team map and giving encouraging and specific critique to other’s responses. Each team member completes the assignment by writing a one minute reaction paper to express their learning, feelings about the feedback, etc. This workshop would encourage the participants to offer suggestions and brainstorm other ways to incorporate cooperative learning into the class and both the undergraduate and graduate level.

W2.3: Workshop - Girls LEAD Nepal: An evidence-based workshop for empowering girls and women through sport

Sam J. Zizzi[1], Amanda J. Visek[2], Marc Weinstein[3]
[1]West Virginia University, USA; [2]George Washinton University, USA; [3]FHI360, USA

Sport for development projects have increased in recent decades; and, impact studies across multiple cultures in which sport for development projects have been implemented indicate measured improvements in self-efficacy, self-esteem, and gender attitudes (Coalter & Taylor, 2010). Although sport for development projects can take many different forms and serve multiple aims, there is substantial research evidence indicating a positive relationship between sport participation and the social integration and social inclusion of girls and women (Larkin, 2007). Thus, a key benefit of sport is its usefulness as a health-enhancing tool to promote gender equity and empower girls and women, particularly those in developing countries. Sport for development programs must be adapted to be culturally-relevant and delivered in a manner that is culturally-appropriate. Because there are no defined best practice standards for sport for development programs, conceptualizing, implementing, and evaluating these programs can be challenging for both novice and seasoned program planners. Moreover, the literature is in need of quality evidence from well-designed and evaluated programs. The Girls Leadership and Empowerment through Sports Development (Girls LEAD) is a federally-funded sport for development program that engaged U.S. and Nepali participants in a two-way exchange to: (a) explore ways sport can be used to help Nepalese girls and women develop skills to inspire and empower them to become community leaders, and (b) design and deliver sport-based intervention programs in local communities throughout Nepal. To enhance scientist-practitioners’ future program planning and evaluation of sport for development programs, the objectives of this workshop are to: (a)

share the programmatic and community impact of Girls LEAD using a case study approach, and (b) use evaluation data to debate and discuss best practices for integrating sport into cultures where women are oppressed. Examples of the Girls LEAD training activities, evaluation rubrics, and outcome assessments will be shared.

W2.4: Workshop - Supervision for applied sport psychology trainees: Models and practice

Jamie Shapiro[1], Judy Van Raalte[2], Erika Van Dyke[2]
[1]University of Denver, USA; [2]Springfield College, USA

The primary purpose of supervision is to ensure that athlete-clients receive appropriate care. A secondary and important purpose of supervision is the development of sport psychology trainees as knowledgeable, competent, and ethical practitioners (Van Raalte & Andersen, 2000). Reaching these supervision goals can be facilitated by implementing a supervision model based on the developmental level of the trainees; fostering a safe atmosphere for trainees to discuss successes, challenges, and mistakes; offering vicarious learning experiences via peers; discussing ethical issues; encouraging self-reflection; and evaluating and receiving feedback on the supervision process (Silva, Metzler, & Lerner, 2011; Van Raalte & Andersen, 2000). Supervision can take many forms, such as group supervision, individual supervision, direct observation (in vivo or video), and reviewing case notes (Silva et al., 2011). The learning objectives for this workshop are: (a) learn about models of supervision, (b) discuss supervision techniques, and (c) demonstrate how to work through challenges in supervision. In small groups, participants will discuss key components of supervision, effective supervision training models, and challenges to providing applied sport psychology supervision. A large group discussion format will be used to share supervision models, best practices, and strategies to work through challenges. Two faculty members from different universities will facilitate the discussion while presenting their own models of supervision for graduate student trainees. A current trainee will then present a case from her fieldwork (with confidentiality protected) for participants to discuss in small groups with a focus on supervision approaches and how best to provide supervision for the trainee. The workshop will conclude with questions and discussion of supervision topics. The target audience for this workshop includes sport psychology trainees and those invested in the training of applied sport psychology practitioners.

Session 3 – Wednesday 15 July, 5pm-6.30pm

IS3.1: Invited Symposium - Understanding why athletes dope: Social psychological perspectives

Chair(s): Maria Kavussanu (University of Birmingham, UK)
Discussant(s): Anne Marie Elbe (University of Copenhagen, Denmark)

Doping is a significant problem in sport, constituting a threat not only to the health of athletes but also to the integrity of sport. Understanding the social and psychological factors that may lead athletes to dope is essential for the fight against doping. A better understanding of these factors would help inform the development of doping prevention programs. It is widely accepted that prevention is preferable to detection. Indeed, in recent years, the World Anti Doping Agency (WADA) has funded numerous research projects as part of its Social Science Research program. This symposium includes four studies that have been funded by WADA to examine social psychological factors associated with doping in athletes; a fifth study has investigated doping in bodybuilders. An overview of the studies included in this symposium is presented below. The first study examined the psychometric properties of a new measure of self-regulatory efficacy, which refers to the perceived capacity to pursue goals and self-regulate. The study recruited athletes from three European countries (Italy, Germany, and Greece). The second study also investigated self-regulatory efficacy but also examined eating behaviors as mediators of the relationship between self-determined motivation and doping intention in French athletes. Studies 3 and 4 were conducted in the UK and Belgium respectively, and used qualitative methods. Study 3 recruited body builders and investigated moral disengagement in users and non-users of image and performance enhancing drugs, while Study 4 examined factors that influence elite athletes' attitudes toward forbidden substances. Finally, Study 5 was conducted in the UK, Denmark and Greece, and examined whether moral identity, moral atmosphere and performance motivational climate predict doping intention in football players, and whether moral disengagement and anticipated guilt mediate the effects of these variables on doping intention. Overall, the studies included in this symposium underline the importance of social and psychological factors in doping.

- **Development of a doping-related self-regulatory efficacy measure: A cross-national validation**

Vassilis Barkoukis[1], Fabio Lucidi[2], Ralf Brand[3], Lambros Lazuras[1], Luca Mallia[4], Franz Baumgarten[3], Arnaldo Zelli[4]
[1]Aristotle University of Thessaloniki, Greece, [2]Sapienza University of Rome, Italy, [3]University of Potsdam, Germany, [4]University of Rome "Foro Italico", Italy

Self-efficacy reflects the perceived capacity to pursue goals and self-regulate (Bandura, 1986). In doping research, self-efficacy beliefs have been largely studied within the Theory of Planned Behaviour (TPB) as perceptions of perceived behavioural control, but less emphasis was placed on self-regulatory functions (Ntoumanis et al., 2014). This was possibly due to the lack of an appropriate instrument to measure self-regulatory efficacy. The present study aims to examine the factorial and predictive validity and internal consistency of a newly developed measure of self-regulatory efficacy across three European countries. The sample of the study consisted of 749 young, team sport athletes aged between 14 to 19 years old (M=16.43, SD=1.69). Athletes were recruited from Italy (N=351), Greece (N=216) and Germany (N=182). Participants completed a newly developed measure of doping-related self-regulatory efficacy, reflecting the capacity to self-regulate internal and external pressures to engage in doping, and a measure of doping use intentions. The results of a confirmatory factor analysis supported the two-factor structure of the self-regulatory self-efficacy measure. Importantly, the measurement characteristics of the scale were invariant across the participating countries. A hierarchical regression analysis revealed that only internal self-efficacy predicted doping use intentions confirming the predictive validity of the scale. The internal consistency coefficients were high and satisfactory (α > .75) for both facets of the

measure across the three countries. The present study provides a new measure of self-efficacy that can be used in future studies of doping use. Also, the cross-national validation of the results paves the way for future study in this area.

- **Self-determination and doping intention in elite male team athletes**

Karine Corrion, Stéphanie Scoffier-Mériaux, Fabienne d'Arripe-Longueville
University of Nice Sophia-Antipolis, France

Identifying the motivational antecedents of self-regulatory mechanisms in the eating and doping behaviors of athletes remains a gray area in the scientific literature and the design of anti-doping education programs. Bandura et al. (2003) identified self-regulatory efficacy related to affectivity, which has been shown to influence attentional, cognitive, and motivational processes (Gross & Munoz, 1995; Larsen, 2000). The literature reveals strong similarities between the psychosocial factors of athletes' eating behaviors and doping, such as the role of self-determination (Barkoukis et al., 2011; Kopp & Zimmer-Gembeck, 2011). Furthermore, a relationship between eating behaviors and doping has been demonstrated (Mallia et al., 2013), as has an association between affective self-regulatory efficacy and sport cheating (d'Arripe-Longueville et al., 2010). Yet, the relationships among self-determination, affective self-regulatory efficacy, eating behaviors and doping intention have never been studied concomitantly. This study therefore examined the relationship between self-determined motivation and doping intention through the potential mediating roles of affective self-regulatory efficacy and eating behaviors. Data were collected from 157 male athletes who completed measures of self-determination, affective self-regulatory efficacy, eating behaviors and doping intention. The results indicated that intrinsic motivation, affective self-regulatory efficacy, and eating behaviors all significantly contributed to doping intention. Affective self-regulatory efficacy mediated the relationship between intrinsic motivation and eating behaviors, which themselves mediated the relationship between affective self-regulatory efficacy and doping intention. These results are consistent with previous works concerning the relationship between self-determination and affect in the sport context (Puente & Anshel, 2010). The mediations we observed allowed helped us to improve our explanation of how eating behaviors and the doping intention are controlled through the influence of affective self-regulatory efficacy. Further experimental research is needed to determine which motivational and affective strategies would be useful for the health maintenance of at-risk athletes.

- **Moral disengagement in young recreational bodybuilders**

Ian Boardley, William Jones
University of Birmingham, UK

A growing body of qualitative research demonstrates moral disengagement (MD) in athletes who report use of image and performance enhancing drugs (IPED), and quantitative research has identified positive associations between MD and reported use and intention to use IPED. Researchers to date have not specifically investigated MD in young recreational bodybuilders, nor have they investigated differences in MD between users and non-users of IPED. Bandura's (1991) social cognitive theory of moral thought and action was used to investigate the eight mechanisms of MD. The primary aim of the study was to identify any differences in type and frequency of MD between IPED users and non-users in young recreational bodybuilders. Semi-structured interviews were conducted with eleven young (age 16-24) male recreation bodybuilders; seven participants were currently using or had previously used IPED, whereas four others had been offered IPED but had declined to adopt their use. Data were content analysed deductively using definitions for the eight MD mechanisms. Data analysis revealed six of the eight MD mechanisms for IPED users and non-users alike. However, frequency analyses evidenced all six mechanisms were used more frequently by IPED users compared to non-users, with non-users apparently far less able – or prepared – to rationalise IPED use through MD. The findings provide clear evidence that MD is more frequent in young recreational bodybuilders who have used IPED

in comparison to non-users who train in similar environments and who have access to IPED. This finding provides further evidence of the potential role MD may play in facilitating IPED use in athletic populations.

- **A lifespan and holistic perspective on athletes' drug-taking behaviors: Presenting results of an on-going WADA study**

Koen de Brandt, Paul Wylleman, Nathalie Rosier, Jolan Kegelaers
Vrije Universiteit Brussel, Belgium

The bulk of research on performance-enhancing drugs has focused on the identification of different doping substances and the strategies to combat them. However, there is a lack of research examining the underlying decision process that will determine whether or not athletes will resort to the use of such performance-enhancing drugs. Combining two conceptual frameworks, namely the Holistic Athletic Career model (Wylleman, Reints, & De Knop, 2013) and the push-pull framework (Fernandez, Stephan, & Fouquereau, 2006), this study aims to come to an in-depth, holistic understanding of factors in an athlete's development that influence his/her attitudes towards the use of forbidden substances. Inductive-deductive analyses of 33 semi-structured interviews with Belgian (former) elite athletes, revealed that athletic (e.g. the lure of improved performance), social (e.g. positive peer attitudes towards doping), and to a lesser extent psychological factors (e.g. need to prove oneself) may lead athletes towards the use of forbidden substances. On the other hand, psychological (e.g. ethical objections) and social factors (e.g. important others' disapproval), as well as the perceived risk of health issues, are determining in turning athletes away from the use of doping. Studies like this one, examining the decision process related to the use of performance-enhancing drugs, allow for the development of more preventive anti-doping strategies, rather than solely relying on repressive tactics.

- **A conceptual model of doping intentions in sport**

Maria Kavussanu[1], Antonis Hatzigeorgiadis[2], Anne Marie Elbe[3]
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Research investigating psychosocial factors associated with doping intentions is essential for the fight against doping. Based on previous research (Kavussanu, 2012), we tested a conceptual model of doping intentions in sport. Performance motivational climate (i.e., the situational goal structure as reflected in the coach's behavior), moral atmosphere (i.e., players' perceptions of what is acceptable behaviour within the team), and moral identity (i.e., the importance one places on being a moral person) were distal predictors of doping intentions; ego orientation, moral disengagement (i.e., the justifications people use for doping) and anticipated guilt were considered mediators of the effects of the distal predictors on doping intentions. Participants were 1,432 elite football players recruited from three European countries: UK (n = 506; 251 males; mean age 18.42); Denmark (n = 463; 214 males; mean age 21.00); and Greece (n = 463; 256 males; mean age 21.82). They completed questionnaires assessing the aforementioned variables. Structural equation modelling showed that the hypothesized model had a marginal fit to the data (CFI: .89, RMSEA: .05); Based on conceptual grounds and the modification indices, an alternative model was tested. This model had a good fit (CFI: .93, RMSEA: .04) and explained 49% of the variance in doping intentions. In this model, performance motivational climate, moral atmosphere, and moral identity predicted doping moral disengagement, which, in turn, predicted doping intentions through anticipated guilt. Moral atmosphere and moral disengagement also had direct effects on doping intentions. These findings suggest that the socio-moral environment of the team may lead footballers to use doping substances to enhance their performance, while a strong moral identity could deter them from using such substances.

SS-R3.1: Special Session - Roundtable: Publishing in sport and exercise psychology journals

Bernd Strauss[1], Nikos Ntoumanis[2], Robert Eklund[3], Athanasios Papaioannou[4], Daniel Gucciardi[2], Glyn Roberts[5], Andrew Hill[6]
[1]University of Münster, Germany; [2]Curtin University, Australia; [3]University of Stirling, UK; [4]University of Thessaly, Greece; [5]Norwegian School of Sport Science, Norway; [6]York St. John University, UK

Due to the systematic peer-review process and the evaluation of quality, as well as the worldwide availability of papers via internet platforms provided by commercial publishers or Open Access platforms, publishing in journals is becoming the most important type of a research publication. Publishing in highly prestigious journals is part of a competition among authors but also among the journals themselves. This trend can also be observed for Sport and Exercise Psychology Journals (as JSEP, PSE, SEPP, IRSEP, IJSEP, IJSP, FMSSP, TSP, JASP) or Sport Science Journals with a visible Sport and Exercise Psychology Section (as e.g., JSS, SJMSS, EJSS, JSSM). On the one hand this process is able to facilitate the quality and the amount of sport psychological research, on the other hand it brings pressure into the system, which can lead to inappropriate or problematic behavior of authors, reviewers, as well as the journals. Among the problems are, that journals often receive submissions which are not conceptually or methodologically sufficiently novel along with a lack of a substantial incremental contribution to the literature. A further increasing problem, which can be ethically relevant, is related to the rising number of submissions which use already published data or parts of them without publishing a connection between them. In this symposium we will give an overview about the worldwide state and development of Journals in Sport and Exercise Psychology. Five to six Editors-in-Chief or Sport and Exercise Psychology Section Editors of Sport Science journals (PSE: Bernd Strauss/Nikos Ntoumanis; JSEP: Robert Eklund, IJSEP: Athanasios Papaioannou, EJSS: Daniel Gucciardi, SJMSS: Glyn Roberts/Andrew Hill) will briefly present their „own“ journal and will discuss strengths, developments, and problems of the journal market (e.g. ethical issues, the Impact Factor focus, replication projects, role of societies).

S3.01: Symposium - Elite coach and athlete leadership development: Best practices from a global perspective

Chair(s): Gordon A. Bloom (McGill University, Canada)

Sport leaders have many different roles, including teacher, mentor, and community leader. Within sport teams, there are two important sources of leadership, those that emanate from coaches and those that emanate from teammates. Both of these leadership roles affect the development of athletes on and off the field of play. The role of the coach allows them to teach and instill life skills such as leadership and teamwork, variables that are also transmitted by athlete leaders to their teammates. Additionally, preliminary findings from the disability sport context have found many parallels in coaching and athlete leadership behaviors, including their impact on team functioning and success. Many of the greatest teams in the last century have credited their success to strong team leadership from both coaches and athletes. As such, people may wonder whether there are common developmental characteristics and leadership opportunities that would help the development of highly regarded coaches such as Sir Alex Ferguson and Phil Jackson, as well as noted athletes such as Ryan Giggs and Michael Jordan. The purpose of this symposium is to provide an overview of key coach and athlete leadership development strategies to help improve team functioning. Each presenter will share summaries of evidence-based research that will explain how to optimize the development of coach and athlete leader effectiveness. Presentations one to three will focus on aspects of elite coach development, beginning with the Canadian Paralympic context, followed by elite coaches from the Australian and American contexts. Additionally, the importance of mentoring will be critically analyzed and reviewed in each setting. Presentations four and five will examine athlete leadership development from the Canadian context, with specific focus on peer mentoring and athlete

leadership. The presenters have research and consulting experience with elite coaches and athletes in multiple sport settings across different countries and cultures.

- **Coach leadership development in Paralympic sport**

Gordon A. Bloom
McGill University, Canada

The growth in the number of participants and the popularity of Paralympic sport has led to higher performance and competition levels since it began in 1948. While there is much research on Olympic athletes, the same cannot be said for Paralympic athletes (Burkett, 2013), and even fewer investigations on coaches of athletes with a disability (Rangeon, Gilbert, & Bruner, 2012). An important initiative was the creation of the Committee on Sport for the Disabled in 1986 by the United States Olympic Committee. Among their recommendations, they noted that advancing disability sport would require empirical coaching research specific to this domain, as well as attention to the selection and training programs of these coaches. Currently, there is a paucity of empirical research on coaches of athletes with physical disabilities, as well as few practical resources for coaches working with athletes with a disability. The purpose of this presentation is to share the results of several ongoing empirical studies that have examined the developmental pathways and the leadership coaching skills of Paralympic coaches. Specifically, the presentation will offer a number of key suggestions for becoming a Paralympic coach, including sporting experiences, coach education, hands-on experiences, coach observations, and mentoring. The presentation will also offer practical leadership skills for coaching athletes with a disability such as providing appropriate feedback, setting realistic goals, and structuring the training volume, intensity, and periodization. Additionally, these coaches must adapt their strategies and knowledge specific to the coaching context in regards to issues related to accessibility, transportation, and the different athlete impairments, as well as promoting independence in their athletes. These results should ultimately lead to more positive training and competitive environments for some of the world's most underserved athletes by improving the selection and training of coaches who are interested in working in disability sport worldwide.

- **Problematizing the notion of mentoring in high performance coaches in Australia**

Cliff Mallett
The University of Queensland, Australia

The notion of mentoring is often viewed as the panacea for the perceived failure of formal coach education in the discourse on effective high performance coach development. Contemporary notions of mentoring are variable in relation to their nature, goal, and expected outcomes (Ehrich et al., 2004) and there is a lack of conceptual and practical clarity in making sense of how it is understood and enacted. Coach developers' calls for mentoring as a necessary form of mediated learning in the development of elite coaches might consider that they work in a highly volatile and contested environment. How coaches learn and develop within this contested space warrants examination. The primary purpose of this presentation is to draw from several research studies conducted in the Australian context to problematize the practice of mentoring within this volatile, competitive, and often chaotic setting. Recent qualitative research with high performance coaches in football (soccer) and Australian Football examined how coaches learn their craft (Mallett et al., 2007; Occhino et al., 2013). We used semi-structured interviews to elicit key themes associated with elite coach learning. The influence of others was a dominant source for learning. Indeed, it was the face-to-face interactions with experienced football coaches who were most valued. Nevertheless, these coaches reported challenges in the nature of learning from coaches of influence. Finding someone they respected and could trust challenged any notion of mentoring as understood in the literature (e.g., Cassidy et al., 2004; Jones et al., 2009). We termed the phrase dynamic social network to capture a more appropriate understanding of how these coaches learn and don't learn from these coaches of influence. These coaches

felt isolated and a lack of support in the developing their craft within their particular learning culture. Problematizing the notion of mentoring is necessary to inform policy and practice.

- **Sport coaching development: Knowledge acquisition from mentors and peers**

Matthew A. Grant
Valdosta State University, USA

Sport coaching education and sport psychology literature describes mentoring as a widely followed practice that provides the most authentic, contextualized, and meaningful activity for professional growth of coaches (Bloom, 2013; Cushion, 2006; Jones, Armour, & Potrac, 2003; Jones, Harris, & Miles, 2009). Within sport coaching education, most experts would agree that mentoring involves a more-experienced, influential person (mentor) and a less-experienced person (protégé) consciously participating in a non-familial, non-romantic, trusting, and respectful relationship for the purpose of positively impacting the former's professional development through direct contact over time (Grant & Clements, 2014). Contextually, knowledge passes from mentor to protégé and can be seen as learning in the larger context of coaching practice and dealing with specific issues experienced by the protégé during the establishment stage of a career. In a narrower scope—within specific sport organizations—peer relationships similarly affect professional development through mutually beneficial information sharing between peers, which can last an entire career (Kram & Isabella, 1985; Higgins & Kram, 2001). The type of peer relationship (i.e., informational, collegial, or special) dictates the depth, breadth, and type of knowledge acquired. The purpose of this presentation is to review seminal literature on mentoring and peer relationships in order to provide insights into the types of knowledge gleaned from each of the relationships. Results show that both relationships primarily provide interpersonal, conceptual, procedural, and organizational to protégés and peers, respectively. That said, mentors provide greater depth and broader scope when teaching protégés the values, behaviors, and skills needed for advancement. Peers tend to acquire job-related, performance-based knowledge through feedback and interpersonal interactions with each other. These findings also suggest that concurrent use of mentorships and peer relationships provide a more well-rounded knowledge base for professional development. Based on these results, suggestions for coaches and sport organizations will be discussed.

- **Advances in athlete leadership research: Insights for developing effective leaders**

Todd M. Loughead, Ashley Duguay, Krista Munroe-Chandler
University of Windsor, UK

The majority of research examining leadership has typically focused on coaches. Though coaches undoubtedly assume an important leadership position within their teams, there is another source of leadership—the athletes. Over the past decade, there has been a surge of empirical research exploring the significance of athlete leadership, which is defined as an individual who occupies a formal or informal leadership role within the team and influences team members to achieve a common goal (Loughead et al., 2006). Inherent in this definition is the notion that multiple athletes are enacting leadership. In fact, research has shown that having numerous athletes provide leadership is related to a variety of individual and team level correlates (e.g., Loughead et al., 2014). Given these positive links, it becomes important to assist athletes in becoming more effective leaders. Consequently, the general objective of this presentation is to present our recent efforts in developing a theoretically driven and empirically supported leadership development program for athletes. In particular, the first goal of this presentation is to highlight recent research examining what constitutes effective athlete leadership behaviors. Using the Full Range Leadership Model (Avolio, 1999), the results show that athletes use a variety of transactional and transformational leadership behaviors within the team environment. The second goal is to underscore the importance of these athlete leadership behaviors as perceived by athletes and coaches, which indicates that it is chief for athletes to display 16 of the 17 leadership behaviors. The final goal is to highlight the findings of a season-long athlete leadership development

program focused on fostering these leadership behaviors in a sample of elite level athletes that resulted in significant increases in the use of most of the leadership behaviors from pre-intervention to post-intervention.

- **Developing peer-to-peer mentoring relationships between athletes: Putting research to practice**

Matt D. Hoffmann, Todd M. Loughead
University of Windsor, UK

Mentoring is defined as a process whereby a more experienced role model (the mentor) provides guidance to a developing novice (the protégé) by assisting in that person's development (Weaver & Chelladurai, 1999). Mentoring relationships have been studied extensively in organizational contexts over the past 35 years and are related to numerous positive consequences for protégés, such as enhanced self-efficacy (Eby et al., 2013). In contrast, the literature on mentoring in sport is scarce and has primarily focused on coach-to-coach mentoring. Recently, we have undertaken a series of studies examining peer-to-peer athlete mentoring. Thus, the first objective of this presentation is to highlight the extant theory on mentoring in organizational settings. Specifically, Weaver and Chelladurai's (1999) conceptual model of mentoring in which instrumental and psychosocial mentoring functions are central to the mentoring process and are associated with aspects such as barriers, and protégé, mentor, and organizational outcomes will be presented. The second objective is to highlight some of our empirical research in sport showing that a) perceptions of psychosocial mentoring are positively associated with protégés' satisfaction in terms of individual performance and personal dedication and, b) peer mentored athletes are more satisfied with various aspects of their athletic experience than their non-peer mentored counterparts. Our recent project in which 14 elite athletes (e.g., Olympic, professional) were interviewed will also be discussed, including how peer mentoring has impacted their athletic achievements and personal development. Further, the results of this project showed that athlete mentors provided similar psychosocial functions (e.g., serve as role model), but different instrumental functions (e.g., mental skills development) than those identified in organizational settings.The final objective of the presentation is to provide strategies, including a facilitated mentoring approach, to encourage the development of peer athlete mentoring that can be implemented by coaches and sport psychology practitioners.

S3.02: Symposium - Sport and coaching within socio-economically disadvantaged communities

Chair(s): Juliette Stebbings (University of Birmingham, UK)

This symposium presents a variety of sport-based research and outreach work with youths from socio-economically disadvantaged (also referred to as disaffected, underserved, or underprivileged) backgrounds, and the coaches who work with them. The symposium focuses on an under-represented population, as the extant literature typically focuses on white, middle and upper class participants engaged in 'mainstream' sport settings. This is likely due to the 'hard to reach' nature of disadvantaged communities, yet the benefits of work in this field are myriad. It is essential that researchers address how sport can be used as a tool in this context to promote motivation, personal development, life skills, employability, and physical activity habits, in addition to sport-specific competencies, and how coaches can facilitate this. Presentation 1 describes insights from a variety of worldwide outreach projects designed to promote social change and development through the vehicle of sport. Presentation 2 outlines qualitative case study research focusing on the experiences of elite athletes from underserved urban communities, and the impact of the wider social network (families, neighbourhoods, schools, community programs) on youth development. Presentation 3 utilises a life story interview methodology to explore the experiences of a soccer coach working with disadvantaged young people, who himself was previously engaged in a delinquent and criminal lifestyle. Presentation 4 summarises results from a series of recent studies conducted with youth sport participants in the US and Africa, with a

focus on the role of the coaches in promoting positive youth development and life skills. Presentation 5 outlines findings from an interview study designed to capture community sport coaches' understanding of motivation and views on the strategies they utilise to engage disadvantaged youths, to inform subsequent coach education programmes. This symposium shares this diverse collection of work with the aim of encouraging future research attention in this field.

- **Sport as a tool for social change: An overview of the field and project findings**

Jutta Engelhardt
Swiss Academy for Development, Switzerland

The International Platform on Sport and Development, or sportanddev.org, is the most comprehensive resource on sport and development, showcasing more than 600 initiatives globally and almost 5,000 individuals who associate themselves to the community of practice using sport to trigger social change and development. It serves as the primary online communications platform and networking hub for the sector, connecting organisations and individuals around the world, and contributing to improved practice in the field by sharing knowledge and learning. The Swiss Academy for Development (SAD) launched sportanddev.org after a call from the then small community of practitioners in 2003 and has run it for the past 12 years. SAD is thus ideally placed to outline the growth and the learnings of the field. Focusing on the seven UN-defined areas of using sport as a tool for development, the presentation will provide a short historical overview and focus on selected pilot projects in the field of disaster response (Iran), education and child and youth development (Nepal) and psychosocial support (South Sudan). All projects presented were/are run by the Swiss Academy for Development in collaborative partnerships with local organisations. Training the local partner in implementing a stringent monitoring system, the Swiss Academy for Development was able to draw conclusions from collected data about the catalytic effects of sport for social development as well as its limitations. The research provides important insights into the effectiveness of different approaches towards using sport to reach a number of development objectives.

- **Saving grace or destructive force? The role of sport in violent and under-resourced communities**

Meredith A. Whitley[1], William V. Massey[2]
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There are gaps in our understanding of the talent development process for individuals from under-resourced communities, as well as how sport plays a role in personal development within the context of other systematic influences. Specifically, much of the talent development literature focuses on athletes from middle-to-upper class communities, while much of the sport for personal development literature ignores other contextual influences. In this presentation, two qualitative case studies, grounded in bioecological systems theory (Bronfenbrenner, 1995), will be examined. Utilising a constructivist philosophical orientation, the purpose of these case studies was to explore the participants' experiences growing up in under-resourced, violent communities and the role of sport during their upbringing. Case one includes phenomenological interviews with two former National Football League players to better understand how sport, in the context of community, school, family, and social life, played a role in development. Participants were African American males raised in the same impoverished and historically violent community. Taken together, participants reported living in poverty; community violence; physical and emotional trauma; police brutality; rape and drug use within the home; and loss of family members. When asked to consider the role of sport, participant one discussed how sport worsened his life by creating a more violent, angry, and depressed version of himself, while participant two discussed how sport saved his life. Case two involved phenomenological interviews with a former All-American basketball player along with his mother, uncle, and coach. Three distinct themes emerged from the data: (a) basketball as a human lottery system (b) basketball as the player's saving grace;

and (c) the non-athlete participants' exploration of the balance between what is best for themselves and what is best for the athlete. Implications include the importance of maintaining authentic relationships, values promoted in sport, appreciating individual differences, and seeking to understand interrelated systems.

- **"I'm proud of what I achieved; I'm also ashamed of what I done": A soccer coach's tale of sport, status, and criminal behaviour**

Daryl T. Cowan[1], Ian M. Taylor[2], Anthony Papathomas[2]
[1]Northumbria University, UK, [2]Loughborough University, UK

The problem of youth crime, delinquency and gang behaviour has been at the centre of public and policy makers' attention for several decades (Halsey & White, 2008). Moreover, with worryingly high unemployment levels of 16-24 year olds in the UK (16.6%; Office for National Statistics, 2014) and the US (14.3%; Bureau of Labor Statistics, 2014), there is widespread concern about the prospects for young people. One potential panacea that has received increasing attention in recent years is the role sport can play in overcoming these issues. Despite the intuitive appeal of such a hypothesis, seldom has research explored how or why sport can be used to promote positive youth development and divert disadvantaged individuals from antisocial and criminal behaviours. The purpose of this study was to explore the life of John (a pseudonym), a soccer coach working with disadvantaged young people. Six open-ended life story interviews over a ten week period ranging between 45-75 minutes were conducted. John described how soccer was fully entwined with aspects of his former delinquent and criminal lifestyle, including missing school lessons to play soccer, the fusion of soccer and youth violence, and competing in teams with local criminals. On the other hand, a soccer program for people with limited opportunities helped him leave behind a life of delinquency, gang fighting, and selling drugs. Furthermore, he came to understand that soccer could help him satisfy his desire for social recognition in a more socially legitimate way. This study provides an insight into how soccer can be used to thwart criminal lifestyles, but also warns against uncritical assumptions that sport can serve as a panacea for deviant behaviour.

- **Using sport to facilitate the personal development of underserved young athletes**

Daniel Gould
Michigan State University, USA

It is critical that sport psychology researchers better understand if and how sport can be used to enhance personal development, especially in underserved populations. This presentation summarises results from a series of studies conducted with underserved youth sports participants in the US and in Africa. Interviews with US young athletes revealed that they preferred coaches who emphasised a positive coaching orientation with a mastery-oriented focus (Whitley, et al., 2011). A study of 239 U.S. urban youth baseball and softball players (Gould, Flett, & Lauer, 2012) showed that the more coaches created caring, mastery-oriented environments, the more likely positive developmental gains resulted. Qualitative interview studies with more experienced coaches of urban youth revealed that these coaches emphasised positive, individualised, autonomy-building strategies that promoted a supportive team climate (Flett, et al., 2012a) while in a second study more-effective coaches challenged players while being supportive, attempted to develop close relationships along with a positive team climate, and promoted autonomy and the transfer of life skills from sport to life (Flett, et al., 2012b). Focus group interviews with South African youth coaches revealed that while they believed in the personal development power of sport they noted a number of barriers to accomplishing these goals (e.g., lack of resources within communities, the pervasive racial perceptions that are tied to a number of sports; Whitley, et al., in press). In a related study individual interviews with coaches, community members, and athletes in an underserved township in South Africa revealed that a lack of coaching knowledge and holistic coaching education, an emphasis on life skills being absent or peripheral in many coaches' philosophies, and the competitive nature of sport overshadowing life skill goals were key

barriers faced (Whitley, et al., under review). Results from these studies are discussed relative to existing sport-based life skills research.

- **Promoting disadvantaged youths' motivation and engagement in community-based sport: A needs analysis to develop coach education**

Juliette Stebbings, Paul Appleton, Joan L. Duda
University of Birmingham, UK

Organised sports programs offer a unique opportunity for positive youth development (Conroy & Coatsworth, 2006), and the sports coach plays a fundamental role to optimise individuals' experiences within that setting (Mageau & Vallerand, 2003). Considerable sport-based research grounded in the self-determination (Deci & Ryan, 2000) and achievement goal (Ames, 1992, Nicholls, 1989) frameworks has demonstrated the positive effects of an 'Empowering Coaching' (autonomy supportive and task-involving) approach for youth participants' motivation, engagement, and psychological health (Duda, 2013). Nonetheless, research has yet to consider how coaches, leaders and volunteers working with deprived youths in community settings understand and currently attempt to achieve these outcomes. In this context, such coaches and volunteers often do not have formal coaching qualifications or experiences, and many originate from a youth or social work background. The present research used interview methodology to gather community sport coaches' understanding of motivation, its manifesting behavioural and emotional characteristics in young people, and coaches' views of effective and assumed 'Empowering' motivation strategies that they utilise. Results indicated that there was a good understanding of the range of motives underpinning why young people attend community sports sessions, yet some coaches had difficulty articulating exactly what motivation 'is'. Coaches described a highly motivated young person as being relaxed, getting along with peers, communicating well, and trying hard at the activities, in comparison to an unmotivated individual displaying signs of boredom, poor attitude and inappropriate language and behaviour. Coaches reported using a range of strategies to 'motivate' and engage young people in sessions, some of which had the purposeful goal of being 'Empowering' (e.g., taking "an interest in each kid" and allowing "the kids to take charge of the session"), and but some which were employed solely to tackle difficulties associated with working in this context (e.g., taking a "tough stand to stop them kicking off"). In general, there was limited and superficial knowledge of what constitutes 'Empowering' and 'Disempowering' coach behaviours. This important foundation work has offered insight into prevailing coaching knowledge and strategies in disadvantaged contexts, and will inform subsequent adaptations of the Empowering Coaching™ training programme for more effective delivery to community-based coaches and volunteers working with deprived youths.

S3.03: Symposium - Expertise in sport

Chair(s): Jörg Schorer (University of Oldenburg, Germany), Judith Tirp (University of Oldenburg, Germany)
Discussant(s): Werner Helsen (KU Leuven, Belgium)

The development of expertise in sport is a publicly (i.e., Epstein (2014) vs. Gladwell (2011)) and scientifically discussed topic. This symposium brings together perspectives on expertise and its development at the different points in life. The first two contributions concentrate secondary factors in expertise development (cf. Baker & Horton, 2004). It starts off with a contribution entitled "Relative age effects in elite German youth basketball". The second contribution "A between-province investigation of the birthplace effect among elite Canadian ice hockey players" also looks at effects of birth in specific environments. The third contribution entitled "The impact of physical exercise on pattern recall expertise in handball - a follow up" studies adult performers of varying expertise levels. In contrast to many other expertise studies it adds in the specific physical load handball players experience during performance. The fourth presentation focuses on "Perceptual-cognitive differences between young-adult and middle-aged-adult handball coaches" and looks at the expertise of a main

actor in sport which was rarely investigated. Interestingly, those actors almost all have a history as players as well. At the end of the symposium Werner Helsen will discuss these talks.

- **Relative age effects in elite German youth basketball**

Christina Steingröver[1], Nick Wattie[2], Joseph Baker[3], Werner Helsen[4], Jörg Schorer[1]
[1]University of Oldenburg, Germany, [2]University of Ontario Institute of Technology, Canada, [3]York University, Canada, [4]KU Leuven, Belgium

The current state of research on relative age effects (RAEs) in basketball shows an uneven picture (Côté et al., 2006; Delorme & Raspaud, 2009). However, RAEs can be differentiated into between year and within-year effects (Schorer et al., 2013). As such, these mixed results for RAEs in basketball might be caused by the interaction of between-year and within-year effects. Aim of this study was to test between and within year effects in elite German youth basketball. The sample (n = 4400) included players competing in the Jugend-Basketball-Bundesliga (JBBL ≈ Under 16 first division) and the Nachwuchs Basketball Bundesliga, (NBBL ≈ Under 19 first division) from 2011/12 until 2013/14. Birthdates were provided by the German junior basketball league. A MFA revealed an interaction of between-year effects and within-year effects for the JBBL, $\chi^2(6, 2590) = 12.76$, $p < .05$. NBBL data showed significant between-year effects, $\chi^2(2, 1810) = 25.32$, $p < .01$, and within year effects, $\chi^2(2, 1810) = 69.88$, $p < .01$. The interaction of between-year effects and within-year effects in the JBBL showed reduced within-year effects with increasing age. Results indicated that once players enter the junior basketball system in the JBBL, relatively younger players are less likely to drop out of the system. Further variables influencing dropouts from the talent development system may be motivational factors such as athletes' expectations and their possible conflicts of interests (Delorme, Chalabaev & Raspaud, 2010).

- **A between-province investigation of the birthplace effect among elite Canadian ice hockey players**

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Research on birthplace effects in ice hockey has demonstrated that Canadian athletes are less likely to emerge from developmental environments with very small and very large populations (Côté et al., 2006). Typically athletes are compared to the national population distribution. However, considerable variability exists in the general population distribution between different regions, with some regions have a greater proportion living in very small populated areas compared to other regions. As such, currently it is not clear if birthplace effects exist in all sub-division within Canada, or what the characteristics of birthplace effects are within sub-divisions. The purpose of this study was to compare explore birthplace effects within sub-divisions of Canada. The sample (n = 1012) included Canadian players drafted into the National Hockey League (NHL) from 2000-2009 obtained from official league sources (www.nhl.com). Players were categorized according to region of birth (Atlantic, Quebec, Ontario, Central, Alberta and British Columbia) and the population size of their birthplace. Province-specific census statistics of the nine population subdivisions (<2,500; 2,500–4,999; 5,000–9,999; 10,000–29,999; 30,000–99,999; 100,000-249,999; 250,000–499,999; 500,000–999,999; >1,000,000) were used as the general population comparator. Odds ratios (OR) and 95% confidence intervals [95% CI] were used to compare athlete distribution to the general population values. Some regions supported previous birthplace effect trends, like under-representation of athletes from small-sized population areas (i.e., 2,500-4,999: Ontario OR = 0.27 [0.11-.065], Quebec OR = 0.39 [0.16-0.95]; 5,000-9,999: Ontario OR = 0.48 [0.26-0.88], Quebec OR = 0.37 [0.14-0.98]). However, there was also considerable variability in the stability of the birthplace effect as previous described between different regions. For example, there was a significant over-representation of athletes from the largest population region within Quebec (>1,000,000 OR: 1.47 [1.01-2.15]). These

discrepancies may influence the generalizability of birthplace effects, our methods for classifying population regions, and our understanding of the environmental constraints that influence birthplace effects on athlete development.

- **The impact of physical exercise on pattern recall expertise in handball – a follow up**

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One of the next steps in expertise research is to understand the interaction of physical load and the exceptional performances of athletes. In a recent study, Schapschröer, Baker and Schorer (2015) did not find an influence of a moderate physical exercise on specific pattern recall skills. The aim of this study was to examine sport specific pattern recall expertise both at rest and under a higher handball specific interval exercise. 29 participants from three groups (experts, advanced players & novices) were tested at rest and under a handball specific interval exercise of 86.5 % HRmax (cf. Manchado et al., 2013). We measured pattern recall performance as the accuracy of the recalled players' positions as RMSE. ANOVA revealed significant main effects for group differences, $F(2,26) = 8.61$, $p < .01$, $f = .81$, with experts performing superior to novices, $D = 13.11$, $p < .01$, and advanced performing superior to novices, $D = 15.39$, $p < .01$. No within subject differences were found between the two conditions, $F(1, 26) = .79$, $p = .38$, $f = .17$, $1\text{-}ß = .33$, and the interaction between factors was non-significant, $F(2, 26) = .02$, $p = .98$, $f = .03$, $1\text{-}ß = .06$. Results replicate prior research concerning expertise differences in pattern recall tasks for the comparison of experienced players (experts and advanced) with novices. The lack of effect for the physical exercise condition goes in line with the study by Schapschröer et al. (2015) and might be explained by a resistance of specific skills against physical exercise. The reasons behind this resistence should be investigated in future research.

- **Perceptual-cognitive differences between young-adult and middle-aged-adult handball coaches**

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There is little research investigating the maintenance of perceptual-cognitive expertise in general and even less research comparing coaches of different ages. As Gründel et al. (2013) speculated coaches' perceptual-cognitive skills may deteriorate with age. The aim of this study was to investigate differences between age groups, expertise levels, and their interaction. This study investigated differences in skilled performance between young and middle-aged coaches of three different skill levels. Participants (n = 74) performed a pattern recall test (mean distance in pixel) and a flicker test (mean detection time in ms). For pattern recall, significant differences between age groups, $F(1, 66) = 5.53$, $p = .02$, $f = 0.29$, and skill groups were revealed, $F(2, 66) = 44.52$, $p < .001$, $f = 1.16$. The younger coaches outperformed the older ones. Additionally, higher skill level coaches performed better than novices. For the flicker test, a significant main effect for age groups, $F(1, 66) = 5.62$, $p = .02$, $f = 1.94$, with the younger coaches outperforming the older ones was found. Additionally, differences between expertise levels reached significance, $F(2, 66) = 5.58$, $p < .001$, $f = 0.41$. The interaction of both factors did not reach significance. For the pattern recall test, effect sizes were larger for skill level differences, while for the flicker test effects were larger for aging. These results suggest coaches are able to maintain accuracy skills better than reaction timed tasks with age. This is in line with findings on speeded performance in general populations. Moreover, results also support findings on perceptual expertise in skills where accuracy was important (Schorer & Baker, 2009).

S3.04: Symposium - Dropout from elite sport – Prospective and retrospective studies

Chair(s): Dorothee Alfermann (Leipzig University, Germany)
Discussant(s): Natalia Stambulova (idrotthögskolan i Halmstad)

Career termination has attracted interest in sport psychology from the beginning – both from a research and an applied perspective. Original work and reviews on the reasons, the antecedents and the consequences of career termination point to the central role of the time of termination, of preparation for termination, and of the athletes' self-concept and well-being for a healthy/successful or unhealthy transition. In a recent review on career termination, Park, Lavallee, and Tod (2013) summarized the results of 126 studies, with 119 considering retirement and only 7 dropout, the premature termination. Obviously research on dropout is missing, therefore the symposium will present results on the antecedents and consequences of dropout, with a prospective quantitative and with three retrospective (1 quantitative and 2 qualitative) studies. Another important issue that is widely missing in research so far is the fact that cultural peculiarities have to be considered, when talking about retirement, even though in the last decade some cross-cultural studies have been published. Stambulova and Alfermann (2009) are claiming for more diversity oriented research and practice with athletes from different cultures. Therefore, in the symposium we will also hear a report on a (retrospective) comparative European study on retirement of Swiss, Danish and Polish athletes. To summarize, the symposium will include a mixed-method approach (quantitative, qualitative) on dropout and retirement, and also consider cultural influences.

- **Psychological predictors of dropout in adolescent team and individual athletes**

Dorothee Alfermann[1], Anna Baron-Thiene[2]
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Based on the assumption that adolescent athletes have to cope with a variety of stressors due to the high demands of sport and of school, we hypothesized that motivational and volitional variables would play a prominent role in the decision to drop out, that is to terminate a career prematurely. In addition, the transition from grade 10 (middle school) to 11 (high school) may be regarded as an important turning point in the educational career. The primary objective of this study therefore was to predict sport career dropout versus continuation after grade 10 among adolescent athletes of individual and team sports. At the end of the school year, all 10th graders (52 girls, 73 boys) from five out of six sport schools in Saxony, a federal state of Germany, filled in standardized questionnaires, measuring personality traits (Freiburger Persönlichkeitsinventar – FPI), sport motivation (Sport Orientation Questionaire – SOQ), and volitional skills (Volitional Components in Sport – VKS). One year later, participants filled in the SOQ and VKS again. Between the first and second point of measurement 37 athletes had dropped out of sport whereas 88 athletes were still active in their respective sport. Among the dropouts, a majority came from individual sports (n = 31) and relatively more were females. Results show that later dropouts reported significantly more physical complaints, less sport motivation and lower volitional skills at Time 1 than active athletes. At Time 2, after the decision to drop out or to stay, the differences between both groups in motivation and volition had even increased. Supportive school environments like sport schools may be helpful for a successful sport career, but the dropout rate of 30% after grade 10 shows that the athletes may be in need of additional support. The dropout rate may be reduced by offering psychological training for young athletes, particularly in motivational and volitional skills.

- **Drop-out in sport: An investigation into the transition experiences of young professional athletes in football**

Robert Morris
Nottingham Trent University, UK

Previous research has indicated that there are a number of factors which may influence how successfully athletes retire from sport at the end of an elite career, including athletic identity,

voluntariness of retirement, and educational status. Research, however, has not looked extensively at athletes who drop out earlier in their careers, perhaps after being released from a youth team contract. The aim of this study was to expand the knowledge on career termination by exploring those who dropped out after being released from a youth team contract. Data were collected using semi-structured individual interviews. Participants (N = 8, Mage = 19, SD = 1) included 8 players who had recently been released from their youth team contract at 4 English Premier League football clubs, and had dropped out from their sport as a result. Results showed that players who dropped out after their youth career had a very strong athletic identity which meant they struggled to disassociate themselves from their athletic career and move on to a post sport career life, which parallels results from the retirement from sport literature. Players also believed that they suffered from not preparing for being released; for example, they highlighted they suffered from a lack of education experiences, suggesting that they wished they had been given the opportunity to complete A-levels (and other qualifications) as part of their scholarship contract at the clubs they were signed to. The results of the current study suggest that helping athletes prepare for possible drop out earlier in their career could assist them adjust to their post sport career life. This could be done by, for example, encouraging athletes to attend education bodies during their time off and study independently for qualifications, or by encouraging organizations to integrate an education provision into their scholarship programs.

- **Dropout in nordic skiing – How performance slumps may lead to premature career termination**

Dorothee Alfermann
Leipzig University, Germany

Research on adolescent dropouts has emphasized that a multitude of reasons may be responsible for the dropout decision. The current study wanted find out reasons for and coping with premature career termination in adolescent athletes of Nordic ski sports (biathlon, cross-country skiing), a type of sport which was neglected in former research. Seven former athletes of nordic ski sports were interviewed who dropped out on their way from junior to senior sport and from school to college education. Interviews were conducted with five female and two male former athletes who had dropped out one to two years ago at the end of high school. The interviews were analyzed on the basis of a theoretical model by Albert (2010). The model considers four influence levels on the dropout decision: athlete, social environment, sport environment, school/vocational environment. Even though the results show a multiple causation of dropout, the central reason and starting point for the decision are performance slumps and as a consequence loss of motivation and enjoyment. In addition, conflicts with the coach and problems in the coach-athlete relationship lead to career termination. The results give additional insights into the decision process of dropouts and, in particular, into the central importance of performance results for the motivation of junior athletes in elite individual sports.

- **Successful transition out of elite sport- what is the influence of the national context?**

Andreas Küttel[1], Jürg Schmid[2], Eleanor Boyle[3]
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Our knowledge of a “successful” transition out of elite sport can only be improved when we understand which effects personal and environmental factors have in the short term (at the very end of the sport career), the middle, and in the long term (weeks/months and months/years following career termination, respectively). The focus of this investigation was on a cross-national comparison between Swiss, Danish and Polish athletes in terms of pre-conditions of the athletic retirement, career-decision and adaptation difficulties, and life and job satisfaction after their sport career. This study was based on the theoretical model “Cultural framework for the transition out of elite sport” (Stambulova et al., 2007), which

combines various career transition models and uses an ecological approach. Data was collected using an online questionnaire with former international elite athletes (retired between 2008- 2013) participating in 40 different disciplines for either Switzerland (N = 232), Denmark (N = 86) or Poland (N = 84). Exploratory factor analysis was used to identify latent variables that characterized a successful transition. Using regression techniques, the main analysis will focus on the effects of education, social support, personal skills, previous working experience, and nationality on the short, middle and long term adjustment to athletic career termination. Preliminarily results revealed cross-national differences in career decision difficulties at the end of the sport career (Polish athletes higher than Swiss and Danish), as well as in adaptation difficulties following the sport career (Swiss sample lower than Danish and Polish). The level of education showed a significant effect on adaptation difficulties. Confidence in personal skills positively influenced the adaptation period as well as the perception of life satisfaction, but had no impact on career decision difficulties. The findings confirm that both personal and environmental factors influence different phases of the transition out of elite sport.

S3.05: Symposium - The effect of cognitive fatigue on physical performance

Chair(s): Linda Schücker (University of Münster, Germany), Clare MacMahon (Swinburne University of Technology, Australia)

While the effects of physical activity on cognitive performance as well as the effects of cognitive fatigue on subsequent cognitive performance have been widely studied in the past, only a limited number of studies have looked at the effects of cognitive fatigue on physical performance. A small number of studies show that working on a cognitive task negatively influences a subsequent physical task (e.g. Marcora, Staiano, & Manning, 2009). One possible explanation for this effect is that cognitive fatigue increases the perception of effort during the physical task. Cognitive fatigue is also theoretically linked to the process of self-regulation, which refers to the act of exerting control over one's behaviors (Galliot et al., 2007). The strength energy model views self-regulation as a fixed resource, and an integral component of cognitive as well as physical performance (Hagger, Wood, Stiff, & Chatzisarantis, 2010). This model thus explains how the depletion of cognitive resources (ego-depletion) results in a negative impact on subsequent task performance (e.g. physical tasks). The overall goal of this symposium is to look at the latest research into the effects of cognitive fatigue on physical performance with a range of different tasks and approaches. The first and second presentations will look at the effects of cognitive fatigue on physical performance in strength tasks, differentiating between physically trained and untrained participants, and evaluating the role of perception of effort. The third presentation deals with ego-depletion and action initiation of a sprint start and the final talk explores the factor of state anxiety in the interplay between self-regulation and physical performance in a fine precision task (darts). This symposium will also include a final discussion to summarize and compare the different studies and discuss problems and future directions in this growing topic of study.

- **The effect of cognitive fatigue on performance of a physical task: The wall-sit**

Clare MacMahon[1], Linda Schücker[2], Lucy Parrington[1], Marc Schier[1]
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Recent work has shown that cognitive fatigue has an effect on performance in physical tasks (MacMahon, Schücker, Hagemann, & Strauss, 2014), wherein a preceding cognitive activity negatively effects subsequent physical performance. The level of familiarity with a task may influence this relationship (Schücker & MacMahon, submitted), however, through self-regulation. Indeed, the ability to control one's behavior and overcome fatigue has been shown to be trainable (e.g., Hagger, Wood, Stiff, & Chatzisarantis, 2010), and elite performers are characterized by higher levels of self-regulation (e.g., Mathews, Farrow, Weissensteiner, & MacMahon, 2012). This study directly compared physical performance after cognitive fatigue for participants with more and less training in the target skill. Trained (n

= 30) and untrained (n = 30) participants were tested in a strength endurance task (the wall-sit). All participants completed a baseline test. Half of each group then completed a cognitively fatiguing task (unmatched stroop), and the other half completed a control, non-fatiguing task (matched stroop) before a second wall sit test. Manipulation checks evaluated level of fatigue. Pre- and post-test endurance time in the wall sit, ratings of perceived exertion, heart rate, and quadriceps, tibialis anterior, and biceps femoris EMG measures were compared for each group. Preliminary results indicate that the fatigue manipulation influenced wall sit performance in the untrained participants moreso than the trained participants. This presentation will discuss the results in greater detail, and the importance of this area of work for the influence of pre-training activities for both elite and amateur athletes.

- **The effect of cognitive fatigue on a strength endurance task in two different samples**

Linda Schücker[1], Clare MacMahon[2], Elena Gersie[1], Lena Steiner[1]
[1]University of Münster, Germany, [2]Swinburne University of Technology, Australia

Working on a cognitively fatiguing task can influence subsequent performance in a physical task. How this effect is moderated by experience with the physical task is not yet well understood (e.g. Dorris, Power, & Kenefick, 2012). This research addressed the question of how cognitive fatigue effects performance and perceived effort in a strength endurance task. It was hypothesized that cognitively fatigued participants would perceive subsequent physical performance as more effortful and withdraw from the task earlier. We further assumed that cognitive fatigue has a stronger effect on participants not experienced in physical training. In a repeated measures design, team handball players (exp. 1, n = 20) and physically inactive participants (exp. 2, n = 20) were asked to do as many sit-ups as possible once after a fatiguing cognitive task (counting backwards from 1000 in steps of 7) or after an easy task (counting forward in steps of 5). The order of conditions was counterbalanced. Ratings of perceived exertion (RPE; Borg, 1998) were assessed throughout the sit-up exercise. Both experiments showed worse sit-up performance in the cognitive fatigue conditions (both $p < .05$). However, there was no difference between the two participant groups. That is, both handball players and inactive participants declined equally. Team handball players showed a trend for an increase in perceived effort after the fatigue condition ($p = .055$). The role of perceived effort is still unclear; even though exp. 1 points in the expected direction, exp. 2 did not reveal any effects.
This study shows further evidence that cognitive fatigue has a negative effect on a subsequent physical performance. This effect was the same in both samples, however, the team handball players were at a lower level of competition and the effect in highly trained participants should be examined in further research.

- **Ego depletion and action initiation**

Chris Englert, Alex Bertrams
University of Bern, Switzerland

Optimal sprint start performance requires the self-control of responses. Therefore, start performance should depend on self-control strength. It was expected that momentary depletion of self-control strength (ego depletion) would slow down the initiation of a sprint start, resulting in impaired reaction times. N = 37 participants performed three sprint starts at T1 and the average reaction times were measured with a foot-pressure release system attached under the starting block (in ms). Next, participants were randomly assigned to a depletion or a non-depletion condition and self-control strength was experimentally manipulated by applying the transcription task. Following the depletion manipulation, participants performed another series of three sprints (T2). The results of a mixed between (ego depletion: yes vs. no) within (T1 vs. T2) ANOVA supported the hypothesis as average reaction times in the depletion condition significantly increased from T1 ($M = 0.35$, $SD = 0.03$) to T2 ($M = 0.38$, $SD = 0.04$), $F(1, 35) = 6.77$, $p = .01$, $\eta 2p = .16$. Average reaction times in the non-depletion condition did not differ significantly between T1 ($M = 0.36$, $SD = 0.03$)

and T2 (M = 0.35, SD = 0.04), F(1, 35) = 0.47, p = .50, η2p = .01. In line with the hypothesis, higher levels of self-control strength were associated with quicker movement initiations. Therefore, improving self-control strength may serve as a buffer against the negative effects of ego depletion on performance.

- **Ego depletion and attention regulation under pressure**

Raoul Oudejans[1], Kristiaan Zwemmer[2], Alex Bertrams[3], Chris Englert[3]
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In the present study we investigated whether ego depletion negatively affects attention regulation under pressure in sports by assessing participants' dart throwing performance and accompanying gaze behavior. According to the strength model of self-control the most important aspect of self-control is attention regulation (Schmeichel & Baumeister, 2010). As higher levels of state anxiety are associated with impaired attention regulation (Nieuwenhuys & Oudejans, 2012) we chose a mixed design with ego depletion (yes vs. no) as between-subjects and anxiety level (high vs. low) as within-subjects factor. A total of 28 right-handed students participated in our study (Mage = 23.4, SDage = 2.5; 10 female; no professional dart experience). Participants performed a perceptual-motor task requiring selective attention, namely, dart throwing. The task was performed while participants were positioned high and low on a climbing wall (i.e., with high and low levels of anxiety). In line with our expectations, a mixed-design ANOVA revealed that depleted participants in the high anxiety condition performed worse ($p < .001$) and displayed a shorter final fixation on bull's eye ($p < .01$) than in the low anxiety condition, demonstrating that when one is depleted attention regulation under pressure cannot be maintained. This is the first study that directly supports the general assumption that ego depletion is a major factor in influencing attention regulation under pressure.

S3.06: Symposium - Interpretive errors in sport & exercise psychology: Sources, perpetuation and implications

Chair(s): Mike Weed (Canterbury Christ Church University, UK)

Type I (false positive) and type II (false negative) errors are largely considered statistical artifacts related to size or composition of samples, or to the design of research (Rubin, 2012). However, false positive and false negative conclusions can also arise from human error in the interpretation of findings. Such false conclusions may be absolute errors of misinterpretation (type I, false positive) or missed interpretation (type II, false negative) or magnitudinal errors of interpretive exaggeration (type I, overly positive) or interpretive understatement (type II, overly negative). These type I and type II absolute and magnitudinal errors may take place within primary single studies, or in secondary analyses of multiple studies or bodies of knowledge, and because they are less obvious than type I and type II statistical errors, they can often be perpetuated and repeated in the literature over time. The purpose of this symposium is to explore the potential for interpretive errors in different areas of sport and exercise psychology, exploring both how errors occur and are perpetuated, but also how they might be avoided. Paper 1 explores what it means to be interpretive in qualitative research, and demonstrates that a clear and explicit link between epistemology and method is key to avoiding interpretive omissions or excesses. Paper 2 critiques the use of inter-rater reliability in qualitative research, and argues that it leads to type II errors of interpretive understatement that limit the insights that qualitative research can offer. Paper 3 explores tests of support for social cognitive models to explain exercise behaviour, and suggests that interpretive license rather than robust evidence often underpin conclusions. Paper 4 explores the evidence-base for so-called "sedentary behaviour", and argues that errors of both missed interpretation and interpretive excess in translating research have delivered flawed public health strategies that may ultimately harm population health.

- **Linking epistemology and methodology: expanding interpretive meanings and boundaries of qualitative research in sport psychology**

Kerry R. McGannon
Laurentian University, Canada

The terrain of qualitative research was mapped in a recent review of qualitative research published between 2000-2009 in three leading North American sport psychology journals – The Sport Psychologist, Journal of Sport and Exercise Psychology, and Journal of Applied Sport Psychology (Culver, Gilbert & Sparkes, 2012). Results revealed that post-positivist approaches were predominant, with only 13.7% of researchers taking an epistemological stance and only 26.2% noting their methodological approach. Research practices such as these result in "magnitudinal" errors of interpretive exaggeration (e.g., publication of descriptive forms of data analysis and representation) and interpretive understatement (e.g., less published interpretive research methods and methodologies) which does not advance the field. This presentation adopts the position of research connoisseur (Sparkes & Smith, 2009; Weed, 2009) as a way to avoid such magnitudinal errors via advocating for an openness to variation of what constitutes criticality and meaning within "interpretive" forms of research, via explicitly linking epistemology and methodology. Specific developments within the critical arm of the cultural sport psychology research genre (McGannon & Smith, 2015; Ryba & Wright, 2010) grounded in tenets of social constructionism and aligning interpretive research methodologies (e.g., critical discourse analysis) will illustrate research connoisseurship "in action" and what it affords in terms of understanding sport participation and performance in socio-cultural context. Next, the potential implications that may result from research that is not epistemologically and methodologically sound is outlined. Implications discussed will include the perpetuation of a narrow and/or limited approach to data analysis, interpretation and representation and the marginalization of cultural identities and experiences in sport contexts. The presentation concludes with suggestions for how research connoisseurship may be used to continue to capitalize on possibilities for expanding understanding in sport psychology, ultimately leading to more reflexive awareness concerning interpretive excess and/or omission of such errors in qualitative research.

- **Re-interpreting commonly held assumptions about reliability in qualitative sport psychological research**

Brett Smith
Loughborough University, UK

Qualitative research methods are enjoying unprecedented popularity within sport and exercise psychology. As part this, researchers are frequently making interpretive claims about the reliability of their research by drawing on the idea of inter-rater reliability. While inter-rater reliability can result in type I errors of misinterpretation that give false legitimacy through the use of a flawed quality measure, this paper argues that, more often and less obviously, it can result in type II magnitudinal errors of interpretive understatement that fail to fully explore interpretive possibilities. Inter-rater reliability is often suggested as an important method for ensuring quality in qualitative research. Inter-rater reliability is a process in which several researchers independently analyze qualitative data and compare results for agreements (Sparkes & Smith, 2014). Rather than producing different interpretations, researchers identify the same codes or themes to claim reliability. This presentation critically examines inter-rater reliability and argues that it is problematic when it comes to interpreting qualitative data, detailing reasons why this is so. It is argued that no matter how hard researchers try, or what claims they make about reliability, inter-rater reliability is a chimera and cannot be cashed in on. Further, it is argued that researchers need to jettison inter-rater reliability and consider harnessing the power of critical friends. By identifying the problems that go with seeking inter-rate reliability, jettisoning it, and then moving toward the idea of critical friends, opportunities are opened to explore richer and deeper interpretations of data thus avoiding the type II error of interpretive understatement. It is concluded that commonly held assumptions about inter-rater reliability need to be re-interpreted. As finite human

beings who seek to make sense of data through historically and culturally fashioned horizons of meanings, researchers need to embrace the process of analyzing data as an unfinalized and constructed interpretive process.

- **Can models of motivation and social cognition used to predict exercise behaviour be rejected?**

Martin S. Hagger
Curtin University, Australia

Ogden (2003) recognized that many articles reporting 'tests' of social-cognitive models in health contexts, including exercise behaviour, claimed to 'support' the model. She raised an important and pertinent question: "Could data be collected that would lead to the model being rejected?" (Ogden, 2003, p.425). Specifically, Ogden pointed out that social-cognitive theories were operationalized as a 'network' of relationships among multiple constructs with a distinct nomological order, and researchers tended to evaluate the theories using omnibus tests. Although some of the individual effects in the tests were not supported, the authors still claimed that their data supported the model. Ogden challenged the scientific community to identify the exact conditions that would lead researchers to return a decision of 'reject' in their tests of theoretical models. This critique is still supremely relevant more than a decade later. Many social-cognitive models adopted to predict exercise behaviour fall into the same category of those identified by Ogden. Researchers have tended to conclude that data support a particular model even if some key hypothesis tests relating to the nomological network of relations are not supported by their data. This falls into the category of an absolute error of misinterpretation. I propose that when testing social-cognitive models, researchers should clearly specify criteria for acceptance a priori and use the criteria as the basis for decisions on acceptance or rejection of models. I illustrate this point by examining the trans-contextual model, a multi-theory model adopting three theoretical perspectives. I propose a fundamental set of hypotheses must receive empirical support for the model to be supported and represent the minimum criteria for its successful replication. Such criteria need to be clearly specified when testing models in exercise contexts to provide precise criteria against which support for the model is judged and thus avoid absolute errors of misintepretation.

- **Beyond sedentary thinking about "sedentary behaviour": how interpretive errors may be causing harm to population health**

Mike Weed
Canterbury Christ Church University, UK

So called "sedentary behaviour" has attracted increasing research attention, with associations shown between sitting time and all-cause mortality (vanderPloeg et al., 2012), leading to a "rush to recommend", with recent activity guidelines including recommendations about minimising sedentariness. Fuelled by increasing research attention and government backed recommendations, media and some researchers now describe a "sitting disease" that "may be killing you". However, this paper will argue that what is suggested as efficacious to improve public health (recommending reduced sedentary time) is not effective in delivering population health outcomes. It will also argue that type II errors of missed interpretation and type I errors of interpretive excess in translating research into public health strategies may be limiting the development of recommendations and population level interventions that are effective in the real world. Researchers investigating sedentariness have advocated the use of a behavioural epidemiology framework (Marshall & Ramirez, 2011). Consequently, this paper uses this framework to explore how evidence regarding sedentariness has been interpreted, represented and translated into public health guidance. For example, the framework's first stage is to establish links between behaviours and health, and epidemiologies suggest associations between total sitting time and all-cause mortality; however, accelerometry studies show associations between broken sedentary time and reduced all-cause mortality, thus raising the possibility that breaking sedentary time may be

as, or more, effective in delivering population health outcomes than reducing sedentary time because it may be a more feasible workplace solution. Each further stage of the behavioural epidemiological framework will be similarly used to explore whether interpretive errors may be delivering flawed or ineffective public health strategies. In conclusion, it is argued that conceptually homogenising a range of behaviours that are sedentary, but that have very different purposes, under the term "sedentary behaviour" limits the research effort and may, ultimately, harm population health.

S3.06: Symposium - Interpretive errors in sport & exercise psychology: Sources, perpetuation and implications

Chair(s): Mike Weed (Canterbury Christ Church University, UK)

Type I (false positive) and type II (false negative) errors are largely considered statistical artifacts related to size or composition of samples, or to the design of research (Rubin, 2012). However, false positive and false negative conclusions can also arise from human error in the interpretation of findings. Such false conclusions may be absolute errors of misinterpretation (type I, false positive) or missed interpretation (type II, false negative) or magnitudinal errors of interpretive exaggeration (type I, overly positive) or interpretive understatement (type II, overly negative). These type I and type II absolute and magnitudinal errors may take place within primary single studies, or in secondary analyses of multiple studies or bodies of knowledge, and because they are less obvious than type I and type II statistical errors, they can often be perpetuated and repeated in the literature over time. The purpose of this symposium is to explore the potential for interpretive errors in different areas of sport and exercise psychology, exploring both how errors occur and are perpetuated, but also how they might be avoided. Paper 1 explores what it means to be interpretive in qualitative research, and demonstrates that a clear and explicit link between epistemology and method is key to avoiding interpretive omissions or excesses. Paper 2 critiques the use of inter-rater reliability in qualitative research, and argues that it leads to type II errors of interpretive understatement that limit the insights that qualitative research can offer. Paper 3 explores tests of support for social cognitive models to explain exercise behaviour, and suggests that interpretive license rather than robust evidence often underpin conclusions. Paper 4 explores the evidence-base for so-called "sedentary behaviour", and argues that errors of both missed interpretation and interpretive excess in translating research have delivered flawed public health strategies that may ultimately harm population health.

- **Linking epistemology and methodology: expanding interpretive meanings and boundaries of qualitative research in sport psychology**

Kerry R. McGannon
Laurentian University, Canada

The terrain of qualitative research was mapped in a recent review of qualitative research published between 2000-2009 in three leading North American sport psychology journals – The Sport Psychologist, Journal of Sport and Exercise Psychology, and Journal of Applied Sport Psychology (Culver, Gilbert & Sparkes, 2012). Results revealed that post-positivist approaches were predominant, with only 13.7% of researchers taking an epistemological stance and only 26.2% noting their methodological approach. Research practices such as these result in "magnitudinal" errors of interpretive exaggeration (e.g., publication of descriptive forms of data analysis and representation) and interpretive understatement (e.g., less published interpretive research methods and methodologies) which does not advance the field. This presentation adopts the position of research connoisseur (Sparkes & Smith, 2009; Weed, 2009) as a way to avoid such magnitudinal errors via advocating for an openness to variation of what constitutes criticality and meaning within "interpretive" forms of research, via explicitly linking epistemology and methodology. Specific developments within the critical arm of the cultural sport psychology research genre (McGannon & Smith, 2015; Ryba & Wright, 2010) grounded in tenets of social constructionism and aligning interpretive research methodologies (e.g., critical discourse analysis) will illustrate research

connoisseurship “in action” and what it affords in terms of understanding sport participation and performance in socio-cultural context. Next, the potential implications that may result from research that is not epistemologically and methodologically sound is outlined. Implications discussed will include the perpetuation of a narrow and/or limited approach to data analysis, interpretation and representation and the marginalization of cultural identities and experiences in sport contexts. The presentation concludes with suggestions for how research connoisseurship may be used to continue to capitalize on possibilities for expanding understanding in sport psychology, ultimately leading to more reflexive awareness concerning interpretive excess and/or omission of such errors in qualitative research.

- **Re-interpreting commonly held assumptions about reliability in qualitative sport psychological research**

Brett Smith
Loughborough University, UK

Qualitative research methods are enjoying unprecedented popularity within sport and exercise psychology. As part this, researchers are frequently making interpretive claims about the reliability of their research by drawing on the idea of inter-rater reliability. While inter-rater reliability can result in type I errors of misinterpretation that give false legitimacy through the use of a flawed quality measure, this paper argues that, more often and less obviously, it can result in type II magnitudinal errors of interpretive understatement that fail to fully explore interpretive possibilities. Inter-rater reliability is often suggested as an important method for ensuring quality in qualitative research. Inter-rater reliability is a process in which several researchers independently analyze qualitative data and compare results for agreements (Sparkes & Smith, 2014). Rather than producing different interpretations, researchers identify the same codes or themes to claim reliability. This presentation critically examines inter-rater reliability and argues that it is problematic when it comes to interpreting qualitative data, detailing reasons why this is so. It is argued that no matter how hard researchers try, or what claims they make about reliability, inter-rater reliability is a chimera and cannot be cashed in on. Further, it is argued that researchers need to jettison inter-rater reliability and consider harnessing the power of critical friends. By identifying the problems that go with seeking inter-rate reliability, jettisoning it, and then moving toward the idea of critical friends, opportunities are opened to explore richer and deeper interpretations of data thus avoiding the type II error of interpretive understatement. It is concluded that commonly held assumptions about inter-rater reliability need to be re-interpreted. As finite human beings who seek to make sense of data through historically and culturally fashioned horizons of meanings, researchers need to embrace the process of analyzing data as an unfinalized and constructed interpretive process.

- **Can models of motivation and social cognition used to predict exercise behaviour be rejected?**

Martin S. Hagger
Curtin University, Australia

Ogden (2003) recognized that many articles reporting ‘tests’ of social-cognitive models in health contexts, including exercise behaviour, claimed to ‘support’ the model. She raised an important and pertinent question: “Could data be collected that would lead to the model being rejected?” (Ogden, 2003, p.425). Specifically, Ogden pointed out that social-cognitive theories were operationalized as a ‘network’ of relationships among multiple constructs with a distinct nomological order, and researchers tended to evaluate the theories using omnibus tests. Although some of the individual effects in the tests were not supported, the authors still claimed that their data supported the model. Ogden challenged the scientific community to identify the exact conditions that would lead researchers to return a decision of ‘reject’ in their tests of theoretical models. This critique is still supremely relevant more than a decade later. Many social-cognitive models adopted to predict exercise behaviour fall into the same category of those identified by Ogden. Researchers have tended to conclude that data

support a particular model even if some key hypothesis tests relating to the nomological network of relations are not supported by their data. This falls into the category of an absolute error of misinterpretation. I propose that when testing social-cognitive models, researchers should clearly specify criteria for acceptance a priori and use the criteria as the basis for decisions on acceptance or rejection of models. I illustrate this point by examining the trans-contextual model, a multi-theory model adopting three theoretical perspectives. I propose a fundamental set of hypotheses must receive empirical support for the model to be supported and represent the minimum criteria for its successful replication. Such criteria need to be clearly specified when testing models in exercise contexts to provide precise criteria against which support for the model is judged and thus avoid absolute errors of misintepretation.

- **Beyond sedentary thinking about "sedentary behaviour": how interpretive errors may be causing harm to population health**

Mike Weed
Canterbury Christ Church University, UK

So called "sedentary behaviour" has attracted increasing research attention, with associations shown between sitting time and all-cause mortality (vanderPloeg et al., 2012), leading to a "rush to recommend", with recent activity guidelines including recommendations about minimising sedentariness. Fuelled by increasing research attention and government backed recommendations, media and some researchers now describe a "sitting disease" that "may be killing you". However, this paper will argue that what is suggested as efficacious to improve public health (recommending reduced sedentary time) is not effective in delivering population health outcomes. It will also argue that type II errors of missed interpretation and type I errors of interpretive excess in translating research into public health strategies may be limiting the development of recommendations and population level interventions that are effective in the real world. Researchers investigating sedentariness have advocated the use of a behavioural epidemiology framework (Marshall & Ramirez, 2011). Consequently, this paper uses this framework to explore how evidence regarding sedentariness has been interpreted, represented and translated into public health guidance. For example, the framework's first stage is to establish links between behaviours and health, and epidemiologies suggest associations between total sitting time and all-cause mortality; however, accelerometry studies show associations between broken sedentary time and reduced all-cause mortality, thus raising the possibility that breaking sedentary time may be as, or more, effective in delivering population health outcomes than reducing sedentary time because it may be a more feasible workplace solution. Each further stage of the behavioural epidemiological framework will be similarly used to explore whether interpretive errors may be delivering flawed or ineffective public health strategies. In conclusion, it is argued that conceptually homogenising a range of behaviours that are sedentary, but that have very different purposes, under the term "sedentary behaviour" limits the research effort and may, ultimately, harm population health.

S3.07: Symposium - Enhancing responsibility through sports in the framework of social and emotional learning

Chair(s): Taru Lintunen (University of Jyväskylä, Finland)
Discussant(s): Marit Sørensen (The Norwegian School of Sport Sciences, Norway)

The ultimate goal of Social and Emotional Learning (SEL) is to teach individuals to take responsibility of their own needs, emotions, and actions as well as the needs of other people. This includes the transfer of responsible behavior outside the original learning environment of physical education to other arenas of life (Collaborative for Academic, Social, and Emotional Learning, 2003). In addition to SEL, the current symposium leans on the seminal research of Hellison (1985; 2011) in the field of teaching personal and social responsibility (TPSR) in sport. TPSR is a framework of basic values, ideas and implementation strategies originally developed through Hellison's experiences in working with at-risk youth. Therefore, much of

the programs and literature is on the underserved youth. The implementation of the TPSR model has improved respect, effort, autonomy, and the capacity for leadership among participants (Hellison & Walsh, 2002). However, the literature on TPSR has called for a more robust theoretical framework, more rigorous studies of concrete coaching and teaching practices, and participant learning outcomes (Whitley, 2012; Wright, Dyson, & Moten, 2012). The current symposium aims at filling these gaps in the literature by addressing the application of SEL framework in the research of responsibility in sports. Two of the presentations report interventions where the TPSR model has been used. The first investigates how participation in a TPSR sport program fosters social and emotional learning, and the second demonstrates how Hellison's levels of responsibility can be used as a self evaluation tool to measure the effectiveness of a SEL intervention in physical education. The next two presentations use the SEL framework and study empowering and disempowering coaching climate and goal setting and how it can be used as a means for developing responsibility in different settings.

- **Fostering social and emotional learning through participation in a TPSR sport program**

Jenn M. Jacobs[1], Barrie Gordon[2], Paul Wright[1]
[1]Northern Illinois University, USA, [2]Victoria University of Wellington, New Zealand

In American schools, where bullying, dropouts, and violence are all too common, the importance of teaching youth social and emotional skills is highly relevant. One framework, called Social and Emotional Learning (SEL), seeks to address youth behavior by building five core competencies (i.e., self-management, self-awareness, social awareness, building positive relationships, and making healthy decisions). Research demonstrates that SEL promotes academic success, prevents antisocial behaviors, and enhances physical and psychological health (Durlak, Weissberg, & Pachan, 2010). Sport has been proposed as an ideal context to promote personal and social developmental skills (Gould & Carson, 2008), however few studies have examined the application of sport as an SEL platform. The current study evaluates the implementation of an afterschool leadership program for adolescent youth with behavioral issues held at a school in a university town in the US. The program employs the Teaching Personal and Social Responsibility (TPSR) Model which uses sport and physical activity as a vehicle to teach life skills such as leadership and self-control. Qualitative program evaluation methods were utilized to examine the extent to which the program addressed the SEL core competencies. Data sources included interviews with youth participants as well as teachers and administrators at their school, implementation checklists, and the program instructors' reflective field journals. A combination of inductive and deductive strategies were used to analyze the data. Results indicated strong alignment between TPSR and SEL where all 5 core competencies were evident in the TPSR program implementation. These findings have implications for both research and practice. Contributions of this study include: 1) empirical validation of claims that sport can promote SEL; 2) identification of concrete instructional strategies that coaches can use to promote SEL; and 3) a case that SEL provides a conceptual framework to inform future TPSR Model research.

- **Hellison's levels of responsibility as a self-evaluation tool to measure the effectiveness of a SEL intervention**

Taru Lintunen, Marjo Kuusela, Hanna-Mari Toivonen
University of Jyväskylä, Finland

Research on Social and Emotional Learning (SEL) programs show that children and youth demonstrate improved academic attainment, attitudes, and physical activity when involved in SEL interventions. However, social and emotional skills themselves have seldom been assessed as an outcome measure of these interventions. There is a need to develop methods of assessment. The aim of the present study was to provide a case example and evaluate the use of Hellison's (1985; 2011) levels of responsibility as a tool to measure the

outcomes of an SEL intervention among 14-year-old girls. Social and emotional skills were taught to 20 girls in a theory section of 14 classes and used in practice on a compulsory physical education course of 36 classes during six months. The intervention covered the CASEL classification of social and emotional skills and was based on the Gordon's (2003) theory and training program of social interaction skills. The students assessed their behavior with Hellison's (2011) five levels of responsibility method. Pre and post intervention data is available from 17 students. In addition, students assessed their level of responsibility several times during the intervention. The teacher-researcher (second author) observed the behavior of the girls with the same tool. In the beginning the average level of responsibility was I. At the end four students estimated that they had reached the highest level V (responsibility beyond themselves), nine students reached the level IV (able to show respect and participation, and work without direct supervision), two students the level III and two reached and remained at level II (minimal respect for others, willingly train under the teacher's supervision). Teacher's observations of the behavior were similar and indicated that students were able to evaluate their level of responsibility accurately. Results support the validity of the levels of responsibility as a measure of SEL.

- **Motivational climate and students' social behavior in physical education**

Marios Goudas
University of Thessaly, Greece

Physical Education has potential to contribute to youngsters' positive development. Research has shown that an important condition is the prevalence of a motivational climate which advances intrinsic motivation and adaptive achievement goals (Roberts, 2012). The current study extents this line of research by examining the relationship of perceived motivational climate with social behavior of young students. As the concept of responsibility is often distinguished in personal and social responsibility, students' social behavior can be thought to reflect social responsibility. One hundred forty three 6th grade students from 10 elementary schools in Greece took part. For the assessment of motivational climate a Greek version of the Perceived Coaching Climate in Football Scale (Appleton, Ntoumanis, Quested, & Duda, 2011) was adapted for physical education and Greek language. The scale is based on Self-Determination Theory (Deci & Ryan, 2000) and on Achievement Goal Theory (Nicholls, 1992) and it distinguishes between Coaching Empowering Climate and Coaching Disempowering Climate. For the assessment of social behavior the self-report mode of the Greek version (Magotsiou, Goudas, & Hassandra, 2006) of the Multisource Assessment of Children's Social Competence Scale, MASCS, Juntilla, Voeten, Kaukiainen & Vauras, 2006) was employed. MASCS distinguishes between two positive (Cooperation, Empathy) and two negative (Quick – temperedness, Disruptiveness). In both studies canonical correlations showed that Empowering Coaching Climate was positively related to Cooperation and Empathy while Disempowering Coaching Climate was positively related to Quick-temperedness and Disruptiveness. These results emphasize the decisive role physical education teachers have in influencing students' social behavior an in extension social competence.

- **Developing responsibility through goal setting**

Robert Weinberg
Miami University - Ohio, USA

In recent years there has been increased interest and research in developing responsibility in youngsters (Escarti et al., 2010; Pascual et al., 2011) based on some of the seminal work of Hellison (2003) using physical education. Developing responsibility has been shown to be related to the concept of self-regulation (Kirschenbaum, 1996) in that one has to be able to regulate their thoughts and feelings in order to act in a responsible manner. One mental skill that has been related to building responsibility in youth is goal setting (Danish et al., 2003) where goal setting was employed to help develop leadership behaviors. Setting goals and then working hard to achieve them provides evidence of responsible behavior. In fact in

Locke's (1981) mechanistic theory of goal setting, goals work in part due to increased effort and persistence. However, to reach goals requires that individuals develop a strong commitment to striving to reach their goals. So the mere fact of setting goals does not guarantee success; rather there are many goal-setting principles that need to be followed to maximize the effectiveness of goal setting. When setting goals it is important to set performance and/or process goals rather than outcome goals so individuals can have control over achieving the goals that they set. In essence, they compete against themselves focusing on individual improvement rather than comparing themselves to others (which is out of their control). Some of the key principles of goal setting that will be discussed include setting goal that are (a) realistic, (b) short-term and long-term, (c) measurable, (d) periodically reevaluated, (e) timely, (f) self-determined, (g) specific, (h) action-oriented, and (i) written. Specific examples of using goals to help build responsibility and leadership will be provided and how proper goal setting help to overcome perceived barriers will also be discussed.

S3.08: Symposium - Optimal psychological qualities and skills in football: From talent to elite and mastery levels. What does it take?

Chair(s): Daniel Birrer (Swiss Federal Institute of Sports Magglingen, Switzerland)

Football is played worldwide with 38 million registered players, thereof 113'000 professionally (FIFA, 2007). Hence it is no surprise that professional football is a mega billion industry with e.g. an annually generated added value alone in Germany of 5.1 billion Euro (Netzer, 2010). Therefore, a lot of young players are trying to reach mastery level. As a result clubs and National Football Federations invest greatly in talent detection and talent development programs to help players through the transition to mastery level. Next to physical, technical and tactical factors psychological factors are regarded as crucial for such transitions (Mills, Butt, Maynard, & Harwood, 2012; van Yperen, 2009). Following the FTEM (foundation, talent, elite, mastery) framework for the optimization of athlete development (Gulbin, Croser, Morley, & Weissensteiner, 2013) a transition to the next higher level has its own demands and athletes might need different aptitudes for a successful transition to the next developmental stage. The aim of the present symposia is to highlight psychological qualities and skills, which football players with repeated and sustained success over several years have and in which players of different developmental stages vary. The four presentations are based on quantitative and qualitative data from (1) male talented players engaged in Swiss football academies including those right before their breakthrough to the first team (Swiss Premier league), (2) the male and female Swiss National football teams, (3) a large sample of elite junior and senior players playing in the Norwegian Premier league, (4) data on 9 seasons engagement delivering applied sport psychology support to over 140 English Premier league first team players as well as (5) on insights of how sport psychologists try to develop important psychological skills and qualities in talented Premier league squad players (U18-U20) to help them achieve the transition to elite or mastery level.

- **When talents are on the football pitch: Anxiety and action-orientation after failure**

Stephan Horvath, Daniel Birrer, Gareth Morgan, Jasmin Portmann, Philipp Röthlin
Swiss Federal Institute of Sports Magglingen, Switzerland

Talent programs are common in football. Next to physical, technical and tactical factors psychological characteristics are regarded as crucial in reaching elite and mastery levels in football (Mills, Butt, Maynard, & Harwood, 2012). Two factors that are considered as very important for success are performance anxiety before and during a game as well as how players react to setbacks on the pitch. The present study examines whether football players of the Swiss Football Association talent program FOOTURO differ from players not selected to the program in how they experience and appraise anxiety as well as how they react to failures during competitive soccer games. Over the last ten years FOOTURO-Players (n=54) completed different sets of psychological questionnaires, including measures of anxiety (WAI-T; Brand, Ehrlenspiel, & Graf, 2009) and action orientation (HOSP; Beckmann &

Wenhold, 2008). Both measures were also used in a nationwide data collection with young football players (n=414). Statistical analyses showed that FOOTURO players revealed less somatic and cognitive anxiety, and interpreted the former as less performance relevant and the latter as more performance impairing as their football peers. In addition, their reaction to failures is much more action-oriented, i.e., they keep playing and fighting, and are less distracted by rumination. Revealing important differences between the most talented players and their peers, the findings indicate that these psychological factors might be relevant for a successful career start as a mastery level football player or that players develop these traits during the talent program. However, low anxiety and high action orientation should therefore be encouraged by sport psychologists and coaches.

- **Gender matters. Differences in psychological factors of male and female Swiss national football team players**

Daniel Birrer, Stephan Horvath, Gareth Morgan
Swiss Federal Institute of Sports Magglingen, Switzerland

Psychological factors are seen as important to differentiate between more or less successful athletes (Elferink-Gemser, Jordet, Coelho-E-Silva, & Visscher, 2011). The present study explores whether male and female Swiss national football team players differ on important psychological components. Although both teams are currently playing at the highest international level (both were/are qualified for the world cups 2014, 2015 respectively) Swiss female football is still in its developmental stage. Comparing both national teams allows us to identify psychological factors that might be important for the future development of female football. Players of the male (n=23; Mage=26.06) and female (n=26; Mage=23.65) Swiss national football teams completed psychological screening measurements as part of their world cup preparation campaign. The on-site web-based survey covered different performance relevant psychological topics (i.e., self-determination, anxiety, cognitive interference, action-orientation, dominance, compensatory effort, learning motivation, goal setting, confidence, competitiveness, automatization, and relaxation) using different questionnaires, e.g., the Behavioral Regulation in Sport Questionnaire (BRSQ, Lonsdale, Hodge & Rose, 2008) or the Competitive-anxiety-inventory-trait (WAI-T, Brand, Graf, & Ehrlenspiel, 2009). Both teams showed comparably high self-determination good automatization and learning motivation as well as high competitiveness. However the females also revealed some remarkable shortcomings. They showed a higher level of anxiety, less dominance, less confidence, and used less goal setting than the male players. During games the female players revealed to have more distracting thoughts and reported less action orientation after failure than the male players. Controlling for age did not affect the results. The findings suggest that sport psychologists should pay more attention to specific mental factors, in which females still show some deficits. Working on these deficits might be important for a faster development of professional female football in Switzerland.

- **Self-reported engagement in self-regulated learning: junior and senior professional footballers**

Tynke Toering, Geir Jordet
Norwegian School of Sport Sciences, Norway

Self-regulated learning (SRL) refers to metacognitively, motivationally, and behaviorally taking active charge of one's own learning process (Zimmerman, 1989). Several studies in youth elite football have shown positive relationships between SRL and performance level, and have suggested that those who self-regulate well may benefit more from practice (e.g., Toering et al., 2009). Less is known about SRL in senior professional footballers and its comparison with youth elite players. This study investigated the relationship between self-reported SRL, observational learning (self/others), and SRL behaviors in 56 junior and 55 senior professional footballers representing three Norwegian Premier League clubs. A logistic regression indicated that players scoring lower on SRL were more likely to be senior players (OR = 0.46, P < .03). Moderate correlations (r = .28 - .47) in both junior and senior

players were found between SRL and observational learning (others), progress over the last week/month, self-efficacy regarding SRL and learning from others, and doing exercises in full match tempo. Only in seniors, SRL was correlated with percentage of practice time dedicated to strengths (negative) and weaknesses (positive), min/day self-initiated practice to improve and min/day self-initiated practice to prepare for a game, min/week watching teammates to learn from them, min/week watching TV and learn from players in the same position, and min/week watching skills video's on internet to learn (r = .43 - .51). Furthermore, juniors scored higher on observational learning (others), while seniors were more engaged in self-observation (P < .01). Results suggest that junior players may overestimate their engagement in SRL: although juniors reported higher SRL scores, those reported by senior players were more tightly related to SRL behaviors. One explanation could be that junior elite players do not yet fully understand the requirements of SRL in professional football and therefore believe they do better than they actually do.

- **Psychological qualities and mental skills in English premier league first team players**

Mark Nesti, Martin Littlewood
Liverpool John Moores University, UK

Drawing on 9 seasons engagement delivering applied sport psychology support to over 140 English Premier league first team players, this presentation will examine the most important psychological qualities and skills required for success at this level. 16 qualities and skills were identified based on content analysis of 100,000 words of data derived from confidential player reports prepared by the club sport psychologist as part of his work with players. Working inside a total of 3 clubs between 3-5 days a week allowed for up to 10 one to one meetings with experienced internationals, established players and younger professionals in between matches. Although the organisational and cultural issues involved in this work have been documented by Nesti (2010) and Nesti and Littlewood (2009) in accounts of their applied practice as sport psychologists operating within elite level professional football, this is the first time data has been presented based on their work with individual players. The findings suggest that alongside traditional mental skills like goal setting and use of pre performance routines, elite level players attribute their success to a number of broader constructs such as the development of authenticity, self knowledge, and courage. These and other qualities and skills will be discussed, and implications for the work of applied sport psychologists working with professional and elite level players and their staff will be considered.

W3.1: Workshop - Using a case analysis approach to develop the future generations of sport psychology practitioners

J. Gualberto Cremades, Lauren S. Tashman
Barry University, USA

Sport psychology students often encounter a gap between education and real-world practice; an experience that has been described as being "thrown to the wolves" (Tonn & Harmison, 2004). A byproduct of this flaw in training is their initial lack of confidence in their abilities as practitioners as well as their tendency to inflexibly apply interventions to their clients (Tod, 2007, 2010). During their training they have supervisors and peers with whom they can consult to help them navigate the complexity of applying what they have learned in class in real-world performance settings. After graduation, however, this poses a problem for practitioners as they often experience isolation (Carlstedt, 2012), and may no longer have anyone with whom to discuss their approach and methods of practice. The objective of this workshop is to learn and understand how to use a new online learning community tool (The Performance Enhancement Training Tool; PETT) which was created in an effort to engage students and practitioners in assisting each other with critically reflecting on applied cases and developing their service delivery skills. PETT combines the use of case based instruction, encouraging practice with applying knowledge in real world-situations (Mayo,

2002), and reflective practice, which has been suggested to be a critical component of training and practice in sport psychology (e.g., Martindale & Collins, 2005). This applied workshop will offer opportunities for students and practitioners to share their professional practice strategies, theoretical frameworks, and approaches. The analysis of the case will be structured as following: analyzing the elements of the cases, discussing different perspectives on the cases and approaches to be taken, as well as engaging in structured reflective practice regarding their analyses.

W3.2: Workshop - Designing sport psychology interventions for the athletes in specific context: the example of the Christian athletes

Elina Kivinukk
Jyväskylä University, Finland

It would be easy to design an effective intervention if all athletes were alike. However, when developing the interventions, special context has to be considered, regarding the sports, the time frame and various other practicalities. A mental skills training programme has been developed for the Estonian Christian athletes keeping in mind the following demands: Christian athletes often face numerous challenges in competitive sport (Kretschmann & Benz, 2012), they are often abroad and they appreciate entertaining elements when learning. The training programme focuses on the mental skills, such as goal-setting, self-confidence and pre-performance routines. The following interventions have been developed, called Athlete's Advent Calendar, Goal-Reaching Tear-off Game, My Personal Hero. The content is based on the material of De la Peña (2004), the tools are designed by the author of the workshop. Interventions follow the Christian principles, they can be used as distance learning tools and make development fun. Target groups of the workshop are the sport psychologists working with athletes and interested in developing the interventions by themselves. Teaching in the workshop is applied guiding the participants step-by-step to create their own interventions based on the context of their athletes or other target groups. Also the hand-outs describing the above-mentioned interventions are shared. At the end of the workshop the participants will be able to reflect on the meaning of their context they work in. Additionally, the participants will have the basic idea for designing their own intervention for the athletes in specific context.

W3.3: Workshop - Alchemy of movement – relaxation in movement workshop

Natalia Koperska
The Jozef Pisudski University of Physical Education, Warsaw, Poland

Your body travels with you during your life. It is drifting around topics of your life. Your body keeps your past, your emotions and memories. But physically it is always here and now. So is it enough for you to experience being here and now? To fully experience ourselves at the moment we need to contact and be aware of what is happening, what we think and what surrounds us. During the workshops we will focus on the experience of the body and at contacting with it in some unusual way. We will move with music to reach different corners of it. We will stretch, drag, shake to realize we can use it consciously. It is unusual combination of relaxation training, mindfulness and movement therapy. We will afford more and learn how to apply the elements of this workshop working with athletes to help them cope with stress and control emotions. Comfortable outfit is recommended. We will be barefoot or in a socks.

W3.4: Workshop - "Here and now!": Developing concentration skills in sport

Michala Bednáriková[1], Anastasiya Khomutova[2]
[1]Pro Performance, private consultancy, Slovakia; [2]UCFB Wembley, UK

Concentration is one of the key abilities in professional sport, which has been examined by scholars over the last few decades (e.g. Kremer & Moran, 2013; Moran, 1996, 2009). Being one of the nine components of flow (Jackson & Csikszentmihalyi, 1999), concentration enables athletes to reach their optimal performance level, achieve their goals and gain

victory. Losing concentration due to external (e.g. visual or auditory distractors) or internal factors (e.g. negative self-talk, anxiety) even for a short period of time can lead to a poor performance and defeat. Being able to concentrate or focus is therefore one of the most important skills for any athlete, and a lack of concentration ability is one of the most common issues in sport psychology practice. In order to develop this skill and stop being distracted by competitors, bad weather or their own emotions, athletes can undergo thorough training with a practitioner (Greenlees & Moran, 2003). During the workshop participants will be introduced to the theoretical background for concentration and focusing in sport, where basic components of this skill will be identified and discussed. In the final stage of the workshop participants will be provided with important tools they can apply in their own practice. In order to achieve the workshop learning objectives, participants will work on a case study, which will enable them to actively engage in applying some of the techniques in practice. An essential part of the workshop will be a group discussion where participants will have a great opportunity to share their own experience with concentration and related techniques. The workshop is open to a wide audience, including practising sport psychologists, coaches and students, regardless of their previous experience.

W3.5: Workshop - Inside Team Denmark's professional philosophy: Applied perspectives on acceptance commitment training for olympic athletes

Carsten Hvid Larsen
University of Southern Denmark, Denmark

The Team Denmark sport psychology team works from a coherent professional philosophy (Henriksen, Diment, & Hansen, 2011). Such a philosophy is a dynamic entity and the team has on several occasions discussed and revised parts of the philosophy. A recent addition is an increased focus on third-wave cognitive therapy methods such as mindfulness and Acceptance Commitment Training (ACT) (Hayes, Strosahl, Bunting, Twohig, & Wilson, 2004). From an ACT perspective it is highlighted that excessive cognitive activity and task-irrelevant focus (self-focused attention, such as thought control and arousal regulation) disrupts performance because functional performance demands task-focused attention. Practitioners should therefore not help the athletes engage in the futile task of managing and controlling internal states but rather introduce an agenda of willingness to accept negative thoughts and emotions in pursuit of valued ends. Three key aspects of such interventions are: (a) teaching athletes to open up, to accept and to be willing to experience the full range of thoughts and emotions that are a natural part of pursuing an elite sports career, (b) teaching athletes to mindfully engage in the present moment including task focused attention, and (c) helping athletes formulate the values that they would like to guide how they live their life and manage their sport career, and help them engage in committed actions towards these values. The learning objectives of the workshop are to provide applied perspectives on how to implement ACT as a part of the practitioner's service delivery for professional athletes. Introduce the methods and techniques of ACT and finally the author provides exercises and materials aimed at working with individual athletes and team sports. Basic working knowledge of ACT would be recommended to fully benefit from the workshop.

Session 4 – Thursday 16 July, 8.30am-10am

IS4.1: Invited Symposium - Beyond "cheating" and "deviance": How athletes reason their decision to dope or not

Chair(s): Denis Hauw (University of Lausanne, Switzerland)
Discussant(s): Bengt Kayser (University of Lausanne, Switzerland)

Doping research has increasingly come to recognise the importance of understanding athletes' experiences. Such analyses highlight the need to avoid labeling doping as either cheating or as deviant behaviour. A growing body of literature has now identified a range of psychosocial determinants of doping, such as normalisation (e.g., Whitaker, Long, Petroczi & Backhouse, 2014), a drive for muscularity (e.g., Litt & Dodge, 2007) and reducing stress or loss of confidence (e.g., Hauw & Bilard, 2011). To date, limited research has captured the lived experience of doping athletes owing to the difficulty in both recruiting samples of doping athletes and then eliciting accurate accounts of past behaviors. The current symposium draws together data from four separate research programs conducted in the UK, Switzerland and Australia. These studies highlight a range of innovative methodological approaches and consider how the resulting findings can be used to guide anti-doping education and intervention programs. Drawing upon an « insider » perspective, the first paper explores how anabolic steroid users think and feel about the use of performance and image enhancing drugs. The second paper highlights the critical moments in athletes' careers when they are most susceptible to doping. The third paper discusses the changing in ethical antidoping propensity across athletes' careers. The final paper shows how athletes who have been detected as doping attempt to justify their behavior and the impact of such mitigation pleas on sanctions. The symposium will conclude with an evaluation of the merits of these diverse research methodologies and their implications for future research, policy and practice.

- **Stories of anabolic steroid users: Looking beyond the cheating narrative**

Susan H. Backhouse, George Cliffe, Kitrina Douglas
Leeds Beckett University, UK

The use of performance and image enhancing drugs (PIEDs), beyond sporting boundaries, is deemed to be a public health concern (Sagoe, Schou Andreassen, Molde, Torsheim & Pallesen 2014). Across these landscapes however, one narrative – referred to here as a 'cheating narrative' - dominates how we come to understand user experiences (D'Angelo & Tamburrini, 2010). Given the political ideology underpinning the dominant narrative, and how demonization of athletes has led to secrecy and silence, furthering our understanding of PIED use, beyond the dominant discourse, seems warranted. Utilizing qualitative interview methods, the purpose of this study was to explore how anabolic steroid users feel, think and behave within their specific context of PIED use. In order to capture these stories, an 'insider' interviewed four male anabolic steroid users (mean age 20.5 years) and in the subsequent thematic analysis we considered the 'tellability' of their stories in light of the taboo nature of the subject. Focusing on 'tellability', four themes were identified in the data. These findings suggest the interviewer, as an insider, was able to ask different types of questions which relate to (a) insider terminology and phrasing, (b) intimate knowledge about experiences that outsiders do not know about the individual and (c) non-judgemental responses affirming the counter-narrative and (d) two-way trust and rapport. We suggest this study has demonstrated that trust and rapport can yield, invite and support alternative scripts to emerge when the process is to and from participant – as opposed to just from the participant to researcher. The process of developing trusting relationships and breaking away from traditional assumptions and value judgments has helped us to develop a deeper level of meaning and in turn inform our approach to doping prevention.

- **How about psychosocial processes facilitating PED use and effective scheduling of anti-doping interventions**

Ian Boardley
University of Birmingham, UK

A number of qualitative investigations on psychosocial processes facilitating use of performance enhancing drugs (PED) have identified specific periods during which athletes may be particularly susceptible to influences encouraging the adoption of PED use. To date, the findings from these studies have not been combined and specifically analysed to identify and investigate this issue. Bandura's (1991) social cognitive theory of moral thought and action was used to investigate psychosocial processes facilitating PED use. Data from four (Boardley & Grix, 2014; Boardley, Grix, & Dewar, 2014; Boardley, Grix, & Harkin, in press; Boardley & Jones, in preparation) studies were analysed; all four studies involved semi-structured interviews with athletes who had used PED. The combined sample consisted of 92 athletes participating in team and individual sports, with the majority (n = 80) of athletes being bodybuilders. The data from the four studies were analysed inductively to identify time periods during which the athletes may have been particularly susceptible to the adoption of PED use. A number of times during which athletes may be more likely to consider adopting PED use were identified. More specifically, athletes appeared most at risk during the off-season, and when experiencing plateaus in the training effect, loss of form, and/or acute (e.g., injury) or chronic (e.g., late career) performance decrements. Across the studies there was apparent consistency in time periods during which athletes may be most likely to consider PED use. Given that other studies have also identified similar periods of susceptibility, it is suggested that interventions aimed at reducing adoption of PED use may be most effective when implemented during these time periods.

- **The dynamics of antidoping ethics across athletes' careers**

Denis Hauw
University of Lausanne

This presentation focuses on the construction of elite athletes' antidoping ethics, as defined by the changes in the way they enact (i.e., sense making) the different sporting situations they encounter over their careers (e.g., McGann, De Jaegher & Di Paolo, 2013). Following the assumptions of the enactive research program (e.g., Steward, Gapenne, Di Paolo, 2010), antidoping ethics could be conceived as the propensity to act in relation to the antidoping program and as the understanding, feelings and moral values that individuals define for themselves. Fifteen elite athletes (5 females, 10 males) who competed or are still competing at the international level in different sports (e.g., skiing, swimming, track and field) completed an online questionnaire in which they described and assessed various situations in relation to antidoping questions that they had dealt with during their careers (e.g., controls, educational sessions, personal events). Then, 10 of them were selected and confronted with their responses in a self-confrontation interview in order to link each of these individual situations in a dynamic way. Results showed that antidoping ethics are mainly grounded in (a) the antidoping interventions provided by federations, (b) personal events experienced during competitions, and (c) discussions with coaches. However, these situations did not all have the same impact on the athletes. For example, the effects of antidoping interventions were mainly concerned with the athletes' knowledge about Antidoping Rules Violations, while personal events acted upon their emotional feelings and habits. Results also showed that their knowledge, actions and emotions linked to antidoping could be reinforced by, attuned with and sometimes weakened in relation to circumstances. During many periods of their careers, athletes' antidoping ethics were lacking in relevance and were sometimes associated with unpleasant feelings about antidoping programs. These results argue for a situated prevention approach for athletes at different levels of performance.

- **Athletes' experiences with the urine marker - an innovative method to improve urine doping control procedures**

Anne-Marie Elbe[1], Stine Nylansted Jensen[1], Peter Elsborg[1], Monika Wetzke[2], Getachew A. Woldemariam[3], Bernd Huppertz[4], Ruprecht Keller[4], Anthony W. Butch[3]
[1]University of Copenhagen, Denmark, [2]RUMA GmbH, Germany, [3]UCLA Olympic Analytical Laboratory, USA, [4]Zentrallabor an den Kliniken der Stadt Köln, Germany

Urine sample collection for doping control tests is a key component of the World Anti-Doping Agency's fight against doping in sport. However, a very large number of athletes experience difficulty when having to urinate under supervision. Furthermore, the collection process also offers opportunities for cheating, for example, by delivering urine that is not one's own. A method that can be used to alleviate the negative impact of a supervised urination procedure, and which can also identify urine as coming from a specific athlete is the urine marker test. Monodisperse low molecular weight polyethylene glycols (PEGs) are given orally prior to urination. Urine samples can be traced to the donor by analysis of the PEGs previously given. The results from three studies investigating the use of the urine marker during urine doping control testing are provided. Two studies investigate athletes' acceptance of this new method via two questionnaires (n total = 253). Furthermore, a third study (n=91) investigates whether ingestion of the marker can identify the urine as coming from a specific person and whether the marker interferes with the detection of prohibited substances. The results indicate that this new method finds wide acceptance both from athletes who have only heard about the procedure and those who have actually tested the new method. Furthermore, the marker, which can identify urine as coming from a specific person, does not interfere with the detection of prohibited substances. The marker can be used in place of supervised urine collection.

SS-R4.1: Special Session - Roundtable: Professional challenges working at the Olympic level

Paul Wylleman[1], Daniel Birrer[2], Jörg Wetzel[3], Hafrún Kristjánsdóttir[4], Lina Vaisetaite[5]
[1]Dutch Olympic Committee, The Netherlands; [2]Swiss Federal Institute of Sport Magglingen, Switzerland; [3]Swiss Olympic Association, Switzerland; [4]Icelandic Olympic Committee, Iceland; [5]Lithuanian Olympic Committee, Lithuania

Interest for applied sport psychology (ASP) support has led to an increase in ASP service provision to Olympic athletes (Wylleman et al., 2009) with sport psychologist involved in a structured way in national Olympic Committees (Birrer, Wetzel, Schmid, & Morgan, 2012; Wylleman, Reints, & Van Aken, 2012; Seiler & Wylleman, 2009). Considering the diversity of ASP support services as systematic part of interdisciplinary support to Olympic athletes, this roundtable brings together sport psychologists providing ASP services at NOC-level. Participants of this roundtable will address aspects such as competences of ASP-practitioners working with elite and Olympic athletes and teams, the organisation of ASP services at Olympic level, the relevance of contextual and experiential competences in support provision to Olympic athletes and teams, the provision of on-site support during major championships and Olympic Games, and the possible role of FEPSAC at Olympic level. Finally, attendees will be able to put direct questions to participants of the roundtable.

S4.01: Symposium - Sport and parents: Assumptions, perceptions, and representations

Chair(s): Camilla J. Knight (Swansea University, UK)

Over the last decade there has been a huge growth in literature relating to parents and sport. For example, a number of researchers have extended our understanding of the influences parents can have on children's participation and performance (e.g., Bois, Lalanne, & Delforge, 2009; Lauer, Gould, Rolo, & Pennisi, 2010). Further, we have begun to gain an understanding of the experiences of parents' in youth sport (e.g., Clarke & Harwood, 2014;

Knight & Holt, 2013), children's preferences for parental involvement in sport (e.g., Knight, Boden, & Holt, 2010; Omli & LaVoi, 2012), and strategies to enhance parental involvement (e.g., Harwood & Knight, 2014; Knight & Holt, 2014). However, although knowledge regarding parenting in sport is growing, many (mis)perceptions and assumptions regarding parents in sport still exist. The purpose of this symposium is to critically examine some of the assumptions and perceptions surrounding parents and sport and highlight the potential consequences these can have for parents, athletes, and sport in general. This purpose will be addressed through the presentation of four studies. The first study will explore tennis coaches' perceptions of parents and will demonstrate how coaches' perceptions of parents can influence the involvement of parents in sport. This will be followed by an examination of parents' experiences of youth swimming. Specifically, the second study will explore the stressors parents of youth swimmers encounter and the coping strategies they utilise to manage the demands that arise in their role. Study three will shift the focus to assumptions relating to parent education and policies, and examine the potential consequences of a ban on parents' sideline communication in youth soccer. Finally, the symposium will finish with an exploration of the media representation of parent-athletes and highlight the need to engage in critical discourse analysis of media texts.

- **Sport parents: Coaches' perspectives**

Daniel Gould
Michigan State University, USA

Youth sport coaches often have a paradoxical relationship with the parents of the young athletes they coach. On one hand, coaches realize that parents are key elements in the sport development process while on the other hand, most coaches lament about those "high maintenance" sport parents whose overbearing behavior often interfere with the coaching and athlete development. From a research perspective, coaches are also in an excellent position to provide information about sport parents because of the sheer number of parents they observe and interact with. This presentation will highlight key finding from studies designed to better understand coaches' perspectives on sport parents and their actions and outline future research directions. Coaching survey results have revealed that that six out of every 10 parents were seen as having a positive influence on their players development while four in 10 were perceived as doing things such as over emphasizing winning, being critical of the child or holding unrealistic expectations that interfered with development. (Gould, Lauer, Rolo & Pennisi, 2006). More recent focus group studies have focused on assessing expert coaches opinions on ways parents support their child's initial involvement in tennis (Gould et al, under review) showing that parents "not understanding" and "buying-into" the developmentally appropriate U10 tennis format and the need to see immediate success in their child were challenges repeatedly emphasized. Optimal parenting was identified as adopting a supporter/facilitator versus coaching parenting role, understanding child development, taking a long-term perspective to tennis development and working to enhance a positive parent-child relationship. Advice and recommendations for coaches working with U10 tennis parents included being proactive in communicating and educating parents, creating an optimal U10 tennis parenting environment, adopting positive coaching attitudes and using specific tennis coaching strategies with parents of players in this age group, effective tennis specific parenting strategies.

- **Stressors experienced and coping strategies used by the parents of youth swimmers**

Ian Cowburn
Saginaw Valley State University, USA

The sight of a parent taking a youth sport event too seriously or stories of problem parents at training sessions are often anecdotally reported by parents, coaches, officials, and occasionally represented in the media. It would be reasonable to suggest that parents who

engage in more extreme negative behaviors (e.g., criticizing officials) would not do so unless they were experiencing high levels of stress. As we look to improve the sport experience for parents we need to understand more about their experiences, and prior research has already begun to elicit stressors experienced by youth sport parents in tennis and football (Harwood, Drew, & Knight, 2010; Harwood & Knight, 2009a; 2009b). However, there is a need to extend the sporting contexts studied and understand how parents cope with the stress they experience, thus forming the purposes of this study. Twenty parents (10 couples) of youth swimmers in the specialization or investment stages of development were interviewed regarding stressors and coping strategies. Analysis revealed three general dimensions of parent stressors, concurrent with prior research by Harwood and colleagues, i.e., organizational, competitive, and developmental stressors. Additionally, nine general dimensions of coping strategies were found, with the most commonly cited being developing justifications for swimming involvement, communication, and social support. Results suggest that parents experience multiple stressors and use multiple coping strategies at any one time, and that what may be a stressor for one parent may be a coping strategy for another (e.g., other parents as a source of stress or a source of support). Finally, findings have practical implications for parents, sport psychology practitioners, and coaches / clubs in helping to reduce stress for swimming parents.

- **"If there's no-one speaking it feels like you're playing for nothing": Children's perceptions of a ban on sideline communication**

Camilla J. Knight, Daniel Newberry
Swansea University, UK

Media and anecdotal reports of inappropriate parental behaviours in competitive sport settings appear on a relatively frequent basis (e.g., CBS, 2006; Litchfield, 2006; Murphy, 1999; Pearson, 2009). Such reports raise concern for the type of experiences children have when they compete (Kidman et al., 1999) and the psychosocial outcomes associated with sport participation (Babkes & Weiss, 1999; Leff & Hoyle, 1995). Despite the way the media sensationalises examples of inappropriate parental behaviour, research has shown that negative parental behaviours are in the minority (Bowker et al., 2009; Holt et al., 2008; Kidman, McKenzie, & McKenzie, 1999). Nevertheless, a number of sports clubs and organisations have begun to introduce policies relating to parents at competitions. One policy that has been adopted by a number of youth football clubs in the UK is a ban on sideline communication. While many have assumed such a ban will have a positive impact on youth football, little attention appears to have been given children's perceptions of such a ban. Thus, the purpose of this study was to examine children's perceptions of the communication ban (or a proposed ban) at competitions. Observations were conducted at six football matches, followed by semi-structured interviews with 16 adolescent football players. Parental touchline behaviours were associated with positive and negative outcomes for all participants. Five higher order themes were identified and cited by the players. These included the role of parents in creating an atmosphere, reinforcement of success along with conflicting comments with the coach, creating pressure, and timing of the comments. Critically, players perceived that the positives of their parents' touchline behaviours outweighed the negatives and indicated that a communication ban was detrimental to both their performance and enjoyment.

- **Deconstructing the mother of all comebacks in tennis: A media analysis of Kim Clijsters and the implications for athlete-parents**

Kerry R. McGannon, Robert J. Schinke
Laurentian University, Canada

The proliferation of media portrayals of athletes pursuing sport during pregnancy and beyond show that parenthood and athletics are not mutually exclusive. The media's recognition of these athletes is a step toward positive portrayals of female athletes as strong women

achieving high performance goals. Given that women used to end their sport careers to have children (Palmer & Leberman, 2009), recent portrayals of these women shatter the myth that parenthood and sport are incompatible due to women's reproduction (Jette, 2011). Despite the potential that studying media representations holds to learn more about the socio-cultural context of parenthood and athlete identity, media narratives and the visual images that accompany them have received minimal attention in sport psychology. One exception is a study of textual and visual representations of marathon runner Paula Radcliffe's pregnancies in Runner's World magazine. This study revealed complex narratives concerning athletics and motherhood, which warrant further attention to further understand athlete mothers in sport psychology (McGannon, Curtin, Schinke & Schweinbenz, 2012). This presentation explores the usefulness of critically exploring media representations of athlete-mothers via a discursive psychological lens (McGannon & Spence, 2010) to expand parenthood literature in sport psychology. Results of a discourse analysis of 46 international news media representations will be presented of Belgian tennis star Kim Clijster's 2009 comeback to win the US Open as the first wild card in history and the first mother to win a Grand Slam title since Evonne Goolagong Cawley won Wimbledon in 1980. The presentation concludes with a discussion of the importance and relevance of what the media reveals about parenthood and athletic identities as socio-cultural creations shaped by discourses which have implications for psychological and behavioural experiences and athletic performance.

S4.02: Symposium - Applied sport psychologist training and supervision: From theory to practice

Chair(s): David Tod (Liverpool John Moores University, UK), Martin Eubank (Liverpool John Moores University, UK)
Discussant(s): Mark Nesti (Liverpool John Moores University, UK)

Over the past 20 years, formal education and registration (or accreditation) pathways have been established in several countries around the globe. Although variation exists among these developments, such as whether or not the title "sport and exercise psychologist" has been legally protected, they reflect recognition that effective, safe, and ethical practitioners possess competencies, knowledge, and skills that can be learned. A more recent development has been increased research focused on practitioner training and supervision. Such research is needed to inform and optimise education and registration pathways. Ideally, research and practice should inform each other as encapsulated by the scientist-practitioner model of education. The purpose of the current symposium is to bring together researchers and educators to share current investigations and examples of training to stimulate the debate about best practice and new avenues of empirical study. Presentation one will present longitudinal research comparing sport psychologist development with clinical and counselling counterparts. Presentation two will present findings from a study examining what trainee sport psychologists seek to learn from supervision. Moving from research to practice, presentation three will reflect on the model of training the authors implement, which has emerged from their research and experience as educators. These authors will also show how their model influences trainee development. Continuing the reflections, presentation four will discuss the author's observations of training in a Southern Hemisphere context. In presentation five, the authors will draw on their research focused on practitioner personal qualities to generate implication for supervision. Together the presentations will signal the value of integrating research and practice in helping to ensure that future generations of practitioners are sufficient prepared to help clients and manage their careers.

- **A longitudinal examination of UK trainee applied psychologist change and development**

Hayley McEwan[1], David Tod[2]
[1]University of West Scotland, UK, [2]Liverpool John Moores University, UK

There is a growing body of literature into practitioner development and training, with increasing numbers of students embarking on careers in applied sport psychology (ASP).

Research on practitioner training and development has focused on discrete components of training such as reflective practice (Cropley et al., 2010) and development of professional philosophies (Collins et al., 2013). There has been, however, limited interest in studying how ASP trainees holistically develop service delivery competence. Tod (2007) proposed that counsellor development theory (Rønnestad & Skovholt, 2003) could provide a framework to synthesise ASP practitioner development knowledge. The purpose of the present study was to examine developmental change in clinical, counselling, and sport and exercise trainee psychologists during postgraduate training, drawing on counsellor development theory. Following university ethics approval, 26 trainee psychologists (6 counselling, 9 clinical, and 11 sport) were interviewed 3 times over 2 years regarding their professional development during their training programmes. Semi-structured interviews allowed participants to explore their experiences and perceptions. The interview schedule was informed by the professional development literature. Clinical and counselling participants were completing doctorate programmes, and sport and exercise trainees were enrolled on a qualification in Sport and Exercise Psychology. Interviews were transcribed verbatim and subject to a thematic content analysis. Developmental changes across the groups of trainees included reduced anxiety in meeting with clients; increased trainee-led supervision; greater flexibility in the use of interventions tailored to client needs, and more nuanced ways of assessing change in clients. Through training, participants experienced critical incidents (e.g., receiving poor feedback from a client), and changed service-delivery perceptions (e.g., realising the scope of the psychologist's role and the competences required to work effectively). The findings of this research could provide new ideas to optimise training (e.g., sport psychology adopting a 'teaching hospital' model similar to clinical psychology).

- **Reflections on learning to become a novice professional**

Vana Hutter, Tanja Oldenhof-Veldman, Raoul Oudejans
VU University Amsterdam, The Netherlands

In recent years competencies and professional development of sport psychology practitioners have been addressed in the literature (e.g., Fletcher & Maher, 2013; Poczwardowski & Sherman, 2011; Tod, 2007). This knowledge can have important implications for training and education in applied sport psychology, as it informs us what trainee sport psychologists should learn to become a competent practitioner. To adequately implement the insights in required competencies into education, it is important to look at the issues that trainee sport psychologists (TSP) specifically struggle with when taking their first steps into practice. This informs us what TSP want to, or need to, develop in their specific stage of career development. In the study presented, we address the question: What is it that TSPs want to learn in supervision? Through inductive and deductive analysis of supervision questions (369 questions from 14 TSPS), we developed a model of supervision questions of TSPs (Hutter, Oldenhof-Veldman, & Oudejans, 2015). The model consists of two higher-order categories ('Know-how' and 'Professional development'), six lower-order categories ('Intake', 'Treatment plan', 'Execution', 'Reflections', 'Working principles' and 'Coping with dilemmas') and 19 separate themes. The model and different themes were presented in four different workshops with international sport psychology students and young professionals. Based on the outcomes of these workshops three themes from the model will be highlighted in more detail: Finding a balance between client-led and directive counseling, setting and respecting boundaries, and designing a treatment outline. We will give examples of supervision questions in this theme, will discuss solutions offered by TSPs themselves, and outline learning experiences contributing to development on these themes. The model as a whole, and the elaboration of the three themes, inform educators and trainees in sport psychology about learning needs and effective learning in the early stage of career development.

- **Halmstad applied sport psychology supervision model in action: a case of an elite swedish golfer**

Natalia Stambulova, Urban Johnson, Lukas Linnér
Halmstad University, Sweden

This presentation is planned as having two parts. First, the Halmstad Supervision applied sport psychology Model (HSM) developed by the first and the second authors during their more than a decade of experiences of running an applied sport psychology course at Halmstad University (Sweden) will be briefly introduced. The HSM is a "local" framework that consists of: (a) pre-conditions addressing students' and teachers' backgrounds, as well as contextual and organizational issues that influenced development of the HSM, (b) underlying frameworks (e.g., the scientist-practitioner model and Vygotsky's socio-cultural theory), and goals for applied sport psychology supervision, (c) philosophy representing values and principles, theoretical orientations, and areas addressed in the supervision, (d) process including forms, methods and content, as well as the climate and ethics of supervision, and (e) outcomes with students' feedback and achievements (Stambulova, Johnson & Linnér, 2014). Then, the third author's (former student) experiences of the HSM in action during his six months intervention with an elite Swedish golfer will follow. The case under consideration was addressed by the student from a holistic developmental perspective (Wylleman & Lavallee, 2004) and included working issues, such as dealing with cognitive anxiety during golf matches, increasing the golfer's self-confidence including one complicated situation with his coach, and helping the client with self-awareness and exploration of other than athletic roles to make his self-worth less depended on the golf performance. The student's journey from the first contact with the client, through initial interviews, observations, and assessments to developing a working plan, realization of the plan with adjustments occurred, and up to termination of the intervention will be traced and complemented by reflections on the supervision and its effectiveness throughout different parts of the journey.

- **Looking in and looking out: unique challenges faced by early career female applied sport psychologists**

Daryl, B. Marchant
Victoria University Melbourne, Australia

In this presentation, I reflect on critical perspectives and challenges for early career female applied sport psychologists (ASPs). In the tradition established by Bromley (1986) a case study methodology was used to examine the applicability of postgraduate training to prepare two female applied sport psychologists who have both subsequently worked in male dominated elite sport settings. The two cases represent exemplars and insights into the unique challenges that young female applied sport psychologists face in establishing themselves in a largely male dominated sport (i.e., Australian Football). The study was grounded in the tenets of both instrumental case study and collective case study approaches espoused by Stake (1998). Six key themes were identified as particular challenges; a) acceptance and credibility, b) constraints of access; c) dress, appearance and sexuality; d) negotiating contracts and work conditions; e) embedded cultural barriers; f) family and personal constraints. In terms of meeting these six challenges both case participants drew on inward focussed strategies; reflective practice, their formal training and employing adaptive strategies. The two case participants also looked outwardly by working through perceived issues with mentors and colleagues. For this presentation white water kayaking terminology (e.g., Eddy, Eskimo roll, Feather, Keeper hole, Rapids) will be used as a metaphor for the challenges for early career female ASPs in 'staying afloat' in male dominated sports environments. The two presented case studies demonstrate that while female ASPs are gaining employment opportunities in male dominated environments they face substantial professional practice challenges that their male counterparts do not. Sport psychology educators responsible for the delivery of postgraduate ASP programs might consider these

findings in the context of possible inclusions to the formal training of female ASPs in particular.

- **The person behind the practitioner: the importance of understanding 'me and my own stuff'**

Martin Eubank[1], Charlotte Chandler[2], Mark Nesti[1]
[1]Liverpool John Moores University, UK, [2]Staffordshire University, UK

The personal qualities of the sport psychologist, characterized by authenticity, courage and integrity are fundamental to effective practice (Chandler, Eubank, Nesti & Cable, 2014), particularly when working in sport cultures where dealing with conflict and failure is common-place (Eubank, Nesti & Cruickshank, 2014). Despite personal qualities being integral to the person behind the practitioner and their applied practice framework, they are rarely talked about in the literature. Similarly, more opportunities to consider how personal qualities inform applied practice should be afforded to trainees during their professional development (Eubank & Hudson, 2013). Based on a content analysis of longitudinal in-depth interviews with experienced sport psychologists, informed by life history and reflective diary accounts, our findings support the notion that personal qualities are prerequisites to effective, role related sport psychology practice and help practitioners to communicate and build relationships with their clients. Sport psychology trainees would therefore benefit from an enhanced self-awareness of 'who they are' to then develop knowledge of how they might operate within their applied role. Training under supervision should involve significant and meaningful dialogue about the development of personal qualities to help trainee's manage themselves and resolve difficult challenges in their practice. This assists with both managing anxieties in and about practice, but also in identifying areas for improvement (Tod, Eubank & Andersen, 2014). Answering the question 'Who is 'X' the Psychologist' requires time and attention in supervision. Self-exploration of the 'Psychologist by the Psychologist' is a personal and evolving activity, and needs a skilled supervisor to know the right time and place and provide the 'safe space'. Having good opportunities to explore the deeper and more personal features of the practitioner and the person behind them is essential, given it is this, in part, upon which congruent philosophy of practice and a healthy client-practitioner relationship are based.

S4.03: Perfectionism in sport and dance: Burning brightly and burning out?

Chair(s): Andrew Paul Hill (York St John University, UK)
Discussant(s): Joachim Stoeber (University of Kent, UK)

Research has accrued that suggests perfectionism is an important predictor of various outcomes in sport and dance, and may be especially important in terms of the development of burnout (Gotwals, Stoeber, Dunn, & Stoll, 2012). This symposium presents novel empirical studies that build directly on this research and in doing so offers additional insight into the implications of perfectionism for athletes, coaches, and dancers. In the first presentation, the convenor will provide a context for these studies by reviewing current approaches to the conceptualisation and measurement of perfectionism and reviewing research examining its effects in sport and dance. The second presentation reports the results of a study of the experiences of perfectionistic aspiring dancers. It is one of the few qualitative studies in this area and will offer unique insight into the lives of perfectionists. The third presentation provides a quantitative counterpart to this study and reports a study that examines whether dispositional perfectionism predicts burnout among dancers and what mediating mechanisms are at work. The fourth presentation turns our attention to state-like manifestations of perfectionism in the form of perfectionistic cognitions and reports the findings of the first study to examine the relationship between this element of perfectionism and burnout in coaches. The final presentation reports the findings of a longitudinal study of the perfectionism-burnout relationship in athletes. It is only the second study to examine this relationship longitudinally and attests to the enduring influence of perfectionism over time. The symposium closes with a summary and discussion led by an esteemed colleague who

has made a significant contribution to our understanding of perfectionism across a range of contexts.

- **Elite dance students' perceptions of perfectionism and creativity: A qualitative investigation**

Sanna Nordin-Bates
The Swedish School of Sport and Health Sciences, Sweden

Qualitative investigations into the impact of perfectionism in performance contexts such as sport and dance are scarce, as is research into creativity. In dance, striving for perfection and creativity are both valued, however the extent to which the two are compatible goals is unclear. This is because, on one hand, perfectionism is associated with focused single-mindedness and, at times, rigidity, while, on the other hand, creativity is associated with openmindedness and flexibility. The presentation will report the findings of a study that explores perceptions of perfectionism and creativity among dancers. The study includes dancers from the Swedish Royal Ballet School, aged 12-19, completing standardized perfectionism questionnaires (Sport MPS-2; Gotwals & Dunn, 2009; & MPS; Hewitt & Flett, 1991) and in-depth semi-structured interviews. The interview guide is based on recent literature in perfectionism in sport, and creativity literature from dance education and social psychology. Particular focus is placed on perceptions of (a) the origins, components, and consequences of perfectionism and creativity; (b) the extent to which students see themselves as perfectionistic and/or creative; (c) how dance teachers nurture vs. thwart perfectionistic and creative cognitions and behaviors; and (d) how perfectionism, creativity, performance and well-being are related. Inductive and deductive methods of content analysis will be used to address the topics identified and will also be used to examine the extent to which findings fit with current theoretical frameworks (e.g., the 2x2 model of perfectionism; Gaudreau & Thompson, 2010). As perfectionism research in sport and dance is mostly derived from quantitative studies, it is anticipated that the findings will offer new insights into the influence of perfectionism and current debates regarding its influence in dance.

- **Burnout in norwegian vocational dancers: The role of self-determined motivation, perfectionism, and self-acceptance**

Pierre-Nicolas Lemyre[1], Maria Jong[1], Sanna Nordin-Bates[2]
[1]The Norwegian School of Sport Sciences, Norway, [2]The Swedish School of Sport and Health Sciences, Sweden

Previous research has identified perfectionism and motivation variables as important factors when assessing vulnerability to burnout among athletes (e.g., Hill, Hall, Appleton & Kozub, 2008; Lemyre, Hall & Roberts, 2008). However, few studies to date have investigated the role of perfectionism in the onset of burnout in vocational dancers. The first purpose of the present study was therefore to investigate the relationships between self-oriented perfectionism and socially prescribed perfectionism, unconditional self-acceptance, and self-determined motivation on the symptoms of burnout in vocational dancers in Norway. In an effort to identify explanatory factors, the second purpose was to investigate whether the relationship between perfectionism and burnout was mediated by unconditional self-acceptance. Vocational dancers in Norway (N = 140, Mage = 22.00 SD = 2.00) completed questionnaires assessing the variables of interest at one point in time. Bivariate correlations indicated significant positive correlations between burnout and both self-oriented perfectionism and socially prescribed perfectionism. There were also significant negative correlations between burnout and unconditional self-acceptance and self-determined motivation, with intrinsic motivation displaying the strongest negative relationship with burnout symptoms. Hierarchical regression analyses indicated that unconditional self-acceptance partially mediated the relationship between socially prescribed perfectionism and burnout and fully mediated the relationship between self-oriented perfectionism and burnout. The findings underline the relevance of developing unconditional self-acceptance and

promoting self-determined motivation within the dance environment to reduce burnout in perfectionistic vocational dancers.

- **Perfectionistic cognitions and coach burnout**

Peter Hassmén[1], Erik Lundkvist[2], Henrik Gustafsson[3], Gordon Flett[4], Paul Hewitt[5]
[1]Umeå University, Sweden, [2]University of Canberra, Australia, [3]Karlstad University, Sweden, [4]York University, Canada, [5]University of British Columbia, Canada

The coaching role is associated with many positive aspects, but it can also be associated with substantial pressure to perform and can be unforgiving in terms mistakes. Among other reasons, this is thought to render coaches vulnerable to burnout. Research suggests that whether burnout develops, however, will also depend on the personality of the coach, with perfectionistic tendencies and, possibly, perfectionistic cognitions increasing risk (Tashman et al., 2010). Building on research among athletes (Hill & Appleton, 2011), the purpose of this study was to examine the relationship between burnout and perfectionistic cognitions in coaches. The sample consisted of 272 coaches (231 men, 41 women and 2 unspecified) working as soccer coaches in the Swedish Premier League for men and women and as National Sport High School coaches. Participants completed the Perfectionism Cognitions Inventory (PCI: Flett et al., 1998) and the exhaustion subscale of the Coach Burnout Questionnaire (Harris & Ostrow, 2008; Raedeke & Smith, 2001). Bivariate correlations revealed that perfectionistic cognitions were positively correlated with exhaustion. Using quantile regression, perfectionistic cognitions displayed significant associations for all tested quantiles. Of note, however, is that the associations gradually become stronger between the 25th and 75th quantile and then levelled off in the 95th quantile when the association becomes weaker than for the 75th percentile. In addition, the standard error was found to increase gradually for every quantile indicating that individuals that score higher in burnout also have larger variation in their scores of perfectionistic cognitions. In line with earlier research examining perfectionism and burnout in coaches (Tashman et al., 2010), there was a positive relationship between perfectionistic cognitions and burnout. However, this study provides the first indication that the relationship may not be linear. A potential, albeit speculative explanation is that with increasing levels of exhaustion, some coaches must let go of their perfectionistic tendencies.

- **Perfectionism and burnout in junior athletes: A three-month longitudinal study**

Daniel J. Madigan, Joachim Stoeber, Louis Passfield
University of Kent, UK

Perfectionism in sports has been shown to be associated with burnout in athletes (e.g., Gotwals, 2011). Cross-sectional studies have consistently shown that perfectionistic concerns are positively associated with athlete burnout, whereas perfectionistic strivings are negatively associated with athlete burnout. Whether perfectionism predicts longitudinal changes in athlete burnout, however, is still an open question. Using a two-wave cross-lagged panel design, the present study examined the relationship between perfectionistic strivings (striving for perfection, personal standards), perfectionistic concerns (concerns over mistakes, negative reactions to imperfection), and athlete burnout in 101 junior athletes (mean age 17.7 years) over 3 months of active training. When structural equation modeling was employed to test a series of competing models, the two best-fitting models showed opposite patterns for perfectionistic strivings and perfectionistic concerns. Whereas perfectionistic concerns predicted increases in athlete burnout over the 3 months, perfectionistic strivings predicted decreases. No evidence for reciprocal effects was found. The present findings suggest that the concerns dimension of perfectionism contributes to athlete burnout. In contrast, athletes who are striving for perfection may be protected from burnout as long as they are not overly concerned about making mistakes and do not show strong negative reactions to imperfection. Regarding athlete burnout, perfectionism in sport thus appears to be a “double-edged sword” (Stoeber, 2014) providing a shield against athlete burnout while at the same time putting athletes at a greater risk of burning out.

S4.04: Symposium - Basketball psychology: From psychology OF to psychology IN sport

Chair(s): Michael Bar-Eli (Ben-Gurion University of the Negev, Israel), Markus Raab (London South Bank University, UK)

In the 1970s, Juergen Nitsch distinguished between psychology OF and psychology IN sport. In the first perspective, the focus is on solving sport-related problems using “imported” knowledge from general psychology; in the second, sport is used to test general theories. Initially, sport psychology focused mainly on the first perspective. Recently a shift towards the second has become evident; we use basketball to demonstrate this. First, I will present two recent studies which exemplify this shift: 1) "Do clutch players win the game?" (Solomonov et al., 2015). The question of whether one’s “clutch reputation” is justified has sport-related consequences. However, it also has relevance to general questions, such as “Should ‘special people’ running our economy (e.g., bankers) be paid extremely high bonuses for performances that never actually took place?”; 2) "Is it beneficial to flop?" (Morgulev et al., 2014). Professional players’ and referees’ behaviors related to offensive fouls have an immense relevance for basketball. However, these behaviors can also be used to examine the question of whether it pays to commit any deceptive behavior in general. Following this, Markus Raab will present an overview of sequential decision making in basketball (e.g., the "hot hand") as an example of the "fast and frugal" approach to judgment and decision making. Then, Markus Raab will present a study on behalf of and conducted with and Peter Csapo on "hot hand"-related defensive behavior in basketball. Finally, Ronnie Lidor will demonstrate how we can use mental preparation techniques to improve success rates in free-throw shots – an excellent example of human performance that is often conducted under pressure and is of great importance to performers.

- **Basketball psychology: From psychology OF to psychology IN sport**

Michael Bar-Eli
Ben-Gurion University of the Negev, Israel

In the 1970s, Juergen Nitsch distinguished between psychology of and psychology in sport. In the first perspective, the focus is on solving sport-related problems using “imported” knowledge from general psychology; in the second, sport is used to test general theories. Initially, sport psychology focused mainly on the first perspective. Recently a shift towards the second has become evident; we use basketball to demonstrate this. First, two recent studies which exemplify this shift will be presented: 1) "Do clutch players win the game?" (Solomonov et al., 2015). The question of whether one’s “clutch reputation” is justified has sport-related consequences. However, it also has relevance to general questions, such as “Should ‘special people’ running our economy (e.g., bankers) be paid extremely high bonuses for performances that never actually took place?”; 2) "Is it beneficial to flop?" (Morgulev et al., 2014). Professional players’ and referees’ behaviors related to offensive fouls have an immense relevance for basketball. However, these behaviors can also be used to examine the question of whether it pays to commit any deceptive behavior in general. Following this, an overview of sequential decision making in basketball (e.g., the "hot hand") will be presented as an example of the "fast and frugal" approach to judgment and decision making. Then, a study on "hot hand"-related defensive behavior in basketball will be presented. Finally, we will demonstrate how mental preparation techniques can be used to improve success rates in free-throw shots – an excellent example of human performance that is often conducted under pressure and is of great importance to performers.

- **Sequential decision-making in sports: A simple heuristic account on choices**

Markus Raab
London South Bank University, UK

This presentation provides an overview of sequential choices in sports. I illustrate the hot hand phenomenon from a simple heuristic framework, that is, the belief of a player's higher chance to score after two or three hits compared to two or three misses. The simple heuristic framework describes and explains fast choices using a rule of thumb, for instance when deciding as a playmaker to whom to allocate the ball. I argue that it is necessary to divide the phenomenon itself – stating that a player actually has an above-average (or below-average) performance – into the associated belief predicting that the perceived streak will continue and that the behavior is partly based on this belief. Empirical evidence from studies in team sports such as volleyball and basketball (Köppen & Raab, 2012; Raab & MacMahon, 2014) will be used. The studies showed that the perception of hot-hand sequences and their influence on allocation decisions is partially moderated by the experience and expertise of the athletes, the length of the sequence, and whether the person that acts or perceives such actions produces the judgement. Results indicate that a limited set of cues is used to describe these judgements and informs theories that assume the opposite. We conclude that from a simple heuristic perspective the hot hand (or cold hand) is a test bed for psychological theories, and provides simple but valid recommendations for sport choices.

- **Defending the hot hand: Do behavioral changes of defenders render the hot-hand phenomenon in basketball unobservable?**

Peter Csapo[1], Markus Raab[2]
[1]German Sport University Cologne, Germany, [2]London South Bank University, UK

Previous research hypothesized that defenders may increase their pressure based on the hot-hand belief, according to which a player is more likely to hit his next shot following several successful attempts than after several consecutive misses. Statistical evidence in favor of the hot-hand effect is limited when considering in-game field goal shooting, and this lack of evidence may have resulted from changes in shot difficulty. This presentation aims to answer two principal research questions: (1) Do players and coaches increase defensive pressure on a hot player, and how does a player's decision-making behavior change as a result of such a strategic adjustment?, and (2) Can we find evidence in favour of the hot hand after controlling for shot difficulty? To answer the first question, we present an experimental study in which professional basketball coaches were asked to decide whether they would increase the defensive pressure based on a player's streakiness (Csapo, Avugos, Raab, & Bar-Eli, in press). Furthermore, players were asked whether they would shoot or pass the ball as a function of defensive pressure and streakiness. With respect to the second research question, we discuss the findings of a study that used novel performance metrics and directly measured the defensive pressure applied to shot attempts (Csapo & Raab, 2014). We analyzed both how defensive pressure changed as a function of streakiness and how shooting percentages evolved during hot versus cold streaks after controlling for shot difficulty. Overall, the studies provided strong evidence that defenders increase their pressure based on the hot-hand belief, leading to changes in shot difficulty. However, we could not find evidence for the hot-hand effect, as the shooting accuracy of hot players was lower when controlling for shot difficulty, that is, they hit open and contested shots with a lower accuracy following hot streaks than following cold streaks.

- **Psychological preparation in free-throw shots in basketball – A review and research/practical implications**

Ronnie Lidor, Gal Ziv
Zinman College of Physical Education and Sport Sciences, Israel

A free-throw (FT) shot in basketball has been classified as a closed, self-paced task. Self-paced tasks are those that take place in a relatively stable and predictable environment,

where there is adequate time to prepare for their execution. A review of a series of studies (n = 34) examining psychological preparation in FT shots in basketball was performed. The literature search was conducted using two databases – PubMed and SPORTDiscus. The purpose of the current presentation is threefold: (a) to describe the main findings that emerged from our review, (b) to discuss a number of methodological and measurement concerns associated with the reviewed studies, and (c) to provide a number of practical implications for sport psychology consultants (SPCs) who work with basketball players, based on the findings of the current review. The main finding of this review was that FT performances can be enhanced by the use of psychological techniques, such as quiet eye, focusing attention, pre-performance routines, verbal feedback, and modeling. However, a number of research limitations and methodological concerns associated with the reviewed studies were observed. Among these limitations and concerns are (a) the lack of data on the effectiveness of interventional techniques in achieving FT success in actual games, (b) the lack of authentic practice, (c) the lack of qualitative data on psychological profiles of FT shooters, and (d) the lack of data on beginning shooters. Based on the findings of the current review, a number of practical implications for SPCs who work with basketball players are suggested, among them: (a) SPCs should obtain information on the psychological needs of the FT shooter prior to the selection of a given intervention, and (b) specific psychological preparation for the FT shots should be synthesized with the general psychological preparation given to the players throughout the season.

S4.05: Symposium - Success under stress: An individual, team, and coaching perspective on functioning under pressure

Chair(s): Steven Decroos (University of Leuven, Belgium)

When the stakes are high, athletes experience changes in their affective, cognitive, and behavioral functioning. In some sports teams, these changes result in increased levels of anxiety and in performance decrements compared to low-pressure situations. In other sports teams, the athletes are well able to maintain an adaptive affective and cognitive state and to uphold their performance level under pressure. This inevitably raises the question: What characterizes the latter athletes and teams, and what makes them pressure-resilient? The objective of this symposium is to provide a comprehensive overview of current research efforts aiming at answering these questions from an individual, a team, and a coaching perspective. Starting with an interactionist view on individuals performing under pressure, we will exemplify the situational relevance of personality traits and their activation by subclinical narcissism and perfectionism. Subsequently, with a focus on team-members' affective and motivational states under stress, we will address team-influences on precompetitive states and the qualifying role of contextual factors. Third, at the team level, we will present what makes a team resilient to pressure demands and adds to our relatively small knowledge of what elite team coaches can do to optimize their athletes' motivation and resilience. Finally, we will conclude by demonstrating the importance of coaches' support and perceived justice when correcting athletes' mistakes or failures with respect to building a resilient sports team. In short, this symposium integrates individual, team, and coaching perspectives to provide novel insights into athletes' and teams' functioning under pressure, identifying important variables that ensure success under stress.

- **Who is good at performing under pressure? When unbeloved personality traits shine**

Katharina Geukes[1], Svenja Anna Wolf[2]
[1]*University of Münster, Germany,* [2]*University of British Columbia, Canada*

Athletes differ in how well and stable they perform under pressure. Within sport psychological research, these individual differences are explained by person variables (e.g., personality), situation variables (e.g., pressure demands), and their interaction (e.g., becoming particular anxious under pressure). Based on the interactionist principle of trait activation, researchers investigate the person-by-situation interaction by determining the predictability of

performance and its stability through personality traits in two contrasted performance situations (low pressure vs. high-pressure). Because high-pressure situations define the moment when it counts most in sports, they particularly look for personality traits (e.g., narcissism and perfectionism) that are distinctly activated in high-pressure situations, ensuring high and stable performances. In two experimental studies, handball players (N1 = 55; N2 = 72) first completed narcissism and perfectionism questionnaires, and second performed a throwing accuracy task under low and high pressure (manipulated by motivational and self-presentational cues; checked with state anxiety differences). Performance and performance stability scores were calculated per player and situation. Regression analytical results indicate that narcissism and perfectionism are distinctly relevant to performance and its stability in high-pressure situations because both traits were unrelated to any of the performance measures under low pressure. Narcissism, however, was positively associated with performance under high-pressure circumstances, being unrelated to its stability. While perfectionism was not associated with the mean-level of performance under pressure but positively with its stability. Testing the applicability of the interactionist principle of trait activation to the prediction of performance outcomes under pressure through personality traits, findings support the situational relevance of narcissism and perfectionism to high-pressure situations. These two commonly negatively connoted personality traits likely make athletes shine in high-stakes situations. Athletes higher in narcissism show better performance under pressure and more perfectionistic athletes' performance under pressure is more stable than their low-scoring counterparts, respectively.

- **The team as a buffer or burden? Players' perceptions of team-influences on their pre-competitive states**

Svenja Anna Wolf[1], Sebastian Harenberg[2], Hanna Schmitz[3]
[1]University of British Columbia, Canada, [2]University of Regina, Canada, [3]German Sport University Cologne, Germany

A situation that may place players on a team under considerable stress is an upcoming competition. However, in contrast to individual sport athletes, players in interactive sports do not experience this precompetitive situation alone but as part of a team. It still needs to be fully explored how characteristics of this team relate to components of players' precompetitive states. Based on an Interpretative Phenomenological Analysis approach, the present study aimed to examine to what extent male and female volleyball, ice hockey, basketball, and handball players (N = 13) perceived their team to influence their precompetitive states. In semi-structured interviews, players reported teams' attitudes (e.g., serious fun, communal orientation), behaviors (e.g., communication, warm-up performance), structure (e.g., roles, interdependence), climate (e.g., friendship, cohesion), and teammates' feeling states to influence their precompetitive cognitions (e.g., self-confidence, concentration), emotions (e.g., enjoyment, anxiety), motivation, and arousal. Yet, players perceived these influences to be contingent on contextual factors such as timing in relation to the start of the competition, their own and their team's recent performance, personal characteristics such as their own initial feeling state, communal orientation, or role on the team, and teammates' characteristics such as teammates' roles, skill-level, or relationship with the player. The results support the notion that the team influences its members' precompetitive states. However, this influence appears to be multifaceted (e.g., transcend social support) and qualified by the particular circumstances. Based on these findings, it would be worthwhile for researchers to further investigate which team-influences are adaptive or maladaptive and when or for whom they apply. This knowledge, in turn, would allow coaches and practitioners to specifically manipulate team-characteristics in order to optimize players' states in a potentially stressful precompetitive situation.

- **Elite coaches' perspective on building motivation and resilience in youth team sport athletes**

Steven Decroos, Katrien Fransen, Filip Boen, Gert Vande Broek
University of Leuven, Belgium

In sports, resilience has been described as a psychological process that protects an athlete or team from the possible negative effect of adversities the athletes encounter (Sarkar & Fletcher, 2014). To build resilience in athletes, some scholars argued for a need-supportive coach approach (e.g., Amiot, Gaudreau, & Blanchard, 2004). However, other scholars claimed that resilience is not built by safeguarding athletes from external pressures (e.g., Collins, & MacNamara, 2012). They argued for pressure and setbacks as prerequisites to gain resilience. As such, whether resilience is best built by challenging athletes with setbacks or by protecting them from pressuring situations, has not yet been fully clarified. The objective of this study is to qualitatively explore how elite youth coaches foster motivation and resilience in their sports teams. Semi-structured interviews were conducted with experienced (+20 years) elite youth coaches in team sports (N = 5). Based on the definitions of need-support and resilience in the literature, the interviews were structured into two sections: one general section to collect exemplary situations in youth sport teams, and one detailed section with statements to be commented in order to get in-depth insight in paradoxical literature findings. Thematic analysis revealed that elite coaches impose high standards and simulate pressuring situations in practice as a strategy to increase their athletes' resilience. It was argued that this could be done without jeopardizing their athletes' motivation and long-term commitment. Moreover, the experiences reported can be used to develop a measurement instrument for resilience in sports teams. In conclusion, gradually increasing the psychological pressure to perform can assist team sport athletes to become more resilient.

- **How should the coach communicate what is going wrong? The importance of autonomy-supportive feedback**

Maarten De Backer, Tanja Ceux, Fien Callens, Gert Vande Broek
University of Leuven, Belgium

Research in the business setting showed that the communication style of the authority has an impact on employees' perception of justice; especially when the outcome of an event is negative or when events are stressful (Bobocel & Zdaniuk, 2005). Because the perceived justice of the coach is a key predictor of performance-related assets in sports teams such as team identification and cohesion (De Backer, 2011), the present study examined the communication style of sports coaches in relation to their perceived justice. More specifically, we examined whether coaches' autonomy supportive and controlling feedback after mistakes (based on the self-determination theory) and additional post-hoc explanations of the coach would affect team athletes' perceived justice. Female volleyball players (N = 56; M = 22.33) and male handball players (N = 35; M = 23.59) from Belgian top-level teams completed one general and five weekly web-based questionnaires during five consecutive weeks. MLwiN software was used to perform the multilevel analyses. Autonomy supportive corrective feedback positively predicted perceived justice. In contrast, controlling corrective feedback negatively predicted perceived justice. Furthermore, coaches' post-hoc explanations were positively related to athletes' perceived justice. This positive effect was stronger when coaches communicated their feedback in a controlling way compared to an autonomy-supportive way. The communication style of corrective feedback and the additional explanations were significant predictors of players' perceived justice. Our results might be explained by the fact that players, who get autonomy supportive feedback, will understand the purpose of this feedback and as a result perceive their coach as fair. Players who get controlling feedback lack this understanding. Consequently, in order to minimize the chance on misinterpretations coaches should provide an additional explanation for this controlling feedback.

S4.06: Symposium - Reimagining physical education as an avenue for promoting the psychosocial, cognitive, and physical health of youth

Chair(s): Spyridoula Vazou (Iowa State University, USA), Caterina Pesce (Italian University Sport and Movement, Italy)
Discussant(s): Athanasios Papaioannou (University of Thessaly, Greece)

This symposium will focus on the role of the instructional (e.g., physical education) and social (e.g., peer interactions) environment in promoting physical activity (PA) among children and adolescents as an avenue for facilitating cognitive, emotional, and physical health. The presentations will examine three intervention studies comparing traditional PE lessons to lessons incorporating novel, psychologically informed strategies and a cross-sectional study investigating adolescents' future intentions for PA. The first presentation will focus on how a yearlong life-skills training intervention in multi-sport PE influenced cognition and physical performance among high-school students. The second presentation will share the results of a 6-week intervention in PE, which examined the effects of cognitively engaging team games and physical exertion on children's executive functions and fitness. The third presentation will describe the characteristics of a novel PE lesson emphasizing positive peer interaction and its impact on students' affect, motivation, and intention. The fourth presentation will describe associations between global self-esteem, peer support, perceived physical competence, and adolescent's intention to be physically active. Collectively, the aim of this symposium is to help attendees reimagine physical education and youth PA-promotion strategies by highlighting relevant theoretical perspectives, emerging intervention strategies, and creative directions for future research.

- **Life skills training in multi-sport physical education: Outcomes and mediating mechanisms**

Caterina Pesce[1], Rosalba Marchetti[1], Marios Goodas[2], Steve Danish[3]
[1]Italian University Sport and Movement, Italy, [2]University of Thessaly, Greece, [3]Virginia Commonwealth University, USA

The effectiveness of life skills (LS) programs in physical education (PE) and youths sport for promoting personal development has been proved by a number of studies. Evidence consistently showed enhanced knowledge of and confidence in applying LS which was paralleled by gains in physical fitness and sport skills. However, the potential of LS education to impact higher-level cognition and the role of LS development as a mechanism mediating the effects of a LS training program in motor and cognitive domains has not been investigated yet. Thus, we aimed at verifying (1) the outcomes of a LS program in PE on physical fitness, motor/sport skills and cognitive efficiency, and (2) whether eventual outcomes are mediated by gains in LS operationalized not only as self-evaluation, but also as behavioral application in sport game situations. Hundred and nine senior-high school students aged 14-15 years were assigned (with random class assignment) to either an experimental LS program embedded in multi-sport PE, or to traditional PE. Prior to and after the intervention, they were administered tests assessing physical fitness (aerobic fitness, muscle power), coordinative ability (kinaesthetic discrimination, response orientation), sport game skill (dribbling, pass), executive function (inhibition, working memory updating), decision making and tactical cooperation skills in sport games. The LS program induced improvements in aerobic fitness, sport game skill, and inhibitory efficiency, as well as gains in LS knowledge and competence. LS competence, operationalized as decision making skill, mediated physical and sport performance improvements. Thus as compared to traditional PE without life skill training, a LS program integrated in a multi-sport PE setting seems to have positive outcomes in motor and cognitive domains which are relevant to personal development. The study also highlighted the usefulness of behavioral measures of LS to identify pathways through which LS education positively impacts fitness and sport skill development.

- **Effects of two qualitatively different chronic physical activity interventions on executive functions in primary school children**

Mirko Schmidt, Katja Jäger, Claudia Roebers, Achim Conzelmann
University of Bern, Switzerland

Although positive effects of different kinds of physical activity (PA) on executive functions have already been demonstrated in a variety of studies, the role of cognitive engagement (CE) inherent in PA to promote the cognitive functions of children and adolescents is still unclear. The aim of the present study was therefore to investigate the effects of two qualitatively different chronic PA interventions on executive functions in primary school children. 181 children aged between 10 and 12 years were assigned to either a 6-week physical education (PE) program with high physical exertion (PHE) and high CE (team games), a PE program with high PHE, but low CE (aerobic exercise) or to a PE program with both low PHE and CE (control condition). Executive functions (updating, inhibition, switching) and aerobic fitness (multistage 20 meter shuttle run test) were measured before and after the respective condition. Results revealed both interventions (team games and aerobic exercise) having a positive impact (of 4-5 % increase in estimated VO2max) on children's aerobic fitness in comparison to the control condition. Importantly, an improvement in shifting performance was found only in the team games (high PHE, high CE) and not in the aerobic exercise (high PHE, low CE) or control condition (low PHE, low CE). Thus, the inclusion of CE in PA seems to be the most promising chronic intervention type to enhance EF performance in children, lending further evidence for the importance of the qualitative aspects of PA.

- **Psychologically informed fitness testing practice in schools: A field experiment**

Spyridoula Vazou, Amanda Mischo, Panteleimon Ekkekakis
Iowa State University, USA

Fitness testing in schools is commonplace in several countries. In the United States, testing is legislatively mandated in many states. The rationale for this policy is that testing will "assist students in establishing lifelong habits of regular physical activity." However, the motivational implications of this policy have not been studied systematically. In particular, this is an area of tension between PE practitioners, who have to carry out the mandate with finite resources, and exercise scientists, who have warned of the possible negative motivational consequences of improper implementation. Thus, the purpose of this within-subjects field experiment was to compare the motivational outcomes of two 30-min PE lessons consisting of practice for three fitness tests (PACER, curl-ups, push-ups). The traditional lesson followed standard FITNESSGRAM instructions, as a simulation of current implementation practices. The novel lesson emphasized positive peer interactions, incorporated teamwork (games with a partner), introduced variety, and added music and video. Thirty-five 4th and 5th graders from one school completed both lessons, one week apart. Positive affect and hubristic pride ("feel good that I look better than most kids around me") were assessed before and after the lessons. Enjoyment, situational need satisfaction (competence, autonomy, relatedness), and intention to repeat the lesson were assessed upon completion of the lesson. Physical activity during the lessons was measured by accelerometers. The average intensity of the two lessons was similar (7 METs). However, all motivational outcomes favored the novel lesson, with a more positive condition by time interaction for positive affect, more enjoyment, higher satisfaction of the basic psychological needs, and stronger intention to repeat this lesson in the future. For hubristic pride, overweight children reported a decline after the traditional lesson but an improvement after the novel lesson. These results highlight the potential value of translating extant psychological theory into practice in PE settings.

- **Intention to be physically active in the future for 15-year-old school students**

Mary Hassandra, Kwok Ng, Jari Villberg, Raili Välimaa
University of Jyväskylä, Finland

The purpose of this study was to investigate how global self-esteem and its social determinants are associated with intention to be physically active in the future among 15-year-old, non-smoking adolescents in Finland. Participants were 1440 Finnish students (boys: n=717) collected for the international survey of Health Behavior in School-Aged Children study (2010). Structural equation model showed that global self-esteem was indirectly related to intention to be physically active in the future through out of school physical activity behavior and perceived physical competence. Additionally, perceived classmates' support was directly related to both out of school physical activity and intention to be physically active in the future. The explanatory variables accounted for the 47 % of the variance of the intention to be physically active in the future. Implications for practice and future research are discussed.

S4.07: Symposium - How young people view risks in sport

Chair(s): Stefan Siegrist (bfu - Swiss Council for Accident Prevention, Switzerland)

This symposium will discuss the area of conflict between sports promotion and accident prevention. How can sports promotion contribute to a responsible approach to the risk inherent in sport? A responsible approach is particularly important among adolescents and young adults. Using theory and empiricism as a basis, three speakers will present approaches to the promotion of risk competence in sports. It will be shown that accident prevention need not curb either fun or performance. After all, the common denominator in sports promotion and accident prevention is the sporting experience. Risk competence and personal responsibility do not primarily develop from teaching the theory and the prohibitions. Rational cost-benefit considerations hardly come into decisions spontaneously in situations with strong emotional stimuli – as is often the case in sport. The aim is for young athletes not to give in to their current state of mind and react spontaneously in critical situations, but to confidently incorporate the potential negative consequences in their decision-making. Accident prevention tends to set too little store by the aspect of feelings and strives to improve the target group's knowledge. Conversely, people attach great importance to experiencing risk and underestimate important factual information. The aim for the speakers and the plenary session is to have an exchange of "good practice tools" for improving risk skills.

- **Joyful versus harmful risk taking in sports - can psychological theories explain the difference?**

Stefan Siegrist
bfu - Swiss Council for Accident Prevention, Switzerland

A minimal risk of injuries and as a consequence costs for the community are inherent to most sport. On the other hand only few sports activities result in those negative consequences (Brügger et.al., 2012). However, the total number of accidents reduces the positive public health effect of sports. For this reason determinants and persuasibility of risk taking behaviour is of crucial interest for experts in sports as well as in prevention. This presentation gives a short overview of psychological explanations of risk taking and it tries to answer the following questions briefly: (1) Which psychological processes incur health threatening behaviour? (2) Do psychological explanations necessarily lead to human centred interventions? (3) What can we learn from safety promotion in other fields? (good practice tools)

- **More than sensation seeking – The identity-creating function of high-risk sports**

Michael Josef Dammert, Tobias Jäger, Martin Niedermeier, Martin Kopp
University of Innsbruck, Austria

Participation in high-risk sports is increasing. Research on participant motivations is dominated by the explanatory approach of Zuckerman's Sensation Seeking Concept. Recent literature suggest that in addition some other motivational factors, especially, identity-related aspects might be important drivers of risk-behaviour while participating in high-risk sports. Therefore, the aim of this study was to find out more about the identity-creating potential of high-risk sports in relation to Sensation Seeking. 215 participants (43% female; mean age: 25) of an online survey answered the Sensation Seeking Scale Form-V, and adapted version of the Need for Uniqueness Scale, questions about the relevance of their sport for their identity including photo-related activity in social networks as well as the Risk-Taking-Scale. Sports were rated in low-risk, medium-risk and high-risk sports concerning the risk of injuries. The relevance of sports for the identity shows a highly significant correlation with higher risk taking in sports as well as higher rates of participation in high-risk sports. Regression analysis revealed, that sports related identity seems to be a stronger predictor for risk-taking than Sensation Seeking (ß = .45, SE = .10, p < .001) vs (ß = .12, SE = .03, p < .001). The identity concept seems to be an appropriate approach for future research about high-risk sports. In postmodern societies with detraditionalization and decomposition of identities one important aspect seems to be the individual work for identity. "High-risk sports performing" might be an important identity aspect and therefore, requires more knowledge about its function for risk-taking in order to develop very group-specific and empathetic injury prevention programs.

- **Risk makes people happy, safety makes them less sad: Risky and protective behavior in the light of self-determination theory**

Jens Kleinert, Anna Wasserkampf
German Sport University Cologne, Germany

Young people's risk behavior can be explained as seeking for satisfaction of psychological needs. In this regard, Self-Determination Theory (SDT; Deci & Ryan, 2000) defines autonomy, competence, and relatedness as three basic and innate needs. The more a behavior satisfies these three basic needs, the more it is associated with positive emotional states (e.g., pleasure, happiness) and the more it is perceived as self-determined and autonomously regulated. In contrast to risk behavior, protective behavior seen in adolescence is often the consequence of external demands and pressures. Specifically, rules, norms, and social environment force young people to follow safety instructions and behave in a protective way. According to SDT such forms of behavioral regulations are rather controlled and less internalized in the individual's psychological field. Moreover, these controlled forms of behavioral regulations are associated with negative emotions (e.g., anxiety, feelings of compulsion), which result in low compliance and low probability of protective behavior.
The presentation is going to discuss this SDT-approach to risky and protective behavior in the light of traditional and innovative approaches to risk and safety management in the applied setting. Campaigns and initiatives of different organizations, aimed at promoting protective behavior in adolescence in risk situations, are evaluated using categories and principles of SDT. In so doing, the terms competence and valence will be re-defined in the context of risk-safety situations. Studies reporting the impact of different competence and valence related variables on intention and behavior are presented to underpin this SDT-oriented conception of risky and protective behavior.

- **Psychological correlates of risk-taking behaviours among French rock climbers**

Cécile Martha[1], Xavier Sanchez[2]
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Psychological factors such as self-efficacy (Llewellyn & Sanchez, 2008; Schüler & Nakamura, 2013), risk perception (Martha, Sanchez, & Goma-i-Freixanet, 2009) and impulsive sensation-seeking (Llewellyn et al., 2008) have been associated with climbing risk exposure. However, little is known about the link between these psychological factors and other climbing-specific risk-taking behaviours (such as not clipping the rope into all the quickdraws when leading), precautionary behaviours (such as wearing a climbing helmet), and number of acute injuries and climbing incidents. The purpose of this study was twofold; firstly, to examine the abovementioned relationships in rock climbing. A second objective was to examine age and expertise level differences for both risk perception and risk-taking behaviours among rock climbers. French outdoor climbers (N=453; ages ranging 16-60 years) completed an online survey. Main findings indicated that perceived risk inherent to specific climbing situations is related to elementary ($r=.28$, $p<.001$) and very high ($r=.31$, $p<.001$) precautionary behaviours, and negatively related to risk- and sensation-seeking behaviours whilst climbing ($r=-.33$, $p<.001$). Risk- and sensation-seeking behaviours were also related to climbing self-efficacy ($r=.31$, $p<.001$), comparative optimism regarding perceived own risk of getting seriously injured whilst climbing – compared to perceived risk of the average climber ($r=-.13$, $p<.01$), number of acute injuries during the last 12 months ($r=.16$, $p<.001$), and both impulsive ($r=.21$, $p<.001$) and sensation-seeking traits ($r=.39$, $p<.001$). Young climbers (<30 years old) reported more risk- and sensation-seeking behaviours than older climbers ($t=2.87$, $p<.01$), as well as more climbing incidents over the last 12 months ($t=3.10$, $p<.01$). Expertise level appeared to be positively related to both self-efficacy ($r=.41$, $p<.001$) and risk- and sensation-seeking behaviours ($r=.36$, $p<.001$), and negatively related to both risk perception ($r=-.18$, $p<.001$) and very high precautionary behaviours ($r=-.48$, $p<.001$). Overall, findings suggest that risk perception plays a significant role in the 'climbing safely mode' of practice, and thus applied interventions should be targeting this variable, particularly among the experts – the higher the expertise level, the lower both risk perception and precautionary behaviours were.

S4.08: Symposium - "Coaches' are people too" and they also get caught in the eye of the storm!

Chair(s): Stiliani "Ani" Chroni (Hedmark University College, Norway)

Worldwide, a number of studies exploring athlete stress have reported on coaches and the coaching behaviors/styles as a source of stress for the athlete; thus we often question if the individuals who are there to solve problems and support the athletes (i.e. the coaches) are perceived as a source of stress, what are we doing about it? Still today, the literature on the coach stress experience and stressors is still limited. This symposium shares recent in-depth findings to shed more light on the elite coach stress experience. The first and second presentations use the same data set and share 7 elite Norway coaches' overall stress views and stressors as reflected post the Sochi Olympic Games as well as how their stress experience is perceived, interpreted, and coped via the use of the Cognitive Activation Theory of Stress (Ursin & Eriksen, 2004). The third presentation reports results of another in depth exploration of the stress and coping experiences of Olympic level coaches who are based in the United Kingdom. This study utilizes the cognitive-motivational-relational theory of stress and emotions (Lazarus, 1999) to address how the coaches experienced the effectiveness of their coping strategies, and how the coaches did their best to shelter their athletes from the stress consequences. The shared knowledge from the qualitative research will be discussed with regard to future research and the applied practice perspective as it can offer ideas for knowledge still absent and a diverse repertoire of practical approaches on coaches' stress for educating them and consulting with them.

- **Stress at first sight but challenge at second: What makes the difference**

Stiliani "Ani" Chroni[1], Frank Abrahamsen[2], Liv Hemmestad[3]
[1]Hedmark University College, Norway, [2]Norwegian School of Sport Sciences, Norway, [3]Olympiatoppen, Norway

Research has pointed out that coaching behaviors during competition have a vital role on athlete anxiety levels. With this in mind, we aimed to understand the coach stress experience in order to avoid having coaches in the future reported as stressors by the athletes. The main focus here is the in-depth exploration of Olympic level coaches' stress experiences at training and competition contexts. Using Giorgi's (2012) phenomenological approach, we elaborate on how the phenomenon of stress presents itself among seven top Norwegian winter sport coaches. These coaches while they identified issues like team selection, athlete performance and wellbeing, media, and organizational elements as potential stressors (similar to the existing literature), they distinctively shared that in their work as national team coaches they are not stressed but rather challenged. The following themes were identified as key in understanding their view of being challenged rather stressed: (a) they view the demands and pressures of the job as being busy, as an ambition, a challenge, a chance to make a difference; (b) they see potential sources of stress as issues/situations they learn to deal with, so the first time it is a stressor but with preparation next time it is a challenge; (c) they always expect something good to come out of a stressful situation as coaches and athletes make changes to meet the demands and thus turn things around; and (d) they view the environment they work in as one that nurtures the doing of their job in a way that is productive and promising for athlete and sport development. These findings portray "hardy" individuals (those with the tendency to view stressful situations in a positive way, as challenging, exciting, and growth promoting; Kobasa, 1982) and are discussed as elements to be used in future coach education and support.

- **When caught in the eye of the storm, it is about mindset, interpretation and reflection**

Frank Abrahamsen[1], Stiliani "Ani" Chroni[2], Liv Hemmestad[3]
[1]Norwegian School of Sport Sciences, Norway, [2]Hedmark University College, Norway, [3]Olympiatoppen, Norway

To better understand what elite sport coaches in Norway experience as stress, we focused on how they perceived, interpreted and gave meaning to the coping process, employing Giorgi's (2012) phenomenological interpretive task in the analysis. The coaches' views of stress and coping (as identified previously) were exhaustively re-appraised through the Cognitive Activation Theory of Stress (CATS; Ursin & Eriksen, 2004), which provides a different understanding of the stress concept by defining coping as positive response outcome expectancies (PROE). PROE signifies the importance of feeling able to solve the situation. The CATS coping concept entails learning of (a) the load (i.e. stimulus expectancy) and (b) the capability to sustain the load (response expectancy). Thus, a coach who believes he/she can solve the situation (regardless of the means/tools utilized) will therefore cope. CATS also takes advantage of the stress learning concept by associating the stress experience and the coping efforts. It therefore empowers coaches in their dealings with competitive pressure by interpreting and learning from their past experiences. However, in order to learn from previous encounters, the interpretation and reflection they undertake are important. In this presentation we address the Norwegian elite coaches' own experience of learning to cope. In particular, we present how they reflect on different situations, how they learn and the techniques they utilize to improve before the next stress encounter. Overall, modesty and personal confidence characterize the mindset of these coaches when dealing with stress: "I like to have control and know what's going on, but I'm not afraid of letting go either. It's not like I know everything best. I'm in a team with very skilled persons, and I learn from them". This alternative outlook of stress and coping in association expands the sport

psychology practitioners' repertoire on coach stress training by empowering the coaches through self-reflection.

- **Stressors, appraisals, and coping in Olympic and international level sport coaches**

Faye Didymus
Leeds Beckett University, UK

To facilitate optimal performance, coaches require refined skills for coping with the stressful events that they and their athletes encounter. However, little is known about how coaches cope with stressors and sustain their involvement in sport. Therefore, using the cognitive-motivational-relational theory of stress and emotions (Lazarus, 1999), this study aimed to provide an in depth exploration of the stress and coping experiences of elite level coaches who are based in the U.K. Specifically, this study explored the stressors encountered, the situational properties of these stressors, the transactional alternatives experienced, the coping strategies used, and coaches' short-term perceived coping effectiveness of the strategies employed. Fifteen high level coaches were interviewed using a semi-structured approach. To establish a clear skill level for the participants, an elite level coach was defined as an individual currently coaching at international or Olympic level who had been coaching at this level for a minimum of five years. All of the interviews were conducted face-to-face and lasted between 35 and 95 minutes (Mlength = 57.47, SD = 15.81). A variety of stressors (e.g., effective communication, media coverage) were reported by the coaches that were underpinned by seven situational properties. Coaches experienced challenge, benefit, threat, and harm appraisals and primarily coped using strategies that aimed to solve stressors (e.g., effective planning) or manage coach and athlete emotions (e.g., positive encouragement). Coaches suggested that the majority of their coping strategies were moderately effective in terms of managing the negative outcomes of stress. Interestingly, each of the fifteen coaches reported that their primary concern during stressful experiences was to minimise the impact of these experiences on athletes. The findings suggest that practitioners should work alongside coaches to consider the complex and idiographic nature of stress experiences from both coach and athlete perspectives.

W4.1: Workshop - Calm, cool, and collected: A mindfulness approach to psychological skills training for athletes and performers

Taryn Michele Brandt
Springfield College, USA

Participation in a sport or performance endeavor requires performance at a high level under a great deal of pressure and ability to control the tension or fear that may arise when thinking about the outcome of the performance. Moore (2009) suggested that optimal performance requires not just the control of one's internal state, but rather a nonjudgmental, in the moment awareness and acceptance of that internal state while maintaining attentional focus on stimuli that support the current endeavor. This idea demonstrates the importance of mindfulness as an approach to achieve optimal performance. Mindfulness is defined as an "open-hearted, moment-to-moment non-judgmental awareness" (Kabat-Zinn, 2005, p. 24). Benefits of mindful awareness and attention have been shown to be related to positive psychological and physical outcomes (Kabat-Zinn, 1990) as well as enhanced sport performance (Bernier et al., 2009). The purpose of this workshop is to provide an overview of mindfulness approaches to psychological skills training and to highlight specific interventions that can be used in sport and performance settings. In particular, the workshop will place emphasis on the use of focusing techniques, self-talk strategies, and mindfulness-based interventions to promote optimal performance. This workshop will be targeted toward developing professionals and students in the field of sport psychology who wish to incorporate mindfulness based interventions to enhance athlete performance. An activity will be presented that targets each of the three skill areas related to mindfulness including diffusion of unhelpful thoughts, acceptance of challenging feelings, and contact with the

present moment. The workshop will be interactive in nature and will engage attendees in both activities and discussion. Attendees will be encouraged to discuss how they see the presented interventions as being valuable in their work with athletes and performers. At the end of the workshop attendees will be provided a handout detailing ideas presented.

W4.2: Workshop - Brainy conversations: The application of interpersonal neuroscience in sport and exercise psychology

Guy Little[1], Mark Andersen[2]
[1]Victoria University, Melbourne, Australia; [2]Halmstad University, Sweden

This workshop will start with a short didactic introduction to the history of interpersonal neurobiology, neuropsychotherapy, and the centrality of therapeutic relationships in sport and exercise psychology service. Across numerous studies in various healthcare domains (including physiotherapy and psychology) researchers have found that caring, collaborative relationships are consistently associated with positive physical and psychological treatment outcomes, and poor relationships are linked with negative outcomes (Hall, Ferreira, Maher, Latimer, & Ferreira, 2010; Horvath, Del Re, Flückiger, & Symonds, 2011). The brain structures and systems that are active within interpersonal relationships (the social brain; Cozolino, 2010, 2014) will be reviewed. Following the introduction, the workshop organisers will demonstrate (through a silent role-play) interpersonal attunement through mirroring body language and emotions. After the demonstration, attendees will complete the exercise in threes (client, practitioner, and observer). Each attendee will have an opportunity to perform each role. Following the exercise, there will be a whole-group discussion about attendees' experiences and observations as well as didactic input from the workshop organisers in regards to the interpersonal neuroscience of the activity. If time permits, the workshop organisers will demonstrate how to discuss neurobiology when working with an anxious athlete. Neuroscientific explanations of psychological processes are commonly used within psychotherapy and counselling, and a few practitioners have outlined how sport and exercise psychologists can discuss neuroscience with athletes who have performance anxiety. After the demonstration there will be opportunity for attendees to practice their own discussions in client-practitioner role-plays. Following this activity, attendees will be encouraged to discuss their experiences within a whole-group discussion. At the end, there will be a group discussion and evaluation of the workshop. The attendees will be given a reading list containing relevant research articles and book chapters on interpersonal neurobiology and using neuroscience language when working with clients.

W4.3: Workshop - Longitudinal data analysis in sport and exercise psychology: Exploring new horizons

Andreas Stenling[1], Andreas Ivarsson[2], Magnus Lindwall[3]
[1]Umeå University, Sweden; [2]Halmstad University, Sweden; [3]Gothenburg University, Sweden

This workshop will focus on longitudinal data analysis in sport and exercise psychology research. The content will be guided by Baltes and Nesselroade's (1979) theoretical framework of change and Collins (2006) integrative framework for theoretical model of change, temporal design, and statistical model. The aim is to provide attendees with theoretical frameworks as well as statistical tools to analyze longitudinal data that correspond to research questions addressed within these frameworks. In a review of the journals Psychology of Sport and Exercise and Journal of Sport & Exercise Psychology between 2010 and 2013 we found that the most commonly used statistical analysis for longitudinal data was ANOVA/MANOVA. In longitudinal designs the primary aims are often related to within-person change. The ANOVA/MANOVA, however, only estimates group mean differences. More appropriate statistical methods (e.g., growth models, mixture models, change score models) can be used to address both within-person change and between-person differences, however, these methods seem to be underutilized in sport and exercise psychology research. This workshop will address theories of change and temporal design, and how to match these theories with statistical models capturing within-person change and

between-person differences. Specific learning objectives are: (1) to understand how statistical models can match our theories of change and temporal design, (2) to understand the difference between within-person change and between-person differences, and (3) to be able to determine appropriate analyses that correspond to various research questions related to within-person change and between-person differences. The target groups for this workshop are postgraduate students and researchers in sport and exercise psychology and the workshop will contain brief lectures, group discussions, and demonstrations of how to perform statistical analyses related to within-person change and between-person differences in within-person change. Literature, data-, input-, and output-files for all examples will be provided to those attending the workshop.

W4.4: Workshop - Ego State Therapy in sport psychology counselling

Max Schlorff
Ego-State-Therapy Switzerland, Switzerland

In this workshop participants will be given an introduction to Ego State Therapy and its application in individual counselling in sport psychology in the context of elite and competitive sport. Ego State Therapy is a powerful and brief therapy based on the premise that personality is composed of separate parts rather than being a homogeneous whole. Ego State Therapy has a long history. The current concept is based upon the work of John and Helen Watkins (Ego States: Theory and Therapy, 1997). Ego State Therapy has its roots in trauma therapy but is also excellent for strengthening of the personality, activating resources and improving performance. In the classic sport psychological situation of good achievements in training but failures at competitions, Ego State Therapy can help to detect states detaining an athlete from his best performance. Interventions from Ego State Therapy can be used to form an integrated inner team of Ego States for the best possible performance. The workshop covers the following teaching objectives: Basic propositions of Ego State Therapy, basic strategies and a practical approach to Ego State Therapy will be given. Different ways in establishing contact to Ego States will be explained. In a practical learning activity, participants will have the opportunity to explore own Ego States. Ego States and Ego State Therapy in the context of competitive sport will be illustrated and a case study will be presented. The theoretical fundamentals of Ego State Therapy will be illustrated either with film demonstrations of a counselling session or live demonstrations with participants.

Session 5 – Thursday 16 July, 2pm-3.30pm

IS5.1: Invited Symposium - Self-talk in sport performance

Chair(s): Judy L. Van Raalte (Springfield College, USA)
Discussant(s): Antonis Hatzigeorgiadis (University of Thessaly, Greece)

Self-talk has been endorsed by athletes and coaches as an essential mental skill for sport performance. The purpose of this symposium is to provide a multi-faceted look at self-talk in sport and exercise psychology. The symposium begins with discussion of a sport-specific model of self-talk that is designed to addresses key questions related to self-talk and to provide a theoretical foundation for researchers and practitioners in the field. The second presentation focuses attention on spontaneous self-talk. A study of sport experiences and emotions is described and results indicating that a preponderance of anticipatory and negative self-talk occurs in situations ranging from anxiety- to confidence-eliciting are discussed. The third presentation addresses self-talk in exercise settings, using three methodological approaches: semi-structured interviews, thought listing, and recall of emotion concepts. It is suggested that exercise-related self-talk can be used to facilitate adherence and as a foundation for the development of quantitative measures of self-talk. The fourth presentation describes a process whereby spontaneous self-talk can be measured in real time via descriptive experience sampling. Participants are trained to record their momentary inner experiences at random intervals and are then interviewed about their experiences. Results indicate that golfers use self-talk more when playing golf than in other aspects of their lives. Highly skilled golfers use self-talk related to golf and mental preparation more than moderately skilled golfers. The final presentation explores the effects of instructional self-talk on performance under stressful and non-stressful conditions. Results offer mixed support that holistic instructional self-talk is effective under low stress conditions. Under stress, however, holistic self-talk leads to improved performance and part-process self-talk to decreases in performance. An explanation of as to why these performance differences under stress might have emerged is provided. The presentation concludes with commentary of a discussant.

- **Sport-specific model of self-talk**

Judy L. Van Raalte, Andrew Vincent, Britton W. Brewer
Springfield College, USA

Self-talk is a key component of the sport psychology canon that can be defined as syntactically recognisable articulation of an internal position expressed either internally or out loud where the sender of the message is also the intended receiver. Although self-talk has been widely endorsed by athletes and coaches as a performance enhancement strategy, Hardy, Oliver, and Tod (2009) note that a comprehensive model of self-talk in sport that might be used to guide systematic research has yet to be developed. This purpose of this presentation is to discuss a sport-specific model of self-talk that builds upon existing theory and research, and addresses key questions related to self-talk such as, “if we already know everything that we know then why are we talking to ourselves?” and “when we engage in self-talk, who is talking to whom?” The sport-specific model of self-talk is a framework that incorporates the multiple and reciprocal relationships among self-talk, behaviour, personal factors, contextual factors, and System 1 and System 2 processing. Consideration of the model may be useful for sport psychology researchers and for practitioners interested in tailoring interventions to the needs of individual athletes, teams, coaches, and sports organisations in varied contexts. Ideally, theoretically guided research will continue to enhance the development of self-talk research and practice in sport.

- **Patterns of automatic self-talk in situations eliciting anticipatory emotions**

Alexander T. Latinjak
Universitat de Girona, Spain

Lately, a distinction in the automatic self-talk paradigm was introduced discriminating between spontaneous and goal-directed statements. The purpose of this study was to inquire into the patterns of both types of automatic self-talk in situations eliciting anticipatory emotions: anxiety, resignation, excitement and confidence. Eighty-seven participants took part in this study. They were asked to remember any situation during the last month when they experienced each one of the targeted emotions. Further, one group was asked to write down any thoughts that occurred to them and another group was asked to write down anything they told themselves so as to improve their performance or to control their emotional responses. Qualitative analyses with independent judges categorized all statements according to previous classifications (Latinjak, Zourbanos, López-Ros, & Hatzigeorgiadis, 2014). The results showed that in anxiety-eliciting situations most spontaneous self-talk was anticipatory and negative (94%) and goal-directed statements aimed mostly at regulating behaviour (27%), creating deactivation (22%) and positive predictions (31%). In resignation-eliciting situations, most spontaneous self-talk was anticipatory and negative (83%) and goal-directed statements aimed mostly at controlling deactivation (18%), creating activation (40%) and positive predictions (30%). In excitement-eliciting situations, most spontaneous self-talk was anticipatory and negative (98%) and goal-directed statements aimed mostly at regulating behaviour (33%), creating activation (24%) and positive predictions (31%). Lastly, in confidence-eliciting situations, most spontaneous self-talk was anticipatory and negative (88%) and goal-directed statements aimed mostly at regulating behaviour (45%), creating activation (16%) and positive predictions (25%). Overall, the results revealed patterns of automatic self-talk researchers and applied sport-psychologist should take into consideration when implementing strategic self-talk interventions.

- **The development of Automatic Self-Talk Questionnaire for Exercise**

Nikos Zourbanos, Anna Kalymniou, Nikita Bhavsar, Levanta Apostolou, Yannis Theodorakis, Antonis Hatzigeorgiadis
University of Thessaly, Greece

An aspect that has not received much attention is the examination of self-talk within the context of exercise. Gammage, Hardy, and Hall (2001) reported that 95% of exercisers endorsed their own use of self-talk related to physical activity. Unfortunately, to date, the majority of research examining self-talk within the context of exercise has been quite descriptive in nature. Thus, the purpose of the present investigation was to examine the content of the underlying structure of self-talk within the context of exercise using three methodological approaches. In the first approach qualitative data using semi-structured interviews were collected asking exercisers, given a time limit of 2 weeks, to recall what they said to themselves during their workout. Following this, the thought listing procedure was employed in a different sample. Participants were given a time limit of 3 minutes to list down as many thoughts as possible about what they said to themselves immediately after a workout. And finally, emotion concepts were used to help participants recalling a variety of exercise situations and the thoughts that occurred to them, or the instructions they gave themselves in such situations. The results revealed 4 positive and 4 negative categories of thoughts. The awareness of self-talk and the ability to tune into it could facilitate adherence strategies. Finally, given the lack of research in the field of exercise-related self-talk and the need for a quantitative measure assessing the same, the current research can serve as a basis for development of quantitative measures and effective interventions to enable exercise adherence.

- **Golf and the phenomenology of self-talk**

Yani L. Dickens
University of Nevada, USA

The quality of sport performance is widely-believed to depend on internal processes that occur during performance. One of these processes is self-talk. Studies examining processes such as self-talk have typically relied on retrospective self-reports obtained long after performance, a method limited by athletes' recall of internal processes. Descriptive Experience Sampling (DES) is a basic research method that circumvents these problems by obtaining contemporaneous reports of inner experience. DES uses a device that emits a random beep via an earpiece. Participants record momentary inner experience immediately after the beep. Participants are interviewed about these experiences within 24 hours. DES suspends presuppositions about the nature of inner experiential phenomena in favor of observation and description of phenomena. Previous DES research identified common forms of inner experience including inner seeing, sensory awareness, feeling, unsymbolized thinking, and inner speech, the latter of which is essentially inner self-talk. Speaking aloud, essentially external self-talk, has also been found. DES was used to explore inner experience during golf performance in highly- and moderately-skilled golfers. Five highly-skilled and five moderately-skilled golfers competed in a tournament created by the investigators. At 94 random times during this tournament, they were signaled by the beeper to attend to their ongoing inner experience. Results showed that inner experience during golf frequently consisted of golf-related content and mental preparation strategies more frequently for the highly skilled golfers than for the moderately skilled. Perceptual awareness and inner speech occurred prominently. Unsymbolized thinking, sensory awareness, feeling, and speaking aloud were also present. Inner speech occurred more frequently in golf than daily life for both groups, and highly-skilled golfers experienced speaking aloud more frequently than moderately-skilled golfers. Inner speech and speaking aloud are phenomenologically different inner experiences, and both were found during golf performance.

- **Does instructional self-talk always aid performance?**

James Hardy[1], Ross Roberts[2], Richard Collins[3], David Tod[4], Emily Oliver[5], Joe Murray[6]
[1]Bangor University, UK, [2]Bangor University, [3]Hartpury College, UK, [4]Liverpool John Moores University, UK, [5]Durham University, UK, [6]activ8kids, UK

Current research supports the idea that self-talk can aid athletes' performance levels. The effectiveness of self-talk under stress, however, is not well understood. To better develop our knowledge we draw from the conscious processing hypothesis literature and specifically, the concept of holistic goal setting to shape instructional self-talk into part-process and holistic instructional self-talk. In Experiment 1, using a between group design (holistic self-talk versus control group), we provide initial evidence that holistic instructional self-talk significantly facilitates adult male intermediately skilled players learning of an accuracy based rugby kicking task. These results suggest that holistic instructional self-talk resembles traditional forms of instructional self-talk under low stress conditions. In Experiment 2 we introduced a stressed condition. In particular, we employed a 3 (part-process, holistic, control group) x 2 (pre- vs. post-test; low vs. high stress) study design which utilized a learning paradigm with 57 novice badminton players. The experimental task was an accuracy oriented short badminton serve, which participants learned over 400 trials. Results indicated that all three groups learned the task equally well but that differences emerged with regard to performance under stress. More specifically, there was a significant increase in performance from low to high stress for the holistic group, whereas significant decreases in performance were evident for the part-process self-talk and control groups. Given the existent self-talk literature and the findings from Experiment 1, one would have expected both forms of instructional self-talk to aid learning. It is possible that this discrepancy could be attributed to the extended learning phase include in Experiment 2 or to the skill level of the participants. Nevertheless, clear

benefits for holistic instructional self-talk emerged under stress. Experiment 3 replicated the findings of Experiment 2 and furthered our understanding as to why these performance differences under stress might have emerged.

IS5.2: Invited Symposium - Psychophysiological monitoring and intervention in sport

Chair(s): Maurizio Bertollo (University G. d'Annunzio Chieti-Pescara, Italy)
Discussant(s): Penny Werthner (University of Calgary, Canada)

Psychophysiological monitoring and interventions in sport have a long tradition, but during the last years there is a renaissance of the theoretical and applied interest toward this types of field, mainly because of technological advancement and development of the devices and instruments.In particular, miniaturization and wireless features permit ecological data collection. New protocols outside labs have been implemented and performance has been studied not just comparing expertise level but also investigating during practice and competition the cognitive and affective processes in the real setting and with sport-specific tasks. Psychophysiological characteristics of different theoretical frameworks (flow, automaticity, reinvestment, IZOF, IAPz, and MAP) are better investigated using both nomothetic and idiographic approaches and focusing on the idiosyncratic features of peak performance. With this development, psychophysiological monitoring can better inform about the biofeedback and neurofeedback interventions to teach and improve self-regulation in athletes.The first speaker will discuss the psychophysiological features of optimal and suboptimal performance in light of the MAP model, a comprehensive framework in the investigation of psychophysiological indices of different types of performance. The second speaker will examine psychophysiological ingredients in golf, underlying attentional focus and response programming. Reinvestment theory will provide an empirically-driven template for biofeedback interventions aimed at increasing sporting success. The third and fourth speakers will focus on specific biofeedback intervention, including stress reduction using HRV biofeedback training and multimodal and muldimensional interventions, also emphasizing how to transfer the learning from the lab setting to the playing field. The last speaker will discuss the perceptual-cognitive monitoring and intervention both in the real word and virtual reality using a more recent technology, such us eye tracking, and providing some insight on how to develop an intelligent coaching in virtual reality environments.

- **Psychophysiological features of optimal and suboptimal performance**

Maurizio Bertollo, Edson Filho, Selenia di Fronso, Laura Bortoli, Silvia Comani, Claudio Robazza
University G. d\'Annunzio Chieti-Pescara, Italy

The psychophysiological features of skilled performance in sport have been primarily studied using between-subjects designs, particularly through the comparison of experts' and novices' performance (Hatfield & Kerick, 2007). In recent research, scholars have examined the idiosyncratic nature of optimal and suboptimal performance experiences using within-subject designs (Edmonds, Johnson, Tenenbaum & Kamata, 2012; Bertollo et al., 2012; 2013; Filho et al., 2015). Grounded in different theoretical views on skilled achievements in sport, a multi-action plan (MAP) model has been recently proposed to orient applied interventions (Bortoli et al, 2012). The MAP model rests on the notion that performance dynamics can be classified into four types of experiences deriving from the interaction of performance level (optimal/suboptimal) and attentional characteristics (automatic/controlled). The main features are: automatic attention and optimal performance (Type 1), controlled attention and optimal performance (Type 2), serial processing/over-controlled attention and suboptimal performance (Type 3), and low-level or task-irrelevant attentional focus and suboptimal performance (Type 4). Findings of empirical research on the MAP model applied in pistol and rifle shooting, dart throwing, cycling, and car driving have provided evidence that specific psychophysiological (e.g., breathing rate, heart rate, skin conductance level), cortical (ERD/ERS and coherence in the theta, alpha, and beta bands), kinematic (e.g., posture, body flexion-extension), and affective patterns (e.g., arousal, hedonic tone) underlie the four

performance experiences. Collectively, these findings support the theoretical validity of the MAP model. They also suggest that multi-enhancement performance plans could increase the probability of reaching and sustaining peak performance in sports. Future research on the neurobiological nature of skilled performance should consider action-centred (e.g., attentional focus) and emotion-centred (e.g., mindfulness) strategies, also using biofeedback (e.g., breathing control and heart rate variability), and neurofeedback (e.g., theta/beta and theta/alpha ratios) intervention techniques.

- **Ready heads, steady hearts and quiet eyes: The psychophysiological ingredients for great golf putting**

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Biofeedback training provides individuals with real-time information about their levels of physiological activity, and uses positive reinforcement to encourage and develop the volitional control of variables such as cortical activity, heart rate and eye-gaze behavior (e.g., Ring, Cooke, Kavussanu, McIntyre & Masters, 2015). Advances in technology, along with reductions in the cost of biofeedback hardware/software, mean that biofeedback interventions are becoming increasingly common in elite sport. However, in order for the full performance enhancing-potential of biofeedback training to be realized, practitioners need to have a complete and accurate understanding of the psychophysiological mechanisms underpinning optimal performance of the task/sport in question. In other words, we need to know which physiological variable/variables to train, the functional significance of each variable, and which levels to set as thresholds for providing reinforcement, for individual athletes. Evidence to answer these important questions remains sparse. Accordingly, to begin addressing this crucial issue, we have conducted a programme of research designed to provide an understanding of the psychophysiological profiles underpinning optimal golf putting. In this talk we will focus on our research investigating cortical activity, heart rate and eye-gaze behavior as a function of expertise (comparisons between expert and novice players) and performance outcome (comparisons between successful and unsuccessful putts). In brief, the research has identified frontal-central EEG high-alpha power, heart rate deceleration and quiet-eye duration during the final moments of movement preparation as variables associated with putting success (e.g., Cooke et al., 2014). Our talk will also describe some of our most recent research examining the functional significance of these variables in terms of attentional focus and response programming (e.g., Gallicchio et al., in preparation), within the framework of Reinvestment Theory (Masters & Maxwell, 2008). In doing so, our presentation will provide a theoretically and empirically-driven template for biofeedback interventions aimed at increasing sporting success.

- **Slow paced breathing as a quick and easy way to reduce stress**

Sylvain Laborde[1], Fabrice Dosseville[2], Agnès Salinas[2]
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Failures in coping with stress are one of the biggest issues faced by athletes. One of the ways stress is physiologically indexed is by heart rate variability (HRV), which reflects the autonomic balance between the sympathetic and parasympathetic nervous systems. More specifically, stress is reflected in the HRV parameters related to the activity of the parasympathetic nervous system: when the parasympathetic activity goes up, this means that the individual is getting more relaxed; when the parasympathetic activity goes down, this means that the individual is getting more stressed. One of the quickest and easiest ways to influence the parasympathetic activity is with breathing, given the links between the respiratory system and the heart. More specifically, paced deep breathing has the potential to increase quickly the parasympathetic activity, in other words, to relax the individual. If general guidelines advice to breath at 6 cycles per minute (while the normal breathing frequency is comprised between 12 and 20 cycles per minutes), there is still a lack of

scientific evidence concerning the different parameters related to the realization of this technique, and many questions still need to be answered regarding the best way to perform paced deep breathing. Is 6 cycles per minute really the most optimal frequency? What should be the ratio between inhalation and exhalation durations? Do we need a break (to hold one's breath) between inhalation and exhalation? For how long do we need to realize a paced deep breathing exercise? This talk will introduce the results of a research project aimed to answer these questions.

- **The art of using psychophysiological training with Olympic athletes**

Penny Werthner, Sommer Christie
University of Calgary, Canada

The difference between success and failure in Olympic level sport is often measured in milliseconds. To succeed in such an environment an athlete must develop the ability to focus effectively on the right cues at the correct time and learn to appropriately manage arousal levels. In recent years, there has been an increase in interest in the use of psychophysiological training in order to refine these two skills. The purpose of this paper is to report on a specific biofeedback and neurofeedback training protocol with Canadian Olympic athletes. The participants were three Canadian Olympic athletes. Baseline psychophysiological stress assessments were conducted and individualized training protocols were subsequently designed. The number of sessions ranged from 16-20, with each session approximately 50 minutes conducted over a period of 12 months. The training sessions were designed based on two main objectives: (a) biofeedback to develop self-awareness and self-regulation of muscle tension (EMG), respiration, heart rate, peripheral body temperature, and electrodermal activity (EDA), and (b) neurofeedback (EEG) to train brief mental recovery (8-12Hz) at Pz and an effective focused state (13-21Hz) at Cz. During this time period the athletes were training and competing. Within each training session, emphasis was placed on how to transfer the learning in the lab setting to the playing field. Each of the athletes developed an increased ability to focus effectively in direct relationship to the demand of the sporting event and each increased their ability to manage arousal levels physiologically. With qualitative interviews pre- and post training, each athlete indicated a benefit to both their training and competitive performances. It appears that biofeedback training may contribute to better sport performance. The findings lend support to the need to individualize training protocols and point to the need for (a) at least 15 sessions of training to ensure sustained learning and (b) on-going dialogue with the athlete-participant about ways to transfer the training to the competitive environment.

- **Perceptual-cognitive monitoring in real world and virtual reality**

Cornelia Frank, Thomas Schack
Bielefeld University, Germany

To date, little is known about perceptual-cognitive adaptations in novices learning a motor action. Even less attention has been directed toward perceptual-cognitive monitoring of the learning process, both in real world and virtual reality. To shed further light on the perceptual-cognitive background of performance changes during skill acquisition, we examined the influence of physical and mental practice on novices' performance, mental representation, and quiet eye during golf putting. Novice golfers (N = 45) were assigned to one of three groups: physical practice (PP), combined mental and physical practice (CP), and no practice (NP). Prior to and after practice, as well as after three days of retention, participants' putting performance was assessed using 3D motion capture analysis. Mental representation and quiet eye were assessed employing structural-dimensional-analysis (SDA-M) and eye-tracking. Results indicated that practice groups performed more accurately and consistently during retention-test compared to the NP group (both $p < .01$). Interestingly, the CP group revealed most elaborate representations (ARI = .50) and longest quiet eye durations (M = 2475 ms, SD = 2132 ms) compared to the PP (ARI = .12; M = 1357 ms, SD = 1139 ms) and

NP group (ARI = 0; M = 871 ms, SD = 588 ms). From this, and further related experimental investigations (e.g., Frank, Land, Popp, & Schack, 2014), learning a motor action is associated with both motor and perceptual-cognitive adaptations within the motor action system, and seems to depend on practice type. Based on these findings, the idea of perceptual-cognitive monitoring in real world and virtual reality will be discussed. Monitoring from within, by assessing the athlete's representation and gaze behavior, and by tailoring instructions accordingly may significantly fasten the learning process. Particularly, as virtual reality provides an ideal environment for various kinds of perceptual-cognitive diagnostics and interventions (e.g., representation-based or visually-guided learning and coaching), preliminary insights into the realization of intelligent coaching in a virtual reality environment will be given.

SS-D5.1: Special Session - Debate: Accreditation and training in Europe

Vana Hutter[1], David Fletcher[2], Joanne Maher[3], Gangyan Si[4], Natalia Stambulova[5], Christopher Willis[6], Roland Seiler[7]
[1]VU University Amsterdam, Netherlands; [2]Loughborough University; [3]Loughborough College, England; [4]Hong Kong Institute of Education; [5]Halmstad University; [6]Center of Mental Excellence, Innsbruck; [7]University of Bern

The field of sport psychology service delivery is facing the major challenges of defining itself (Quartiroli, Cremades, & Tashman, 2015) and delineating its professionals (Wylleman et al., 2009). These challenges are becoming ever more pressing because of the increased number of individuals pursuing careers in sport psychology, and the increased demands, both in quality and quantity, of sport psychology services. An important contribution to defining and enhancing the professional entity of applied sport psychology lies in setting standards for practice. Credentialing is, in the words of Zaichowsky and Perna (1996, p. 396), “a process of giving a title or claim of competence”. In Europe, no international standards exist that outline who is fit for, or allowed to, practice. About one third of the educational programs in European countries lead to (national) credentialing as a professional in sport psychology (Hutter, van der Zande, Rosier, & Wylleman, 2015). The variety in credentialing demands and educational pathways between countries and institutions is huge. In this special session we will debate certification for sport psychology service delivery in Europe. The presenters will provide a brief overview of the status quo on competencies in applied sport psychology and credentialing practices applied. The main part of the session will consist of a debate on certification. The specific aim of the debate is to move beyond current viewpoints and practices, and explore the next steps to be taken to facilitate, enhance, or accelerate certification for sport psychology service delivery in Europe.

S5.01: Symposium - Exploring interpersonal factors to optimise the coaching environment

Chair(s): Svenja Wachsmuth (Loughborough University, UK), Sophia Jowett (Loughborough University, UK)

The coaching environment within which coaches and athletes operate can be fundamental for experiencing a range of psychosocial factors such as motivation, confidence, satisfaction, and cohesiveness. Over the years, research applying a variety of theoretical frameworks ranging from leadership to relationship and motivational models, employing diverse sport contexts (e.g., volleyball, swimming, handball), cultures, age groups and performance levels (e.g., grass-roots to elite-level) has examined how the coaching environment associates with such important factors. Overall, findings highlight that an optimal coaching environment underlined by positive behaviours (e.g., coach positive feedback and autonomous behaviours) and harmonious relationships (e.g., high levels of trust, respect and appreciation) predicts motivation, positive affect, satisfaction and performance. In contrast, less optimal coaching environments underlined by negative coaching behaviours (e.g., coach autocratic and controlling behaviours) and discordant relationships (e.g., interpersonal conflict) predict undesired outcomes, such as psychopathological states (e.g. eating

disorders, depression) including burnout and performance slumps. This symposium aims to add to this body of literature by showcasing recent research through five studies employing diverse theoretical frameworks and cultural contexts. First, an insight on how personal characteristics, specifically passion, can influence the development of high quality coach-athlete relationships (i.e., Closeness, Commitment and Complementarity) is provided. Second, determinants and outcomes in golfer-caddy dyads guided by the tripartite efficacy beliefs model are presented. The third study employs an interpersonal approach to emotional regulation that explores how coaches are accessing and influencing the emotional and psychological states of their athletes. Next, perceived controlling and autonomy-supporting coaching behaviours are explored relative to how they can associate with athletes' affect and well-being. Finally, a discussion about the manner to which coaching styles increase an athlete's risk for developing eating disorders closes the symposium. Collectively, these studies highlight the important role of interpersonal factors in optimising the effectiveness of the coaching environment.

- **The association between passion and quality of coach-athlete relationship: Coach perspectives**

Atahan Altıntaş[1], Hülya Aşçı[2]
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As reported by Jowett and Poczwardowski (2007) the contextual, relational and personal variables determine the quality of coach-athletes relationship. The passion is one of the personal factors that may contribute to the development of a positive coach–athlete relationship. Based on the dualistic model of passion and the Closeness, Commitment, Complementarity and Co-orientation model of relationship, this study was aimed to examine the relationship between passion and the quality of coach-athlete relationships among coaches who worked with youth athletes. The differences in passion and quality of coach-athlete relationship with regard to gender, years of coaching experiences, years of working with their athletes and type of sports they were coaching were also investigated. Sixty-six female coaches (Mage=28.29, SD= 5.07) and 108 male coaches (Mage=29.85, SD= 5.82) voluntarily participated in this study. Coaches completed the "Passion Scale" and the coach form of the "Coach-Athlete Relationship Questionnaire" (CART-Q). Hierarchical multiple regression analyses were conducted to determine whether passion was a significant predictor of coaches' perceived relationship with their athletes. Results revealed that gender, years of working with athletes, years of coaching experience and types of sport significantly contributed to the regression model and accounted for 7% of variation in commitment. Adding passion variables in step 2 significantly contributed to the variance of closeness, commitment, and complementary and explained an additional 15%, 9%, and 8% of variation, respectively. Furthermore, harmonious passion was a significant and positive predictor of all dimensions of the coach-athletes relationship. Significant differences in the coach-athlete relationship were found with regard to gender and years of working with athletes. Furthermore, passion of coaches significantly differed in terms of types of sport and years of working with athletes. The findings indicated that if coaches are harmoniously passionate toward their sport, this could lead them to develop a positive relationship with their athletes.

- **Tripartite efficacy beliefs within elite player-caddie dyads in golf**

Ian D. Boardley[1], Ben Jackson[2]
[1]University of Birmingham, UK, [2]University of Western Australia

A considerable body of research has demonstrated the importance of relational efficacy beliefs for optimal functioning and wellbeing in coach-athlete and athlete-athlete dyads in sport. One important dyad in sport that has not been investigated in terms of relational efficacy beliefs is the player-caddie partnership in golf. Given the close interaction between players and caddies during elite competition, efficacy beliefs may have important implications for relational functioning within this particular dyad. Lent and Lopez's (2002) tripartite model

of relational efficacy was used to investigate three key efficacy beliefs: self-efficacy, other-efficacy, and relation-inferred self-efficacy (RISE). The primary aim of the study was to investigate antecedents and outcomes of these three efficacy beliefs within elite player-caddie partnerships in golf. Semi-structured interviews were conducted with eight elite golfers and four of their caddies; all participants were full time professionals. Separate interview schedules were used for players and caddies, with both schedules containing five main sections (introduction, self-efficacy, other-efficacy, RISE, and conclusion). Questions were designed to initiate responses relating to specific relational efficacy beliefs in the player-caddie relationship (e.g., player's other-efficacy: "Could you describe your confidence in your caddie's ability to carry out the key skills for golf caddies you identified?). Data were content analysed using deductive and inductive approaches, revealing that for players and caddies, key antecedents of relational efficacy beliefs related to perceptions of oneself, perceptions regarding one's partner, perceptions regarding the dyad, and external factors. Regarding outcomes of relational efficacy beliefs, numerous interpersonal and intrapersonal outcomes emerged. A number of the outcomes identified were relevant to wellbeing, including relationship quality and relationship satisfaction (e.g., player's other efficacy: "If they keep making the same mistakes and not doing the simple things right that makes a difference, and that's one of the reasons I sacked my old caddie"). Given the uniqueness of the partnership being investigated, there are clear implications for theory development and future research stemming from this work. Additionally, the study findings also identify key considerations for practitioners looking to optimise relationship functioning in player-caddie partnerships in golf.

- **The role of tennis coaches in regulating their players' emotional states: an exploratory study**

Stephanie Müller, Montse Ruiz
University of Jyväskylä, Finland

During the past decades, research has highlighted the importance of emotional experiences for athletic performance. Growing attention was drawn on the concept of emotional intelligence which is defined as the ability to perceive, understand, use and regulate emotions efficiently (Mayer & Salovey, 1990). In line with van Kleef's EASI model (2009) empathic understanding has proven to be of importance also in forming a close coach-athlete relationship; despite that, so far research has mainly focused on intrapersonal aspects of emotional experiences in sport. The purpose of this study was to explore the emotional experiences associated with best and worst performances in high-level tennis players and the role of their coaches in recognizing and regulating these emotional experiences. Within the framework of Mayer and Salovey's (1990) four branches model of emotional intelligence the current study aimed to explore coaches' ability to accurately access players' emotional experiences and regulate their athletes' emotional states. A purposive sample was drawn consisting of five coach-athlete dyads performing on national and international level. Data about players' emotional states was gathered via the Psychobiosocial State Scale (PBS-S; Ruiz & Hanin, 2013; Ruiz et al, 2011); moreover, semi-structured interviews were conducted to gain information about coach-athlete relationship, emotional states and regulation strategies. Qualitative analyses were carried out based on the interpretative phenomenological approach by Smith et al. (IPA, 1999). Results indicated moderate to high accuracy in coaches when assessing psychobiosocial states of their athletes, with highest accuracy for psychological states. Further, three coherent categories of emotional experiences, emotion regulation and influential factors could be established within the qualitative analyses. These findings are emphasizing the impact of coaches' emotional responses and behaviours on their athletes' psychobiosocial states which may be attributed to influential factors such as a close coach-athlete relationship and interactive communication. Altogether, the current study is supporting an interpersonal approach on emotion regulation. While results might not be conclusive, they may stimulate new research in the field and add valuable information to coaching education programs.

- **Examining the interaction between social environment dimensions and their implications for athletes' well-being**

Paul R. Appleton
University of Birmingham, UK

Many studies have examined multiple dimensions of the social environment in sport, yet few have considered how the dimensions interact to affect athletes' well-being. Guided by self-determination theory (Deci & Ryan, 1980), this study considered how the interaction between autonomy-supportive and controlling social environments impact athletes' positive affect. 199 athletes (M age = 22.1, SD = 6.78) from England participating in multiple team sports completed adapted versions of the Health Climate Questionnaire (Williams et al., 1996), the Controlling Coaching Behaviors Scale (Bartholomew et al., 2010), and the Positive and Negative Affect Schedule (Watson et al. 1988). A moderation regression analysis revealed the interaction between autonomy-supportive and controlling environments was significant ($b = .43$, $p < .01$) and accounted for 3.31% of the variance in positive affect. The significant interaction was graphically plotted and an evaluation of the regions of significance revealed that the relationship between controlling coaching and athletes' positive affect was significant for any value of autonomy support lower than 4.09. The findings suggest the negative implications of a controlling social environment for athletes' well-being are buffered when coaches are also perceived to be highly autonomy-supportive. Future research may wish to examine the interaction between alternative dimensions (e.g., task- and ego-involving climates, empowering and disempowering climates) to inform a better understanding of how the social environment in sport impacts upon athletes' well-being.

- **Athletes' vulnerability for increased eating pathology: The role of coaching styles, coach gender and athlete gender**

Vaithehy Shanmugam[1], John E. Marsh[1], Luke J. Felton[2]
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The manner in how coaches relate, communicate and behave towards their athletes is considered to inadvertently increase the risk of eating disorders in athletes (Muscat & Long, 2008; Shanmugam, Jowett & Meyer, 2014). Therefore the aims of this multi-study paper were to (a) examine the effect of coaching styles, (b) coach gender and (c) athlete gender on athletes' vulnerability for increased eating pathology. The design of both studies was a 2 (positive vs. negative coaching style) x 2 (male coach vs. female coach) x 2 (male athlete vs. female athlete) between subjects design. In the first study, a total of 79 male and female athletes were randomly assigned either to a positive coaching or negative coaching vignette. In the negative coaching vignette, athletes were exposed to a male or female coach who was autocratic, performance-orientated and focused on weight in a threatening manner. Conversely, in the positive coaching vignette, the male and female coach was person-centred and caring, while still focused on weight. In the second study, a total of 67 male and female athletes were randomly assigned to either a positive coaching or negative coaching vignette based on the gender of their actual coach. In both studies, all athletes completed questionnaires related to body image anxiety, dieting intentions, fear of fat and mood prior to, and after, exposure to the vignettes. In the first study, significant main and interaction effects of vignette, coach gender and athlete gender were found on body image anxiety, dieting intentions and mood. In the second study, significant main and interaction effects of vignette and athlete gender were found on body image anxiety, fear of fat, dieting intentions and mood. The findings of both studies suggest that exposure to a negative coaching style is likely to increase athletes' vulnerability for eating pathology, particularly in female athletes. Thus, coaches should regularly consider and reflect upon the manner in which they engage with their athletes and participate in the appraisal of their coaching behaviours.

S5.02: Symposium - The merits of the dynamical systems perspective for sport psychology

Chair(s): Ruud J. R. Den Hartigh (University of Groningen / Montpellier 1 University)
Discussant(s): Keith William Davids (Sheffield Hallam University, United Kingdom)

The subject matter of sport psychology can be considered as complex and dynamic. Both during and across matches, athletes' performance and psychological states undergo change and are influenced by many interacting personal and environmental factors (Davids et al., 2014). To date, however, researchers have primarily attempted to reduce the explanation of sport performance to the additive influences of (isolated) causal variables. Although this research approach has led to increasing insights into how resulting sport performance relates to other measurable (e.g., psychological) variables within samples of athletes, it does not lend itself to reveal the actual complex dynamics that are at play in sports. The dynamical systems approach, on the other hand, is particularly suited to provide insights into the emergence and adaptation of athletes' psychological and performance states from the ongoing interaction between various personal, task, and environmental factors. The aim of this symposium is to discuss the dynamical systems perspective as a framework to capture complex processes in sport psychology. The presenters will illustrate how (a) patterns of involvement in sports emerge from various (lower-level) elements, such as social support, cognitions, and emotions, (b) athletes dynamically adapt their self-regulation strategies according to changing situational constraints, (c) a dynamical systems model of achievement motivation provides a parsimonious framework that resolves current inconsistencies in the literature on achievement goals, (d) decision making in sports is an emergent process from an ongoing person-task-environment interaction, and (e) sports talent develops out of dynamic networks of interacting personal and environmental factors. Together, these presentations demonstrate the merits of the dynamical systems perspective for some prevalent topics in the field of sport psychology.

- **Dynamical systems of involvement in sports**

Andrzej Nowak[1], Aleksandra Pogorzelska[2], Aleksandra Zienowicz[2], Iwona Pilchowska[2]
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From the dynamical systems perspective, psychological mechanisms responsible for involvement in sports—cognition, emotion, motivation and action—form systems, where each mechanism interacts with other mechanisms in the system. These systems also involve social aspects that play a role in sports: The relation with the coach, other athletes, as well as family members and friends. These mechanisms are interconnected by feedback loops, in which they influence each other. We hypothesize that two alternative dynamical systems may underlay involvement in sports: The system based on positive emotions, which is associated with orientation on success, and the system based on negative emotions which is associated with orientation on avoidance of failure. In the presentation we will present empirical results concerning the two systems of involvement in sports, as well as examples of the assembly of specific systems based on case studies. Across three studies we collected questionnaire- and performance data. Questionnaires assessed social relations, bodily experiences, emotions, social feedback, social support and identity emotions, bodily experiences, life satisfaction, involvement in sports, and perception of the trainer. Factor analysis and structural equations modeling confirmed that all the measures converge on two systems: The system of positive- and the system of negative involvement in sports. The positive system includes positive emotions, positive bodily experiences, is associated with perception of the trainer as an expert, and a willingness to choose sport over other activities. The negative involvement system involves negative emotions (anxiety and irritation), negative bodily experiences, negative perception of the trainer, and feelings of losses in life caused by sport activity. Finally, the case studies illustrate how specific inter- and intra-individual factors combine to form different systems of sport involvement.

- **Examining self-regulation in sports: Take a walk on the dynamical side!**

Xavier Sanchez[1], Ruud J. R. Den Hartigh[2]
[1]University of Cumbria, [2]University of Groningen / Montpellier 1 University

In this presentation, we discuss the role of two self-regulatory strategies in a dynamic sport performance context (Higgins, 2012): Focusing on accomplishments, aspirations and ambitions while being eager and enthusiastic (promotion focus), and focusing on safety, responsibilities and obligations while being vigilant and careful (prevention focus). Research findings indicate that fit between the athlete's self-regulatory focus (promotion/prevention) and the nature of the achievement situation (promotion/prevention) influences performance positively. However, previous research has been developed within a static perspective, even though sport situations change continuously. Therefore, it is more than plausible that athletes adapt their regulatory focus under the changing situational constraints on the sports field. These dynamics cannot be captured by means of the traditional static approach examining regulatory focus (e.g., a questionnaire before and after a given sports activity). Using a dynamical research method (the mouse paradigm; Vallacher, Nowak, Froehlich, & Rockloff, 2002) we will show how climbers' regulatory focus changes and adapts to satisfy the situational constraints.

- **Rethinking approach and avoidance in achievement contexts: The perspective of dynamical systems**

Christophe Gernigon[1], Robin R. Vallacher[2], Andrzej Nowak[3], David E. Conroy[4]
[1]Montpellier 1 University, [2]Florida Atlantic University, [3]University of Warsaw / Florida Atlantic University, [4]Northwestern University

An integrative model of approach and avoidance goals in achievement contexts is proposed based on the concepts and principles of nonlinear dynamical systems. These goals are conceptualized as self-organizing systems in which information relevant to competence expectancies and perceptions of benefit and threat for the self is integrated with respect to either a single coherent state (static integration) or two conflicting coherent states (dynamic integration). Mathematical equations depict the emergence of approach and avoidance attractor dynamics from the proposed integration process. The model specifies the conditions under which states of goal involvement will display patterns of resistance (stability), oscillation between approach and avoidance (instability), or reversal (nonlinear change). The model provides a parsimonious account of achievement motivation, resolves inconsistencies in the achievement goal literature, and provides a heuristic framework for generating predictions regarding approach and avoidance dynamics in achievement contexts.

- **Modelling of continuous and categorical decision-making: An ecological dynamics approach to performance in sailing**

Duarte Araújo[1], Keith Davids[2], Ana Diniz[1], Luis Rocha[1], Orlando Fernandes[3]
[1]Universidade de Lisboa, [2]Sheffield Hallam University, [3]University of Évora

Ecological dynamics of decision-making in the sport of sailing exemplifies emergent, conditionally-coupled, co-adaptive behaviors. In this study, observation of the coupling dynamics of paired boats during competitive sailing showed that decision-making can be modelled as a self-sustained, co-adapting system of informationally coupled oscillators (boats). By tracing the spatial-temporal displacements of the boats, time series analyses revealed that trajectories of match racing boats are coupled more than 88% of the time during a pre-start race, via continuous, competing co-adaptions between boats. Results showed that both the continuously selected trajectories of the sailors, as well as their categorical starting point locations, were examples of emergent decisions. In this dynamical conception of decision-making behaviors, strategic positioning (categorical) and continuous displacement of a boat over the course in match-race sailing emerged as a function of interacting task, personal and environmental constraints.

- **A dynamical systems explanation of talent development in sports**

Ruud J. R. Den Hartigh[1], Paul L. C. Van Geert[2]
[1]*University of Groningen / Montpellier 1 University,* [2]*University of Groningen*

For decades, research on talent development in sports has attempted to detect the mechanisms explaining excellent performance. Although researchers generally agree that different personal and environmental factors play a role (e.g., genetic endowment, practice, family support), how these factors combine to shape athletes' routes to excellence remains largely undefined. In line with the proposition to apply a dynamical systems approach to study talent (Abbott, Button, Pepping, & Collins, 2005; Phillips, Davids, Renshaw, & Portus, 2010), we aimed to test whether typical properties of talent development can be explained by a dynamical systems model. For this aim, we built a model in which an athlete's ability growth is dependent on relatively stable resources (genetic endowment) and variable resources (e.g., environmental variables). Furthermore, the variable resources are directly or indirectly influenced by the athlete's ability and by each other, thereby shaping each other's changes over time. Graphically, this can be envisioned as a dynamic network of talent-related components, and mathematically it corresponds to a coupled logistic growth equation (Van Geert, 1991). We simulated the model on a computer in order to see whether it generates typical properties of talent development and excellence. Simulations of many athletes revealed idiosyncratic trajectories towards excellence and a low correlation between early indicators and later excellence, which is often observed in sports (Abbott et al., 2005). Furthermore, the simulations showed that the distribution of performance attainments is highly right skewed across the (simulated) population of athletes, which is typical in virtually any sports (e.g., many Olympic swimmers won no medal, whereas Phelps won 22 medals). Our results thus suggest that excellence in sports develops out of dynamic network structures, which supports the proposition that the dynamical systems perspective has much to offer to the study of talent development.

S5.03: Symposium - Exercise and the quality of life in diverse populations

Chair(s): Bonnie Gross Berger (Bowling Green State University)

This symposium examines specific contributions that participation in physical activity can make to the quality of life (QoL) within diverse populations. Quality of life has been defined by the World Health Organization as "individuals' perception of their position in life in the context of the culture and value systems in which they live" (WHO, 1994). Each presenter will address specific contributions of physical activity to quality of life in diverse populations. The first presenter reports on the complex psychological dynamics of exercise participation on quality of life in obese women. Results of a 4-month behavioral weight loss program (BWLP) indicated that participants reported significant decreases in social physique anxiety, and increases in exercise self-efficacy, enhanced mood states, and exercise enjoyment. The second presenter will report the results of a longitudinal study examining the relationships between changes in body composition, social physique anxiety (SPA), and body image satisfaction/dissatisfaction in adolescents, ages 10-14 years. The next presenter will report on an examination of an 8-week creative movement program devised to enhance quality of life and self-efficacy for activities of daily living among individuals with spinal cord injury. The fourth presenter is a clinical psychologist who will examine the impact of exercise on clients' quality of life as measured before and after therapeutic interventions. The concluding presenter will examine whether a single session of aerobic activity enhances some aspects of cognition in middle-aged healthy adults, and if it does, whether this effect remains stable 30 minutes after a recovery period. As highlighted throughout the presentations, physical activities contribute to the quality of life in diverse populations, and the exercise programs need to be individually tailored to meet participants' needs.

- **Psychological dynamics of exercise participation in obese women in a behavioral weight loss program**

Bonnie G. Berger[1], Lynn A. Darby[1], David R. Owen[2], Robert Carels[1]
[1]Bowling Green State University, [2]Brooklyn College of the City University of New York

Building on the tenets of positive psychology and highlighting the need to understand the multiple relationships between exercise participation and quality of life in specific subcultures, this presentation focuses on the psychological benefits of exercise for sedentary, obese women. Participants (N = 38) who had a body mass index BMI ≥ 30 kg/m2 (ACSM, 2014) volunteered for a behavioral weight loss program (BWLP; Brownell, 2004) and completed testing at the beginning and end of a 4-month intervention. Consistent with the results of an earlier investigation (Berger, Darby, Owen, & Carels, 2010), the BWLP was a success as indicated by an increase in total GXT time and predicted VO2 max, and also decreases in body weight, BMI, percent of body fat, and resting heart rate (ps < .05). When the obese women were assigned to two groups according to their social physique anxiety (SPA) scores, there was a significant interaction between SPA and time of testing ($p < .005$). At the beginning of the program, participants who were high in SPA reported less enjoyment of exercise than those who were low ($p \leq .001$); however, in contrast to the low scorers, high scorers significantly increased their enjoyment from the beginning to the end ($p < .0005$). Supporting the results of previous studies, the obese participants reported desirable changes in mood on each of the six POMS subscales immediately after acute exercise sessions both at the beginning and end of the program (ps ≤ .02). The mood benefits remained significant 20 minutes post-exercise and were not influenced by participants' SPA. These results emphasize the multiple roles of exercise in weight loss programs and the influences of exercise on quality of life in overweight and obese women.

- **Are changes in body composition and the accompanying perceptions by adolescents associated with social physique anxiety change?**

Mary Jo MacCracken[1], Robert Stadulis[2]
[1]The University of Akron, [2]Kent State University

Recent research has demonstrated that social physique anxiety (SPA) and body composition are coupled such that higher BMIs are associated with higher levels of SPA (Stadulis, MacCracken, Neal-Barnett & Fender-Scarr, 2014). The question here is as follows: if body composition undergoes change, does SPA change as well? SPA and body composition as well as body image satisfaction (self-perception) and dissatisfaction (ideal perception) were studied longitudinally in early adolescents. Middle school students (N = 322) completed the Social Physique Anxiety Scale for Children (SPAS-C, Stadulis et al., 2005) and Collins' (1991) Pictorial Instrument of Child Figures (PICF) at approximately the same point, mid-fall of each year (2010-2014). Height and weight were assessed and BMI was determined (CDC, 2011). Student (ages 10- to 14-years), parent, and school consents were obtained. To assess the covariance of changes in each measure, the differences between two adjacent years (longer where data permitted) were computed. Questions assessed were as follows. (a) Do adolescents whose ideal and self-perceptions match evidence less SPA than those whose self and ideal bodies are mismatched? Findings were that adolescents with matching self- and ideal perceptions of body composition had significantly lower SPA ($p < .0005$) and those perceiving their body composition as above the ideal for them had higher mean BMI than either the match group or the group where the ideal was greater than the self ($p < .0005$). (b) Do adolescents whose BMIs change from one year to the next demonstrate corollary changes in SPA and self-perception of their body composition? Correlations indicated a consistent positive relationship between BMI and SPA change; as BMI increased so did SPA. Corresponding increases in self-perception of body composition were associated with increases in SPA. Results and implications for anxiety management programs and accurate self-assessment of body composition will be discussed.

- **Creative movement, quality of life, and self-efficacy for activities of daily living in people with spinal cord injury**

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[1]Sport Centre, University of Malaya, Kuala Lumpur, Malaysia, [2]Institute of Sport & Exercise, Victoria University

In this study, we examined whether a creative movement (CM) program enhanced quality of life (QoL) and self-efficacy for activities of daily living (SEADL) among people with spinal cord injury (SCI). Three males and two females with acquired SCI at cervical 5 or below for more than 12 months participated in a CM intervention, with an A-B single-case design. At the start of the study we administered a brief Demographic Form. During the 4-week, baseline (A) phase, we administered the Spinal Cord Injuries Quality of Life Questionnaire (SCIQL-23; Kreuter et al., 1998) and the Self-efficacy for Activities of Daily Living-Revised Scale (SEADL-R; Adnan & Morris, 2012) weekly. We then introduced the 8-week CM intervention (B), including two sessions each week, and administered the SCIQL-23 and SEADL-R weekly. To enhance functionality of people with SCI, we devised the 60-minute CM intervention, comprising a warm-up, a set of upper body exercises that simulated activities of daily living (ADL), and a stretching cool-down period, all accompanied by up-tempo music. Participant adherence was 100% for the 24 sessions, which the first author supervised. At the end of Phase B, we conducted social validation interviews lasting 40-60 minutes. We plotted scores on individual graphs for the three SCIQL-23 subscales (functional, mood, problem) and global QoL and for the four SEADL-R subscales (self-care, mobility, transfer, household). We applied standard visual analysis and split-middle technique analyses. Results varied between individuals and subscales, with a number of positive shifts in QoL and SEADL during the intervention (B) phase, accompanied by little change on other subscales. Thus, each participant showed some benefits and no deficits. Based on social validation responses, all participants found the CM program enjoyable and helpful. They also noted ways to improve future delivery. We display and discuss the promising findings of this CM intervention.

- **Exercise and quality of life with complex clinical clients: Assessment, treatment, outcomes, and future considerations**

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Although a set point for life satisfaction may be stable over time, it might be affected by life events (Fujita & Diener, 2005). Several clients were physically active before accidents and/or unforeseen circumstances negatively impacted their quality of life, including their ability to exercise. Each client had a unique challenge. Therapeutic modalities included cognitive-behavioral therapy, insight-oriented therapy, solution-focused therapy, autogenic training, and EMDR. Exercise was implemented as an adjunct to therapy. This presentation will examine their cases with respect to assessment, clinical sequelae, interventions, and the role of exercise with respect to quality of life and subjective well-being via quantitative and qualitative analyses. The Quality of Life Inventory (Frisch, 1994) was used to track clients' progress, help determine the effectiveness of the interventions, and generate a plan and goals designed to enhance the clients' treatment, outcomes, and overall quality of life. Because qualitative research is not guided by a priori hypotheses, a structured, in-depth, phenomenological, dialogic interview technique using open-ended questions was also employed. Approaching interviews from this perspective allowed the participants to guide the interview and express what they considered to be the most salient aspects of their experiences. The case studies will illustrate the role exercise played in the clients' lives; prior to, and in the context of chronic pain and/or debilitation following life-altering events. The clients' experiences will provide insight into a complex interaction of variables and life circumstances. In addition, this presentation will re-introduce the potential of qualitative

analysis, and raise questions regarding how individuals' needs might better be served and their quality of life and subjective well-being enhanced through exercise.

- **Acute aerobic activity's effects on response inhibition in middle-aged healthy and active adults for less than 30 min.**

Yael Netz[1], Mona Abu-Rukun[1], Shaorn Tsuk[1], Tzvi Dwolatzky[2], Rafi Carasso3, Ayelet Dunsky[1]
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Acute exercise appears to facilitate certain aspects of cognitive processing, primarily executive functions. It is questionable, however, whether exercise targets specific executive functions within the same sample. The transitory effect of an acute bout of exercise on executive functions is commonly explained by energetic arousal which is expected to last for a short period following completion of the exercise. It is not clear how short this time-period is. One aspect of executive functions commonly examined, in particular, is inhibitory control. The purpose of this study was twofold: (1) to examine whether inhibitory control when compared to motor planning and hand-eye coordination is enhanced immediately following a single bout of aerobic exercise, and (2) if it does, whether this effect remains stable 30 minutes after post-exercise testing. Forty healthy and active participants (10 females) with a mean age of 51.88±8.46 years performed the Go-NoGo test and the Catch Game before, immediately after, and following a 30-minute recovery period in two conditions: a moderate-intensity aerobic session and a control session. Based on the results, inhibitory control as assessed by the Go-NoGo test improved significantly immediately following the aerobic session but not after the control session. This improvement faded away after the recovery period. The time effect occurred in both conditions on the motor planning hand-eye coordination task. In conclusion, a single aerobic session enhances inhibitory control, but not motor planning and hand-eye coordination, possibly because these two executive functions are sustained by distinct cortical regions. The enhancement lasts less than 30 minutes. Further studies are needed to examine the duration of the inhibitory control benefits following acute aerobic exercise.

S5.04: Symposium - Psychology of doping in sport

Chair(s): Vassilis Barkoukis (Aristotle University of Thessaloniki)
Discussant(s): Daniel Gucciardi (Curtin University)

Over the past decade, over 150 research articles and conceptual papers in the area of sport psychology have examined doping behavior in sport. This growing interest on the psychosocial correlates of doping use signifies a dynamically developing interdisciplinary field that incorporates psychology, ethics, and sport science. This symposium aims to cover a wide range of topics in social science doping research, including: prominent theories of decision-making and action initiation, ethical and moral issues, divergent methodologies, and a broader perspective on current trends on drug-assisted performance enhancement. More specifically, Professor Ntoumanis and his colleagues employed a qualitative approach to understand the role of athlete's entourage in forming their intentions to doping. This presentation will include data from interviews with coaches and athletes about the role of coach motivational strategies, as well as the mechanisms via which such strategies might influence athlete's decision to use doping substances. The next presentations will focus on the decision making process related to doping use. Professor Lucidi and his colleagues will present data on the effect of moral disengagement, social norms, and self-regulatory efficacy on doping intentions and will explore the generalizability of this psychological process across three European countries. Dr Baumgarten and Professor Brand will further investigate the role of moral disengagement on doping intentions. In this presentation, the mediating role of moral disengagement on the effect of attitudes (measured both directly and indirectly) on doping use intentions will be discussed. Finally, in this line of studies examining the decision

making process towards doping use, Dr Barkoukis and his colleagues will investigate the role of anticipated emotions. More specifically, data will be presented testing whether anticipated regret can improve the predictive ability of decision making constructs. The symposium involves innovative concepts and methodologies and aims to shed light into important research questions in doping research.

- **A qualitative investigation of doping intentions in sport: The role of the coach motivational environment**

Lauren Brooke[1], Nikos Ntoumanis[1], Brett Smith[2], Daniel Gucciardi[1]
[1]Curtin University, [2]Loughborough University

A recent meta-analysis (Ntoumanis et al., 2014) showed that relatively little research on doping in sport has examined the contributing role of coach motivational strategies that support or undermine athlete intention to engage in doping behaviour, as well as the mechanisms via which such strategies might be influential. Hence, the aim of this study was to identify motivational predictors of doping intentions, drawing partly from self-determination theory (Deci & Ryan, 2012). Ten Australian athletes and 10 coaches, primarily males, from Australian football, rugby, basketball, netball, and athletics, were interviewed face to face. Coach and athlete interviews were analysed separately, but the data from the two groups was grouped together as similar themes emerged from the interviews. Interviews were analysed via thematic analysis using Nvivo software. The data suggest that the stigma surrounding doping may lead to an automatic clear anti-doping response from the participants, but the subsequent ambiguity and inconsistencies in the athletes' responses indicate that athletes may need more support in navigating this complex issue, and the coach may be able to play an important role in this regard. The analysis showed that a highly pressuring sport environment and a win-at-all costs culture increased the chance of doping behaviour. The coach-athlete relationship was identified as critical in fostering respect for coach and subsequent athlete decisions within sport. When coaches displayed behaviours that satisfied athletes' needs for autonomy, competence and relatedness, athletes were likely to internalize and display the anti-doping morals and standards developed by the coach. The majority of coaches indicated an aspiration to influence athletes' doping perceptions and behaviour, but were unable to articulate how this might happen. In conclusion, the findings provide some guidance in terms of developing future anti-doping interventions in sport focusing on modifying coach behaviours.

- **Team moral disengagement and team efficacy predict athletes' doping intention: An empirical study across three European countries**

Fabio Lucidi[1], Vassilis Barkoukis[2], Franz Baumgarten[3], Ralf Brand[3], Lambros Lazuras[4], Luca Mallia[5], Arnaldo Zelli[5]
[1]Sapienza University of Rome, [2]Aristotle University of Thessaloniki, [3]University of Potsdam, [4]University of Sheffield, Sapienza University of Rome, [5]University of Rome "Foro Italico"

Research during the last decade has shown that the use of doping substances and nutritional supplements may characterize young adolescents and athletes (Zelli, Mallia, & Lucidi, 2010). Doping intentions and use by young adolescents and athletes seem to partly depend on favorable attitudes toward doping substance use, personal views that significant others would approve it (i.e., social norms), on a relative lack of personal confidence in dealing or coping with the pressure to use doping substances that may come from one's social and sport environment (i.e., self-regulatory efficacy), and on contingent and personal ways to justify doping use (i.e., moral disengagement) (Lucidi, Zelli, & Mallia, 2013). The study also pursued this scientific focus within and across three European national countries (i.e., Italy, Germany and Greece) and on young team athletes. A sample of 749 young team athletes was selected to primarily assess the relations linking team athletes' doping-related beliefs, interpersonal appraisals, and their doping attitudes and intentions. This sample was comprised of 351 Italian (73.2 % males), 216 Greek (79.1 % males) and 182 German (48.2

% males) young team athletes, all ranging between 14 and 19 years of age (mean =16.43; SD=1.69). The main analysis consisted of a multi-level structural equation modeling in which the relations among the key variables were estimated within and across national sites, with the additional goal of evaluating the "invariance" across countries of these relations. The analyses yielded significant relations of athletes' team moral disengagement and efficacy beliefs with the positive endorsement of doping attitudes and with their prospective intentions. This conclusion seems to hold relatively well across all three European contexts.

- **Divergence in directly and indirectly measured doping attitudes: Moral disengagement as mediator to intentions**

Franz Baumgarten, Ralf Brand
University of Potsdam

Social cognitive approaches highlight attitudes towards doping as a proximal predictor for intentions to use substances. Recently, the Brief Implicit Association Test (BIAT) has been established to indirectly measure attitudes. Little research has addressed the effects of the dynamic interplay of indirect measured and deliberatively stated attitudes. Findings in other domains suggest that a discrepancy between directly and indirectly measured attitudes results in motivated reasoning (Shoda, McConnell & Rydell, 2014). Moral disengagement (MD) can be conceived as form of motivated reasoning and might mediate the relation between attitudinal discrepancies and doping intentions. Eighty adolescent athletes completed the BIAT and a questionnaire containing the Performance Enhancement Attitude Scale (PEAS, $\alpha = .83$), a MD scale ($\alpha = .73$) and one item to assess intentions ("How strong is your intention to use a doping substance in the next season?"). A discrepancy score was calculated by intra-individually subtracting the z-standardized mean values of the PEAS and the BIAT. Mediation analysis revealed significant standardized regression coefficients between discrepancy score and MD ($\beta = 0.23$, $p = .01$) as well as between MD and intentions ($\beta = 0.38$, $p = .03$). The bootstrapped indirect effect on the relation between discrepancy score and intentions was 0.07 with a 95% confidence interval ranging from 0.01 to 0.19. The results suggest that MD serves as a form of motivated reasoning to overcome the discrepancy in directly and indirectly measured attitudes. This finding extends the social cognition approach in doping research by emphasizing the complex interplay of explicit and implicit evaluations.

- **Doping intentions in adolescent athletes: The role of anticipated regret**

Vassilis Barkoukis[1], Lambros Lazuras[2], Haralambos Tsorbatzoudis[3]
[1]Aristotle University of Thessaloniki, University of Sheffield, [2]University of Sheffield, Sapienza University of Rome, [3]Aristotle University of Thessaloniki

A growing number of empirical studies have been published over the last decade, that address the social cognitive correlates of doping use in sports. The theory of planned behaviour has guided most of this research (Ntoumanis, Ng, Barkoukis & Backhouse, 2014). However, it has been criticized for overly focus on social cognitive variables, while neglecting the influence of anticipated affective responses, such as regret, on the decision-making process. Anticipated regret adds incremental variance to the prediction of behavioural intentions on top of planned behaviour variables, and may also moderate the relationship between intentions and behaviour (Lazuras, Barkoukis & Tsorbatzoudis, 2015). Nevertheless, to date, no study assessed the role of anticipated regret in the context of doping use. The aim of the present study was to assess the effects of anticipated regret on doping intentions, after controlling for the effects of doping-related attitudes, social norms, and perceived behavioural control and self-efficacy beliefs. Anonymous and structured questionnaires were completed by 216 adolescent athletes (M age = 17.37, SD = 1.68, 79.1% males), and assessed TPB variables, past doping use and use of nutritional supplements, and anticipated regret following from engaging in doping use. Hierarchical linear regression analysis showed that anticipated regret significantly predicted doping

intentions (β = -.349, p< .001, B = -.243, 95% CI for B = -.350 to -.135), over and above TPB variables, and past use of supplements and doping substances, adding 4.1% in the variance. The present findings highlight the importance of anticipated affective responses in the decision-making process relevant to doping use in young athletes. Higher scores in action (vs. inaction)-oriented regret predicted lower scores in doping intentions. The influence of anticipated affective responses on doping intentions and behaviour should be further explored. Our findings have implications for future research and interventions to prevent doping use in sports.

S5.05: Symposium - Flow, motivation and performance in long-distance running

Chair(s): Michele Peter Ufer (Martin-Luther Universität Halle Wittenberg, Germany)

Running is one of the most popular physical activities worldwide. Although road-race marathons are still very popular and attract countless athletes each weekend anywhere in the world, there is a huge increase of interest in trail and ultramarathon running as well as in remote multiday adventure races often taking place under extreme conditions. The purpose of this symposium is to present and discuss latest research and applied aspects of flow experience and motivation taking into consideration different areas of long-distance running, such as marathon/road-race running, trail running and multi-day adventure running. In a study with participants of the Poznan marathon, Karolina Chlebosz found a correlation between motivation and flow. We revealed that running has its very own unique facilitators and inhibitors of flow and will discuss how to manipulate them to enhance flow experience. Based on the “Motivations of Marathoners” questionnaire, which is focused on road-race running, Oliver Stoll developed a modified version with trail runners in mind and applied the “Trail-MOMS” in a first pilot study at the “Zugspitz Trail-Challange”. Results, differences to road-race runners and implications will be discussed. Alan Chu explains the “Psyching Team” approach and the “quick-fix” for coaches and consultants to help runners achieve the flow state on the race day. Some evaluation data with various mental skills, such as positive self-talk and imagery will be discussed. Michele Ufer assessed -among other- flow data of participants during and after a 238km multiday race in the Kalahari Desert and analyzed the relationship between perceived skills and flow experience as well as the impact of flow on performance and satisfaction. Results, implications for future research and coaching will be discussed.

- **Flow and motivation in the area of physical activity among marathon runners**

Karolina Chlebosz
University of Physical Education in Poznan, Poland

Flow is a psychological state in which mind and body collaborate to create optimal performance (Csikszentmihalyi, 1988). Flow represents the ultimate form of motivation in regards to internalization and intrinsic motivation (Csikszentmihalyi, 1990). Motivation is related to sport participation (Pelletier, et al., 2001). Therefore, marathon runners’ motivation should be examined. Primary purposes were to gaining insight into the experience of flow and examine motivational differences among marathon runners. The Polish version of the sport motivation scale based on the self-determination theory - (SDT; Deci & Ryan, 1985) and Flow Questionnaire (FKS) - based on the Mihaly Csikszentmihalyi (1988) Optimal Experience theory were used. Participants in the present investigation were 66 athletes from Poland. Participants varied in age from 19 to 76, M= 47,5. Athletes were asked to recall an optimal experience during their sport participation, about their goals, reason motivating each goal and to provide background demographic information including age, gender, education level, and sporting involvement. Differences were tested with regression and correlation analysis. The results show that running has unique facilitators of flow. The results recovered two main higher order themes consistent with Csikszentmihalyi (1988): time transformation (M=15.19 SD=2.40), challenge vs. skill and feedback (M=16.47, SD=5.68). Results indicated that situational self-determined forms of motivation were positively related to flow F(1,63)= 13.08; p<0.01, slope of the regression line 0.36; t= 3.61; p< 0.001, constant 94.6; t= 6.81; p<

0.001, whereas amotivation was negatively related to flow. It is important to highlight the role of motivation, which significantly affects the sports undertaken. Future studies should further analyze these study variables across age group and culture in order to extend knowledge about the phenomenon of flow.

- **Motives for trail running – Development of a questionnaire and first analysis with the „Trail-MOMS“**

Oliver Stoll
Martin-Luther Universität Halle Wittenberg, Germany

The aim of this study was the development of a modified questionaire to assess motives of trail runners, based on the MOMS (Ogles & Masters, 1993, German version by Stoll, Würth & Ogles, 2000) and a first analysis of trail-running-specific aspects in motives for running. The original German version of the MOMS consists of 56 items in 9 dimensions (Fulfilment, Self-Esteem, Psychological Health, Achievement, Competition, Recognition, Social, General Health, Weight-Regulation). We added a new dimension (Nature Experience, 7 items) and ran a first pilot study at the „Zugspitz-Trailrun-Challenge“ in September 2014. 104 Trail runners (75 male, 29 female) completed the new questionnaire (63 items), which we call Trail-MOMS. The mean age was 40.93 years. An exploratory factor analysis revealed the expected 10 factors, with a very clear new factor „Nature Experience“. The analysis of the internal consistencies of all dimensions showed sufficient to good Cronbach Alpha values. More information about the EFA will be given in the presentation on the conference. Further analysis showed that the „Nature-Experience“ dimension is by far the most important motive (followed by Self-Esteem and Psychological Health) and that there are no sex-related differences in the motives. Also, we found differences between more and less experienced trail runners in the dimensions „General Health“ and „Fulfilment“ with higher scores and in „Recognition“ with lower scores for the experienced runners.

- **The psyching team removes runners' roadblocks to "flow" to the finish line**

Tsz Lun (Alan) Chu
University of North Texas, Denton, USA

"Being in the zone" during distance running fits within Csikszentmihalyi's (1990) description of the nine flow elements (e.g., sense of control, time transcendence). However, flow state is not widely experienced by recreational runners who have mental roadblocks. Kamphoff, Harris, and Armentrout (2012) interviewed marathon finishers and found that their major roadblocks were negative thoughts, rigid goals, doubt, social comparison, and handling pain. This study followed the same protocol to collect information from runners on their roadblocks, with a purpose to examine whether the psyching team could help runners overcome them. Psyching teams are groups of volunteers who support runners before and throughout the race mentally to enhance their "flow" to the finish line. This study employed an evaluation survey to investigate the effective of a psyching team as well as runners' flow and mental roadblocks at a marathon event in the United States. Differences were compared between a group of runners who sought help from the psyching team and the group who did not. Various timings (e.g. before race, during race) were also compared regarding the effectiveness. The results showed that runners who sought help from the psyching team had more mental roadblocks during training. Their biggest roadblock was handling pain (60% of the group), followed by social comparison and "hitting the wall" (40%). Runners who got help from the psyching team reported less social comparison and "hitting the wall" (20%) but handling pain (80%). This demonstrated a general effectiveness of a psyching team in removing runners' roadblocks. The presentation would conclude by discussing the "quick-fix" psyching techniques for coaches and consultants to help runners enhance flow by removing roadblocks. Since "flow is about focus" (Jackson & Csikszentmihalyi, 1999), various focus strategies should be used to promote the awareness, concentration, and sense of control in flow.

- **Flow, performance and satisfaction in ultramarathon running under extreme conditions**

Michele Peter Ufer
Martin-Luther Universität Halle Wittenberg, Germany

Within the "Kalahari Extreme Marathon", a desert race of 236km, answers to the following questions were searched: How does flow experience affect the athlete's performance and satisfaction? Is the postulated challenge-skill balance a prerequisite for flow experience (Csikszentmihalyi & Jackson, 2000)? A total of N = 32 athletes of all performance levels took part in brief surveys at 6 different time points during and immediately after completion of the race. A customized and extended version of the Flow Short Scale (Rheinberg et al. 2003) was applied. In addition, objective performance data such as rankings and finish times were included in the data analysis. No relationship between flow and performance, nor between challenge-skill balance and flow was found. However, significant correlations were shown between perceived skills and flow ($r = .335$, $p < .01$) and between flow and satisfaction with own performance ($r = .603$; $p < .01$). In the present study, flow has a positive impact on the satisfaction with the performance but not on the actual performance itself. Moreover, the perception of the own abilities positively influences flow. The research findings give hints for improving self-regulation and motivation in running. Due to the small sample size, further studies are indicated.

S5.06: Symposium - Person perception and nonverbal behavior in sports: Basic research and applied consequences

Chair(s): Philip Furley (German Sport University Cologne), Geoffrey Schweizer (University of Heidelberg)
Discussant(s): Henning Plessner (University of Heidelberg)

Person perception has an important influence on social interactions. In the present symposium, we present research investigating person perception in sports, in particular how certain cues (i.e. an athlete's nonverbal behavior (NVB), a coach's reputation) affect person perception. The symposium predominantly focuses on the influence of NVB on person perception in sport as NVB is frequently mentioned in the context of sports. For example, media report on the body language of athletes, and experts on NVB are hired to assist clubs with player selection. Main goals of the present symposium are to investigate whether the focus on NVB is justified by empirical results and to present an overview of current research on person perception and NVB in sports. As influential theories (Freeman & Ambady, 2011) suggest that person perception is not only influenced by bottom-up cues (e.g. an athlete's or coach's NVB), but also by top-down knowledge, the symposium will also cover how knowledge about an athlete or coach influences person perception. After a short introduction, the first talk will focus on results from several experiments in which certain nonverbal cues were occluded when participants had to rate if athletes were leading or trailing. Results suggest that perceivers can substitute non-accessible cues to arrive at accurate ratings. The second talk will introduce a new coding scheme for NVB which is subsequently used for identifying NVBs that predict future performance. The third talk will describe experimental evidence on the effects NVB has on other athletes. Crucially, the nature of the influence depends on the cooperative or competitive nature of the situation. The final talk will focus on experiments suggesting that third party reports influence parents' perceptions of coaches' competencies. A discussant will complete the symposium by critically discussing the presented findings both from a theoretical and a methodological perspective.

- **Score estimations based on nonverbal behavior during sport competition need little information in order to be accurate**

Philip Furley[1], Geoffrey Schweizer[2]
[1]German Sport University Cologne, [2]University of Heidelberg

In line with evolutionary accounts of nonverbal expressions (Shariff & Tracy, 2011), humans can detect whether athletes are leading or trailing based on thin slices of athletes' nonverbal behavior, presumably because communicating and interpreting status has evolved to be highly beneficial for group-living primates (Furley & Schweizer, 2014). The goal of the present research was to support this evolutionary perspective on nonverbal behavior in sports by investigating which nonverbal cues are necessary for differentiating between leading and trailing athletes. Specifically, we were interested in the role of head-related versus body-related information and in the role of dynamic versus static information. In Experiment 1, 120 participants watched short videos from basketball matches and rated whether athletes were leading or trailing. We occluded either athletes' faces, athletes' bodies or showed both faces and bodies. In Experiment 2, 160 participants had to perform the same task as in Experiment 1, only this time they were briefly presented with stills instead of videos (again occluding either athletes' faces, athletes' bodies or showing both faces and bodies). Results of Experiment 1 and 2 indicated that perceivers could differentiate between leading and trailing athletes equally well in all conditions. Experiment 2 showed that very short presentations of frozen frames were sufficient for differentiating between leading and trailing athletes, even when faces or bodies were occluded. Our results provide evidence for vicarious functioning in the domain of nonverbal behavior in sports: Different cues seem to be highly correlated and perceivers are able to substitute non-accessible cues with accessible ones. These findings are in line with evolutionary accounts of nonverbal behavior.

- **Nonverbal behaviour in handball: A three-phase project based on behavioural observation**

Karin Moesch[1], Göran Kenttä[2], Martin Bäckström[1], C. Mikael Mattsson[2]
[1]Lund University, [2]The Swedish School of Sport and Health Sciences

Nonverbal behaviour (NVB) as means of expressing emotions is an important channel for social interaction (Riggio & Riggio, 2012). Nonverbal cues influence others through mechanisms such as emotional contagion (see e.g. Hatfield et al., 1994) or impression formation (see e.g. Warr & Knapper, 1968). These are important aspects in team sports, but research is sparse. A series of studies aiming at exploring NVB during handball matches will be presented. First, a coding scheme that reliably captures NVB in the post-shot period, the Handball Post-Shot Behavior Coding Scheme (H-PSB-CS) was developed (Moesch et al., 2015b). Thereafter, data from 616 post-scoring coding situations from 18 female elite handball matches were analyzed using the H-PSB-CS. Results showed among others that players displayed more NVB after scoring in playoff compared to league matches, that the bigger leading a team had, the more NVB were displayed after scoring, and that the amount of NVB declined over the course of a match (Moesch et al., 2015a). Furthermore, the interaction of the ongoing history of events of the game (i.e., how the team performs) and touch (but not gesture) significantly predicted subsequent performance: A high degree of touch when playing well, and a low degree of touch when playing poorly were related with positive subsequent performance, while, showing much touch when playing poorly, or showing little touch when playing well predicted negative performance (Moesch et al., 2015c). The findings of the presented studies resulted in low effect sizes, which can be due to the fact that it is difficult to control all external variables in such complex contexts. However, there are many advantages of using behavioural observation, for example high ecological validity.

- **"Put your hands up in the air"? The effects of pride and shame expressions on opponents and teammates**

Tjerk Moll[1], Philip Furley[2], Daniel Memmert[2]
[1]School of Sport, Cardiff Metropolitan University, [2]German Sport University Cologne

Evidence suggests that displaying pride and shame can have beneficial effects for expressers – e.g., pride activating feelings of confidence (Martens, Tracy, & Shariff, 2012). Van Kleef (2009) noted that researchers have neglected the interpersonal effects of emotions and introduced the Emotions as social information model (EASI-model) to better understand how emotion expressions influence observers. Across four experiments, we explored the EASI-model by investigating the interpersonal effects of the post-performance expressions of pride and shame on opponents and team-mates in a soccer penalty scenario. We used the point-light method to create videos of pride, neutral, and shame expressions (Atkinson, Dittrich, Gemmell, & Young, 2004; Johansson, 1973). Participants viewed the videos in random order and after each video rated: their anticipated emotions, associated cognitions, and performance expectations. One-way repeated ANOVA's revealed that in Experiment 1 (n=35), observing pride expressions caused opponents to anticipate more negative emotions, cognitions, and lower performance expectancies towards their next performance in comparison with neutral and shame expressions. In contrast, pride expressions led team-mates to anticipate more positive emotions, cognitions, and performance expectations towards their next performance than neutral and shame expressions (Experiments 2-4, n=55). These findings suggest that pride and shame expressions can exert strong interpersonal effects upon observers and that these effects depend upon the cooperative or competitive nature of the situation. In soccer penalty shoot-outs, penalty takers are advised to "put their hands up in the air" as it can have positive effects upon team-mates (cooperative others) and negative effects upon opponents (competitive others).

- **Third party reports influence parents' perceptions of coaching ability: Implications for youth sport coaches**

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According to Olson, Roese, and Zanna's (1996) Model of Expectancy Processes, information conveyed by others can determine our expectancies of people. Furthermore, Third Party Reports (TPRs) such as reputation may influence athletes' initial expectancies of coaches (e.g., Manley et al., 2008; 2010; Thelwell et al., 2013). Parents are believed to play a fundamental role in the development of coach-athlete relationships (e.g., Jowett & Katchis, 2005) and, in turn, athletic achievement in youth sport (Gould et al., 2008). However, person perception research has not yet examined the impact of cues such as TPRs on the initial impressions and expectancies that parents form of youth sport coaches. The current study addresses this gap in the literature. Athletes' parents viewed a hypothetical online report describing the appointment of a new coach at a local sports club. The report included a "comments" section, which consisted of "tweets" posted by the newly-appointed coach's former athletes. Four experimental conditions were created by manipulating the coach's level of warmth and competence (i.e., high vs. low) as reported through the "comments/tweets" (i.e., TPRs). After reading the online report, participants provided ratings of the coach's ability using the Coaching Competency Questionnaire (Myers et al., 2006). Participants are currently being recruited via gatekeepers at sports clubs/organisations, as well as through social media. However, based on an initial sample (n = 83), Kruskal-Wallis tests typically revealed that high-warmth/high-competence TPRs resulted in highest evaluations of overall coaching ability, while TPRs low in both warmth and competence received poorest ratings. Interestingly, perceptions of Character-building Competence were highest for high-warmth/low-competence TPRs. These preliminary findings reveal that TPRs can influence

parents' perceptions of coaching proficiency, but that parents may value warmth over competence when assessing a coach's ability to develop more holistic qualities in youth sport athletes.

S5.07: Symposium - Self-regulation skills in sport and exercise

Chair(s): Erkut Konter (Dokuz Eylül University)
Discussant(s): Jürgen Beckmann (Technische Universität München)

The majority of research on self-regulation skills to improve learning and performance (Petlickoff, 2005 & Toering & Effering-Gemser, 2009). Self-regulation can be described as the extent to which individuals are metacognitively, motivationally, and behaviourally proactive participants in their learning process (Zimmerman, 1989, 2006). This symposium represents a contemporary example of self-regulation research from five Nations (i.e., Turkey, Germany, Bulgaria, Croatia and, Denmark). Each study seeks to uncover particular self-regulation skills with significant implications for children (study 1), adolescents (study 2 and 4), adult student-athletes (study 3), and obese adults (Study 5). Study one examines physical self-perception of school children involved in physical education, exercise, games and sports in relation to their level of courage using related scales. Results indicated that level of sport courage has an important role on their physical self-perception. Study two investigates the development of volition in adolescent athletes. In a cross-sectional and a longitudinal study with young athletes at an Olympic Training centre revealed that self-regulations skills developed steadily over adolescent age. Study three concentrates on the factors influencing volitional characteristics of students-athletes. Results suggest that the relationship between volitional skills and sport performance is mediated by the sex and type of sport. Study four investigates psychological adjustment in adolescent athletes and non-athletes in relation to gender differences. Results indicated gender differences and showed that positive influence of sport and physical activity. The final study, examines the importance of volitional skills related to physical activity and weight loss with obese adults. Results indicated that the volitional skills self-determination positively and postponing training negatively predicted physical activity participation. In addition, results showed that physical activity participation and the volitional skills initiative positively and lack of energy negatively could predict weight maintenance.

- **Physical self-perception of children in relation to their level of courage**

Erkut Konter
Dokuz Eylül Üniversity

Anecdotal reports and research evidence suggest that courage plays an important role in success, performance (e.g., Konter, 2013; Konter & Toros, 2013; Konter, Ng, & Bayansalduz, 2013; Pury & Hensel, 2010) and health (Mavroudis, 2003; Muris, 2009; Woodard, 2004) of individuals. Sport courage was recently defined as a; "natural and developed, interactional and perceptual concept between person and situation, and the task at hand that enables person to move in competence, mastery, determination, assertiveness, venturesome and sacrificial behaviour on voluntary basis and in danger(ous) circumstances" (Konter, 2013, p.966) and initial sport courage scale for children was developed (Konter, Ng, & Bayansalduz, 2013). Purpose of this study was to research physical self-perception of male and female school children according to their sport courage. Data were collected from 418 male and female children aged 10 to 12 (M=11.51 ± .57 yrs; 206 male, 210 female). Children were given the "Revised Version of Sport Courage Scale for Children-RSCS 28" (Konter, Ng & Bayansalduz, 2013) and adapted version of the "Physical Self-Perception Profile-PSPP" (Aşçı, Aşçı & Zorba, 1999) along with a demographic information form. RSCS-28 comprises 5 factors (Mastery, Determination, Assertiveness, Venturesome and Self-Sacrifice Behavior), as the PSPP (Self-Competence, Physical Condition, Body Attractiveness, Physical Strength, and Physical Self-Worth). Collected data was analyzed by Pearson Correlations, Normality Tests, One-Way ANOVA, Kruskal-Wallis, Mann-Whitney U and t-tests. Data revealed that children with higher levels of Mastery, Determination and

Assertiveness have higher scores of Self-Competence, Body Attractiveness, Physical Strength, and Physical Self-Worth ($p<.05$). Similar results were also obtained with Venturesome (related to Self-Competence, Physical Strength, and Physical Self-Worth), and Self-Sacrifice Behavior (regarding Self-Competence, Physical Strength and Physical Condition) factors. In conclusion, there are positive correlations and significant differences between Sport Courage and Physical Self-Perception of children in relation to their physical education, games and sport participation.

- **Development of volition in adolescent athletes**

Jürgen Beckmann
Technische Universität München

Volition or as a broader concept, self-regulation, has been shown to be related to performance in sports. Therefore, the development of volition in adolescent athletes appears to be an important task. A number of studies were conducted to identify factors contributing to the development of volition. In a cross-sectional (N=112) and a longitudinal study (N=85) with young athletes (aged 12 to 18) at an Olympic Training centre it was found that self-regulations skills developed steadily over adolescent age. With the Volitional Components Questionnaire-Sport (VCQ-Sport) 2 major factors of self regulation orientations were identified in these studies: self optimization and self obstruction. The dispositional self regulation factor action versus state orientation (assessed through the Action Control Scale ACS) in the development of these orientations. State orientation was found to be associated with the development of self obstruction whereas action orientation was associated with self optimization. Self optimization correlated significantly with recovery (assessed with the RESTQ-Sport), whereas self obstruction was positively correlated with stress (RESTQ-Sport). Further findings indicated that those who were living in a sport boarding school developed better self regulation skills than those travelling home everyday. Besides higher levels of stress and recovery for those travelling daily, a lack of leisure time was found in those living at home. Leisure time involves self determination. Only with access to one's own self positive self regulations strategies (self optimization) can be developed. Only those living in the boarding school had a chance for substantial amount of self-determined activities. The findings suggest that in the development of young talents attention should be paid to the stress-recovery balance and sufficient amounts of self-determined time should be provided.

- **"Sport is school for will": Factors influencing volitional characteristics of students-athletes**

Zshivka Zsheliaskova-Koynova
National Sports Academy,

Volition is traditional topic in sport psychology that was a central theme of psychological preparation in the 60s and 70s. Afterwards, the problems of volition were absorbed into the field of motivation as the substantial gap between the wish for reaching goals and their real attainment has been ignored. If the volitional competency is not sufficient, individuals could be motivated but unable to take actions or overcome impediments. Volitional competency is a decisive substructure of sport suitability. Several studies on German athletes have examined the connection between volitional skills and athletic achievement (e.g., Beckman, 1999; Beckman, Szymanski, & Elbe, 2004). The aim of the present study is to investigate whether the volitional skills of Bulgarian athletes are related to the sex, level of sport performance, and type of sport practiced by participants. The subjects are 131 student-athletes (61 males and 70 females), who compete at national and international level, distributed by their type of sport (individual vs collective), and their level of sport performance (medalists at national championships; athletes placed 4th-8th; athletes of lower placement). The test used is VCQ-Sport (Wenhold, Elbe, & Beckmann, 2009). The results of 3-factor MANOVA reveal the influence of sex (males scoring higher on this scale than females) as well as interaction between sex, type of sport and sport performance level on Self-

Optimization. Sex influences also the level of Lack of Activation (females scoring higher). Type of sport and level of sport performance influence Loss of Focus (athletes of individual sports scoring higher on this scale than athletes of collective sports; medalists score lowest). In conclusion, our findings show that volitional skills are important for the sport performance of Bulgarian athletes, and their influence is mediated by the sex and type of sport of the athletes, suggesting necessity of accordingly differentiated approach to volitional preparation.

- **Psychological adjustment in adolescent athletes and non athletes: gender differences**

Renata Barić[1], Saša Cecić Erpič[2]
[1]Faculty of Kinesiology, University of Zagreb, [2]Faculty of Sport, University of Ljubljana, Slovenia

In early adolescence environmental factors play a significant role in psychological adjustment. Physical activity positively contributes to physical but also to mental health of adolescents. Gender differences in physical activity emerge prenatally and increase during childhood and adolescence; boys are more active in all ages (Malina et. al, 2004). Administering the Croatian Version of Youth Self Report, YSR (Achenbach & Rescorla, 2001) on the sample of 230 athletes and 346 non-athletes (Mage=17.2, SD=1.13) we investigated psychological adjustment indicators with regard to gender. Boys reported higher rate of somatic complaints, internalizing problems, attention problems and more withdrawn signs; girls reported significantly more anxiety/depression symptoms, somatic complaints and attention problems that led to higher level of internalizing problems, in comparison to boys who significantly more inclined to risky and rule breaking behaviour. With regard to sport involvement, higher rate of internalizing problems was found in adolescent boys, and frequency of symptoms decline with increment of physical activity. Inactive girls reported more attentional problems than active girls. There was a dose-response relationship wherein the positive benefits of exercise on mental health emerged only when exercise exceeded 4 hours per week. Regular physical activity and sport can play a protective role for psychological adjustment to different environmental, social and developmental demands during this vulnerable developmental stage, especially in girls, and might be beneficial for psychological well-being and their quality of life.

- **The importance of volitional skills for participation in physical activity and maintenance of weight loss**

Peter Elsborg[1], Gertrud Ursula Pfister[1], Jørn Wulff Helge[2], Sune Dandanell[2], Anne-Marie Elbe[1]
[1]University of Copenhagen, Dept. of Nutrition, Exercise and Sport, [2]University of Copenhagen, Department of Biomedical Sciences

Volitional skills also referred to as “the will”, have been shown to be important for goal achievement in many different contexts (e.g. elite sports, academia, work-life). However, the relationship between weight loss maintenance and volitional skills has not been examined yet. This study investigates if volitional skills are related to the amount of physical activity in individuals battling obesity, and to actual weight loss. Participants (N=209, mean age 40.11 (SD=14.6), 161 females, 46 males, 2 unknown) were selected from a large database of former participants in a lifestyle intervention course primarily targeting individuals with obesity. The Danish version of the Volitional Components Questionnaire was administered to measure volitional skills related to exercise. Weight and physical activity levels were obtained from a self-report questionnaire.A linear backward elimination regression revealed that the volitional skills self-determination positively ($p<0.01$) and postponing training negatively ($p<0.01$) predicted physical activity participation. A second regression showed that physical activity participation ($p<0.01$) and the volitional skills initiative ($p<0.05$) positively and lack of energy negatively ($p<0.01$) could predict weight maintenance. Volitional skills seem to be important for physical activity participation for individuals striving to reduce their weight.

Furthermore, volitional skills in addition to regular physical activity are important for weight maintenance. This study indicates that volitional skills also are important for weight maintenance when physical activity participation is held constant. A possible reason for this is that volitional skills facilitate not only if an individual participates in physical activity, but also how s/he participates (e.g. intensity, dealing with mistakes). Another possible reason is that volitional skills related to exercise could reflect volitional skills in other areas important to weight maintenance (e.g. nutritional behavior, time management).

IW5.1: Invited Workshop - On the shoulders of giants: reflecting with serial winning coaches

Sergio Lara-Bercial[1,2], Cliff Mallett[3]
[1]Leeds Beckett University, UK; [2]International Council for Coaching Education, UK; [3]The University of Queensland, Australia

Coaches attending this workshop will delve deeper into the personalities and practices of serial winners before completing a process of guided self-reflection and action planning. The purpose of this reflective process is to raise self-awareness of black spots and blind spots, and to piece together a development plan.

IW5.2: Invited Workshop - Supervision as an intimate relationship: The core business of training sport and exercise psychologists (Max 24 participants)

Mark Bille Andersen
Halmstad University, Sweden

This workshop will include a brief didactic introduction to the history and models (e.g., cognitive-behavioural, phenomenological, psychodynamic) of supervision used in the training of sport and exercise psychologists along with transtheoretical stances that form foundations of supervision regardless of the specific model used (e.g., mindfulness in supervision, the working alliance). Supervision holds a central position in the education of practitioners and has many features of other long-term intimate relationships (e.g., coach-athlete, teacher-student, psychologist-client). The quality of this professional relationship has the potential to profoundly influence sport and exercise psychologists' development. After the introduction, there will be a role-play demonstration of a supervision intake session. The workshop participants will then break into small groups to discuss what they observed and report back to the whole group on what they discussed. Supervision intakes are opportunities to come to mutual agreements on the processes and goals of supervision so that expectations do not operate in default, and possibly conflicting, modes. In the spirit of "see one, do one," the workshop participants will break into groups of three (supervisee, supervisor, and observer) and role-play a supervision intake. Each group will first come to a consensus about which model of supervision they will be using and then proceed from there. After the intake, participants will discuss what happened and then report back to the whole group. Time permitting, the workshop organiser will then demonstrate what an advanced supervision session looks, sounds, and feels like from a psychodynamic and mindfulness perspective with whole-group discussion to follow. At the end, there will be a group discussion and evaluation of what was accomplished during the workshop. The participants will also be supplied with a reading list of research articles and book chapters on supervision in sport and exercise psychology.

W5.3: Workshop - Third generation coaching - A narrative-collaborative group intervention towards talent development

Reinhard Stelter
University of Copenhagen, Denmark

Third generation coaching practice (Stelter, 2014) goes beyond earlier coaching practice by emphasizing a focus on identity, values, and meaning making. On this basis, the dialogues between coach and dialogical partners (in casu: young talents in sports) tend towards

establishing a more symmetrical relationship between the dialogue partners. The coach takes the stance of a fellow human companion. Third generation coaching is – among other things - inspired by narrative collaborative practice, positive psychology, philosophy, and ethics. Intertwined with the social and cultural conditions, problematic experiences or events are reframed by unfolding alterative or new narratives in a co-creative process between the coach and the coaching partner(s). The workshop will provide an excellent opportunity to explore new forms of coaching practice: Via an introduction to the main principals of third generation coaching, via interaction with the workshop participants, and via minor exercises in small groups. The presentation will include some concrete examples from a coaching research project on talent development in sports, and it will invite the participants to think about practical applications for their own coaching practice inspired by the latest research in this evolving area. Some research results from an experimental study design will be presented only to highlight the evidence this approach is based on. These results showed that this group coaching intervention had an impact on social recovery/resilience and the well-being of the athletes.

Session 6 – Friday 17 July, 8.30am-10am

IS6.1: Invited Symposium - The multi-country 'PAPA' Project: A research trial centered on promoting Empowering Coaching and quality engagement in youth sport

Chair(s): Joan Lynne Duda (University of Birmingham)

In this symposium, we provide an overview of the background to, objectives of, and some findings to date stemming from the Promoting Adolescent Physical Activity (PAPA) project (www.projectpaga.org) which was funded by the European Commission (FP7 Health). The recently concluded PAPA Project is a research trial involving the development and validation of existing and newly developed measures and methods (questionnaire-based, observation, focus groups, accelerometry, etc) as applied to youth sport across 5 countries; namely, England, France, Greece, Norway and Spain . Almost 8000 young grassroots football players and their coaches participated in this large-scale research. PAPA entailed the translation and delivery of the theory-based Empowering Coaching™ programme to grassroots coaches by trained coach tutors. The fidelity of workshop delivery and impacts of this coach training on coaches and their players (when compared to coach/player controls) were assessed via multi-methods. In the first presentation, we highlight analytic approaches and findings regarding one key contribution of the larger research project; namely, to test for cross-country invariance in targeted, established measures and also examine invariance in theory-grounded process models based on cross-sectional as well as longitudinal data. Presentation 2 will describe relevant measurement development, the analytic strategy adopted, and findings regarding the impact of the coach training on players' perceptions of the motivational climate created and intentions to drop out/continue. Major findings stemming from our in-depth qualitative examination of coaches' views of the intervention impact will also be highlighted. In the 3rd presentation, we will present results on the measurement of coaches' views regarding the empowering and disempowering features of the climate they create and the effect of the Empowering Coaching™ training on these coach perceptions. The final presentation will describe the development and validation of a multi-dimensional observational system which assesses the motivational climate from Duda's (2013) integrated SDT- and AGT-based perspective.

- **Empowering and disempowering motivational climates, motivational processes, and player outcomes: Tests of measures and models**

Lorena Gonzalez[1], Nikos Zourbanos[2], Ellen Haug[3], Aurelie Van Hoye[4], Carme Viladrich[5], Lars Tore Ronglan[6], Gareth Jowett[7], Joan Lynne Duda[8]
[1]University of Valencia, Spain, [2]University of Thessaly, Greece, [3]University of Bergen, *Norway, [4]University Grenoble Alpes, France, [5]Universitat Autónoma de Barcelona, Spain, [6]Norwegian School of Sport Sciences, Norway, [7]York St John University, UK, [8]University of Birmingham, UK*

The European Commission (FP7) funded PAPA project involved multiple countries and was designed to test expected theory-grounded relationships in the context of grassroots youth sport. One fundamental challenge within the PAPA entailed the translation of all questionnaire-based measures (see Duda, Quested, et al, 2013, for details on the translation procedures) from English to French, Greek, Norwegian and Spanish. We then needed to examine whether the translated measures of established scales were all operating in the same way across the targeted countries. Within this presentation, we will provide an overview of how we have tested for measurement invariance in key motivation processes (such as motivation regulations; Viladrich et al., 2013) and outcome measures (e.g., self esteem, subjective vitality, MVPA; Papaioannou et al., 2013) and describe emerging findings. Another important focus within the PAPA project was to exploit the multi-country data set and begin testing theory-based process models. Via cross-sectional data, we were able to do this with a particularly large sample of young grassroots footballers who participated in the baseline assessment [e.g., the Quested et al., 2013, test of a Basic Needs Theory process

model (autonomy support – basic needs – enjoyment – intentions to dropout) in the case of 7769 players]. Tests of invariance in longitudinal process models also have been conducted, examining the interplay between empowering and disempowering climates, motivation related variables (basic need satisfaction and/or motivation regulations for participation in football), and targeted psychological and reported behavioural outcomes. The last part of this presentation will highlight results to date.

- **The impact of the Empowering Coaching™ training programme on the motivational climate and player responses**

Eleanor Quested[1], Paul Appleton[2], Bente Wold[3], Isabel Balaguer[4], Philippe Sarrazin[5], Athanasios Papaioannou[6], Howard Hall[7], Yngvar Ommundsen[8], Jaume Cruz[9]
[1]Curtin University, Australia, [2]University of Birmingham, UK, [3]University of Bergen, Norway, [4]University of Valencia, Spain, [5]University Grenoble Alpes, France, [6]University of Thessaly, Greece, [7]York St John University, UK, [8]Norwegian School of Sport Sciences, Norway, [9]Universitat Autónoma de Barcelona, Spain

Within the PAPA Project (see Duda, Quested et al., 2013 for information on the study protocol), the theoretically-grounded Empowering Coaching™ (Duda, 2013) training programme was tailored for grassroots football coaches and all related materials were translated from English into French, Greek, Norwegian and Spanish. The training programme is designed to help coaches understand, want to and have confidence to apply the principles of Empowering Coaching™ with the aim of promoting quality motivation and making the sport experience more engaging, enabling and enjoyable for participants. In PAPA, the workshops for grassroots coaches were delivered by coach tutors who received training from the respective research groups across the 5 countries. In this presentation, we will provide an overview of the ways in which the impact and fidelity of the intervention is being examined within the PAPA. A key variable that we hoped to effect was players' perceptions of the motivational environment created by their coach. The questionnaire-based assessment tool that was developed to achieve this aim is the the Empowering and Disempowering Motivational Climate Questionnaire-C (EDMCQ-C; Appleton et al., 2011). The conceptual grounding of this measure and initial work on its psychometric properties will be briefly described. The analytic approach adopted and preliminary findings on differences (over the course of the season) between players whose coaches received the Empowering Coaching™ training and those who did not in: (a) their perceptions of the empowering and disempowering features of the coach-created climate, and (b) intentions to dropout of football (1ry outcome) are highlighted. A final focus of this presentation will be to demonstrate how qualitative methods (such as observation and focus groups) were employed respectively to (a) assess the fidelity of coach tutors' delivery of the workshop, and (b) examine how participation in the workshop effected coaches' understanding of motivation, Empowering Coaching™ principles, and reported behavioural change.

- **Coaches' perceptions regarding the motivational climate they create: Measurement, intervention effects and correlates**

Yngvar Ommundsen[1], Jean-Philippe Heuze[2], Oddrun Samdal[3], Isabel Castillo[4], Nikolaos Digelidis[5], Saul Alcaraz[6], Andrew Hill[7], Paul Appleton[8]
[1]Norwegian School of Sport Sciences, Norway, [2]University Grenoble Alpes, France, [3]University of Bergen, Norway, [4]University of Valencia, Spain, [5]University of Thessaly, Greece, [6]Universitat Autónoma de Barcelona, [7]York St John University, UK, [8]University of Birmingham, UK

In past research on the measurement and correlates of perceptions of the motivational climate in sport, most studies have centred on the prevailing coach-created climate as realised by his or her athletes. Less work has been done on coaches' perceptions of the motivational environment they believe they generate directions being taken and findings to date within the PAPA project regarding coaches' views of the empowering and

disempowering (Duda, 2013) features of the motivational climate they engender. Grassroots football coaches from England, France, Greece, Norway and Spain were requested to complete the Empowering and Disempowering Motivational Climate Questionnaire (Appleton et al., 2011) in terms of the environment they felt they were creating for their players. Preliminary results will be presented regarding multi-group factorial invariance of the measure when completed by coaches and the effect of the Empowering Coaching™ intervention on coaches' perceptions of the climate. The presentation will conclude with a brief discussion of the importance of understanding the determinants and implications of coaches' views about the motivational environment they generate. How such questions will be addressed with the data collected within the PAPA Project will be highlighted.

- **The objective motivational climate in grassroots football: Measurement development and intervention effects**

Nathan Smith[1], Yannis Tzioumakis[2], Damien Tessier[3], Priscilla Fabra[4], Philippe Sarrazin[3], Athanasios Papaioannou[2], Isabel Balaguer[4], Joan Lynne Duda[5]
[1]University of Northampton, UK, [2]University of Thessaly, Greece, [3]University Grenoble Alpes, France, [4]University of Valencia, Spain, [5]University of Birmingham

In this presentation, we will highlight the development and validation of the Multiple Motivational Climate Observation System (MMCOS; Smith et al., 2014). The MMCOS is grounded in Duda's (2103) conceptualisation of overarching'empowering' and 'disempowering' motivational environments and captures dimensions of the environment deemed to be motivationally relevant (particularly in terms of whether athletes' needs for autonomy, competence, and relatedness are supported and/or thwarted) Evidence will be provided regarding the factorial and predictive validity as well as the reliability of the MMCOS. Overall patterns of observed empowering and disempowering behaviours across countries involved in the PAPA Project will be resented (Tessier et al., 2013). The presentation will conclude with an overview of the effects of the Empowering Coaching™ workshop on the objectively assessed behaviours of grassroots football players (as assessed by the MCCOS) across 4 of the PAPA countries (Tzioumakis et al., 2015).

IS6.2: Invited Symposium - Perceptual-cognitive expertise in sport: Current status and future directions

Chair(s): A. Mark Williams (Brunel University London, UK)

The ability to anticipate and to make-decisions is crucial in sport and in many other fields of human endeavour. The ability to make these judgements effectively and efficiently is believed to be based on a myriad of underlying perceptual-cognitive skills. These perceptual-cognitive skills involve a continuous interaction between low- and high-level cognitive processes. A particular focus in the research has been on identifying how expert and less-expert performers may be differentiated based on their perceptual-cognitive skills and how the acquisition of these skills may be facilitated through various training interventions. In this symposium, we overview some key observations that have emerged from this body of research over recent years. In particular, we attempt to synthesise existing work and to highlight implications for theoretical development, methods and measures and the application of this knowledge through translational research across multiple domains. The aim in this symposium is to present some guidelines and a framework for facilitating new research and future growth in this area of scientific investigation.

- **Reflections on the science of perceptual-cognitive expertise in sport: Where have we been and where are we going?**

Paul Ward[1], Robert Hoffman[2]
[1]University of Huddersfield, UK, [2]Institute for Human and Machine Cognition, USA

Over the past half-century, researchers have described some perceptual and memory skills that support expert performance in sport, as well as important preparation activities and

practice histories that precede the attainment of expertise. Such descriptions are paramount for theory development, especially when associated phenomena are not well understood or a complete explanation has yet to be formed. Fewer advances have been made in describing cognitive skills associated with sports expertise, the associated context in which they occur, or macro- rather than micro-level cognitive functions and processes. Furthermore, only a handful of attempts have been made to induct theoretical explanations and/or abduct testable predictions from these descriptions in a manner that would support the development of reliable training interventions. Instead, three trends have emerged: (i) A tendency toward post-diction where data are explained after the fact, rather than subjected to a strong a priori test; (ii) A methodology aimed at creating conceptual cognitive models or statistically fitted descriptions of the data, where the data that the model fits are those that gave the idea for the explanation; and (iii) A focus on microcognitive phenomena as the only genuinely scientific basis for a science of expertise. Rather than a cumulative science have we fallen foul to Newell's (1973), Feynman's (1974), and Miller's (1986) infamous criticisms about the "dismemberment" of cognition and the piecemeal nature of scientific practice? In this talk, I will discuss the need to generate useful models of expertise that are capable of reliable prediction and effective control. I will discuss the need to study perceptual-cognitive expertise at the macrocognitive level in order to stitch back together the microcognitive acts that have been dissected under experimental scrutiny. These paradigms are complementary and both are necessary for a complete theory of perceptual-cognitive expertise in sport, and of cognition more broadly.

- **Perceiving context: The key to anticipation in sport**

Colm Murphy, Robin C. Jackson, A. Mark Williams
Brunel University London, UK

The expert advantage in anticipation is made up of a superior ability to: a) extract and process kinematic cues from an opponent's postural orientation and; b) effectively utilise contextual information which is situation dependent. While the former has been thoroughly explored (Mann et al., 2007), the influence of contextual information on anticipation has only received minimal attention. We discuss findings from published reports suggesting the importance of contextual information during anticipation in racket sports. We then explore the findings of two experiments in which high- and low-skilled tennis players were presented with normal videos and animations of rallies occluded at the opponent's racket-ball contact. Animations, which were generated from player movement and ball trajectory data, omitted player kinematics so that participants had to base their anticipation judgments on contextual information alone. Both high- and low-skilled participants were able to anticipate at levels significantly greater than chance in both normal video and animated conditions, with the high-skilled participants being more accurate in both display conditions (Exp 1). These findings are in support of Dittrich's (1999) Interactive Encoding model. Moreover, when anticipating based on contextual information alone, verbal report data indicated that high-skilled participants made more evaluation and prediction statements than less-skilled participants (Exp 2), implying the use of more complex domain-specific memory representations to make anticipation judgements. Findings are consistent with Ericsson and Kintsch's (1995) Long Term Working Memory theory. Ongoing research will also be discussed. Finally, we suggest implications for the application of this research to the testing and training of perceptual-cognitive expertise, particularly in dynamic sports in which extreme time constraints are common.

- **How to test a theory of perceptual-cognitive expertise in sports**

Markus Raab
German Sport University Cologne, Germany

Perceptual-cognitive expertise in sports is a complex phenomenon that has been described and explained by many researchers in our field. Whereas earlier research focused more on

describing differences between experts and novices current trends try to explain and predict expertise developments. For the latter exercises good theories are needed and this talk provides some examples how theories of perceptual-cognitive expertise in sports can be tested in comparison. I will argue that the phenomenon itself "perceptual-cognitive expertise" needs an analyses that includes the person and the environment as well as the developmental phase of the athlete. Second as every perceptual-cognitive expertise investigation in sports needs to limit itself when empirically undertaken I will argue that specific dimensions and paradigms are theory-based and thus selecting a set of theories that are compared is a very important next step. Finally demonstrating longitudinal data of perceptual-expertise and predicting performance in big data performance diagnostic centers will be demonstrated. For future research in perceptual-cognitive expertise in sports I argue we need data that allows predictive estimates of talents and theories that specify and quantify their explanation power for expertise research.

- **The acquisition of perceptual-cognitive expertise in offside decision-making**

Koen Put[1], Johan Wagemans[1], Jochim Spitz[1], A. Mark Williams[2], Werner F. Helsen[1]
[1]KU Leuven, Belgium, [2]Brunel University London, UK

In association football, video simulations of offside situations can improve the perceptual-cognitive mechanisms underpinning expert perception and performance in decision making (Put, Wagemans, Jaspers & Helsen, 2013). An important consideration is the extent to which the training context replicates the constraints of the in situ performance setting. Therefore, the use of realistic and life-like video simulations should be encouraged, improving the ecological validity and the measurement sensitivity of the task (Roca, Williams & Ford, 2013). In the present study, we examined whether a training protocol that manipulates the speed of the various offside clips (i.e., slow – moderate – fast) can induce performance enhancements from pre- to posttest. Altogether, 96 international assistant referees were randomly assigned to one of three training groups: 1) increasing speed group (n = 33; IS-group), 2) decreasing speed group (n = 33; DS-group), and 3) random speed group (n = 30; RS-group). All groups were exposed to a pre- and posttest and in between, they performed 3 off-field offside training sessions (3 x 20 video simulations). In the IS-group, the order of the presented video simulations was as follows: slow – moderate – fast; in the DS-group: fast – moderate – slow; and in the RS-group: moderate – fast – slow. The overall response accuracy in the offside decision-making task improved significantly from pre- to posttest in both the DS-group (pre = 75% and post = 81%) and RS-group (pre = 76% and post = 82%). The IS-group, however, did not increase their performance. In addition, the accuracy score on the moderate speed (86%) was significantly higher compared to the fast (83%) and slow (80%) speed, averaged across groups. Based on our results, it can be assumed that speed manipulation can be beneficial for the development of perceptual-cognitive expertise in offside decision making. In addition, these findings may have implications for the testing and training of officials across many sports as well as for many other professional settings in which time-constrained decision making is a key characteristic of successful performance.

SS-ME6.1: Special Session - Meet the Expert: Dr. Kari Fasting

Kari Fasting
Norwegian School of Sport Sciences, Norway

Questions & discussions

SS-S6.2: Special Session - Symposium: Dual career (part 2): Managing career transitions

Chair(s): Nadine Debois (INSEP Paris, France)
Discussant(s): Natalia Stambulova (Halmstad University, Sweden)

The issue of « dual career » in elite sport has led in recent years to an increasing interest from sport psychology researchers (e.g., EU Guidelines on Dual Careers of Athletes, 2012;

Wylleman & Lavallee, 2004), as well as from government bodies (e.g., Stambulova & Ryba, 2013). In this context, the present symposium closed to the "Gold in Education and Elite Sport" (GEES) project supported by the European Commission will contribute to disseminate recent research results as well as to promote debate on the competences required for succeeding to reconcile educative/vocational path and sport career. In a first presentation, a study comparing female athletes' perception of dual career with those of male athletes will be presented. Then the second presentation will focus on the challenges of dual career for elite athletes migrating across national borders. In a third presentation, a report will be laid out on research results that emphasize through an holistic approach (i.e., athletic, psychological, psychosocial, academic/vocational and financial development), the changes and difficulties experienced by elite athletes during the transition from junior to senior. Finally, the last communication will address on elite athletes' experiences of adaptation to changes during the specific period when athletic transition from development stage to mastery stage coincides with the academic transition from college to the university. This symposium constitutes the second part of a two-part symposium on dual career with the first one dedicated to the "Gold in Education and Elite Sport" project supported by the European Commission.

- **Talented and elite female athletes' career development**

Janja Tekavc[1], Paul Wylleman[1], Saša Cecić Erpič[2]
[1]VU Brussel, Belgium, [2]Univerza v Ljubljani, Slovenia

Since the theoretical frameworks on athletic career development provide a gender non-specific description of athletes' career development, the question remains whether female athletes' career is specific in comparison to those frameworks. The purpose of this study was to (1) describe talented and elite female athletes' perceptions of the characteristics, demands and challenges in the current stage of their athletic career (i.e. development, mastery, discontinuation stage); and (2) compare these perceptions with a comparable sample of talented and elite male athletes. Semi-structured interviews with 90 talented and elite Slovene athletes (n = 45 males, 45 females) were used with the interview guide being based on the Holistic Athletic Career (HAC) model (Wylleman, Reints, & De Knop, 2013). The interviews were transcribed verbatim and content analyzed using the qualitative analytic software program. In general, the participants perceived their athletic career to develop in accordance with Holistic athletic career model (Wylleman et al., 2013). In comparison to male participants, female athletes put more emphasis on the relevance of specific domains (e.g., dual career obligations, interpersonal relationships) in their career and reported facing some specific difficulties (e.g., body dissatisfaction, financial challenges).The study results suggest that female athletes face some specific demands and challenges in their athletic career development, which calls for additional research in this field.

- **The cultural constitution of transnational dual careers**

Tatiana Ryba[1], Natalia Stambulova[2], Noora Ronkainen[3], Jens Bundgaard[4]
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Transnationalism, as part of the globalization processes, has transformed the lifestyle and the course of athletes' careers. This presents previously unexplored challenges encountered by student-athletes in combining athletic and academic pursuits. In this paper, we map the ways in which athletic and non-athletic transitions occurring alongside the cultural transition associated with geographic mobility shape the development of transnational dual careers (DC). Narrative inquiry from the life story perspective was used (Atkinson, 1998) to elicit and analyze career narratives of six transnational athletes (3 male and 3 female), generating about five interview hours per athlete. The transition from secondary to higher education was chosen as a key organizing principle of the DC pathways. Additional insights into DC mobilization across international borders were gleaned by employing the typologies of sport

migrants developed in the sport labor migration research (Magee & Sugden, 2002; Maguire, 1999). Three patterns of DC organization were discerned from the narratives based on the direction of geographic mobility and the core migration motive underpinning the storyline. The revealed taxonomy comprises: (1) Within EU mobility: the sport exile DC pathway; (2) Mobility to the U.S.A.: the sport mercenary DC pathway; and (3) Mobility to the U.S.A.: the nomadic cosmopolitan DC pathway. The identified DC paths are not exhaustive, and highlight possibilities of individual development, unfolding through the matrices of social structures in a given cultural location. We further discuss a set of structural and discursive realities implicated in the ways DC trajectories took shape in transnational athletes' lives. It is argued that developing a more nuanced understanding of the cultural constitution of athletes' careers will facilitate efficacy of the dual career support services in applied sport psychology.

- **The transition from junior to senior elite athlete**

Nathalie Rosier**,** Paul Wylleman, Veerle De Bosscher, Jo Van Hoecke
VU, Brussels, Belgium

Although crucial in the athletic career, the 'junior-to-senior' transition has rather been neglected by researchers. Using the Holistic Athletic Career (HAC) model, two studies explored the challenges - and their impact – faced by transiting athletes at five interacting levels of development (athletic, psychological, psychosocial, academic/vocational, financial). High performance directors (HPD) were also considered important when investigating this specific transition. In the first study, ten high performance directors and ten elite athletes, successful at making the junior-senior transition, were interviewed using a semi-structured interview based on the HAC model. Results provided not only an overview of the challenges occurring at five levels of development during this transition, but confirmed the accordance between athletes and HPDs' perceptions of these challenges. Using a questionnaire, the second study investigated the impact of the challenges during the junior-senior transition amongst 95 elite level athletes. Results revealed not only that challenges occurring at the five levels of development (cfr. Study 1) were rated to have a clear impact on athletes, but also that athletes perceived to need specific competences in order to cope with this impact. Both studies allow to conclude that, when making the junior-to-senior transition, athletes are confronted not only with clearly delineated changes at five levels of development but also with the challenge to cope with these changes in order to continue their career. In view of the accordance between athletes and high performance directors (Study 1), and of the data on the impact of, and need to cope with these changes, it is imperative for athletes as well as for their athletic environment (e.g., high performance directors, coaches, sport psychologists, parents) not only to be aware of these changes and challenges but also to provide the appropriate support services before, during, as well as after transiting from junior into senior level.

- **Transition experiences of student athletes entering the university: Acclimatization to transitional times in sport and education**

Saša Cecić Erpič
Univerza v Ljubljani, Slovenia

While existent literature (Stambulova et al., 2009) has identified the within-career transition between developmental and mastery stage as potentially important period in sport career development, relatively little is known about the experiences of athletes' adaptation to changes during this critical time. This transition coincides with transition to the university, which is one of the major life transitions in young adulthood. In order to succeed in education and in sport, athletes have to find an effective balance between restrictions and demands of both systems. According to Holistic athletic career model (Wylleman & Lavallee, 2004), student-athletes (SA) have to adapt to the respective changes at the athletic, psychological, psychosocial and educational level. Using a cross-sectional design, 27 high-level athletes, students of 1st year university study (M= 20.52; SD=.85) were asked to complete Student-

athletes' Transition to University-II (SATU-II; Cecić Erpič, 2014) questionnaire. Descriptive analysis indicated that SA experience changes at all four levels. The qualitative analysis gave an in-depth insight into the transition from junior to senior level and the demands of dual careers. Results showed that during transition to the university SA experience complex changes. Transitions occurring in the athletic career and those occurring in other domains of the athlete's life are concurrent and reciprocally interact.

S6.01: Symposium - Assessment of motor development across childhood

Chair(s): Till Utesch (University of Münster, Germany), Bernd Strauss (University of Münster, Germany), Maike Tietjens (University of Münster, Germany)

Motor development plays an important role in children's overall health. Therefore, movement assessments are frequently used research about in motor development, physical activity or physical education. Different aspects need to be considered in assessment selection, e.g. process or product orientated testing. Therefore, it is important to clarify the purpose of the study, which is closely related to the different theoretical assumptions of different tests. Beside this, assessment instruments need to be tested on validity and reliability. In general, they can only be as valid as the theoretical construct that is proposed. This symposium integrates different studies from the field of motor development. The aim of the symposium is to unravel common and different theoretical assumptions and contrast the concepts underlying different movement assessments. The five contributions bring together findings from research groups in Switzerland, Germany, Belgium and the United States. Further, this symposium will address significant questions in motor development across childhood. It will highlight benefits of movement assessments in the research field of motor development and give theoretical as well as practical perspectives. The concept of fundamental movement skills (FMS) underlies the first three contributions. Firstly, a cross-sectional study is presented, which used the Test of Gross Motor Development – 2 to describe the development of FMS in Flemish children and compare them to Americans. The second study analyses quality criteria and the test development process for the recently improved Test of Gross Motor Development – 3. The third presentation gives insight in the relation between FMS and cognitive performance. In the fourth contribution a study evaluating the concept of motor abilities in regard to its diversification and stability across childhood using Rasch measurement is presented. The symposium ends with a basic motor competencies test developed and validated to meet the demands of the primary school setting is presented.

- **Childhood motor competence in Flanders anno 2015: Do we have a problem?**

Faird Bardid[1], Floris Huyben[2], Frederik J.A. Deconinck[3], Jan Seghers[4], Kristine De Martelaer[5], Jacqueline D. Goodway[6], Matthieu Lenoir[1]
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This cross-sectional study evaluated the fundamental motor skills (FMS) in Flemish young children (3-8 years; 841 boys and 773 girls) using the process-oriented Test of Gross Motor Development – 2nd edition (TGMD-2). In addition, the TGMD-2 performance and categorization of Flemish children (anno 2012) were compared to the United States reference sample (anno 1997-1998). Results showed an improvement of performance with increasing age from 3 to 6 and 7 years (locomotor and object control skills respectively). Gender differences were observed in object control with boys performing better than girls. In general, Flemish children scored lower on motor competence when compared to the United States reference sample, specifically on object control. The Flemish score distribution showed 37.4% of the children scoring below average and only 6.9% scoring above average. The lower TGMD-2 performance might be explained by secular trends in PA behavior and partially by cultural differences in sports activities. We recommend that policy makers should focus on promoting and developing FMS to attain a certain level of motor competence. Using

a process-oriented approach, the TGMD-2 is a useful instrument to assess and monitor motor competence in early childhood in Flanders.

- **The psychometric properties of the TGMD-3 in a sample of children from the USA**

Dale Allen Ulrich**,** Elizabeth Kipling Webster, Edward Andrew Pitchford
University of Michigan, USA

Burton & Miller (1998) proposed a taxonomy of movement skills consisting of six main components. One component that serves as the underlying foundation for the Test of Gross Motor Development-3 (TGMD-3, Ulrich, 2015) is fundamental motor skills (p. 58). Any time a measurement device is developed or revised, it is important to evaluate the psychometric properties prior to its dissemination for general use. The theoretical foundation of this study relates to measurement theory applied to gross motor skill development in children. A sample of 295 children aged 3-10 years living in the USA were tested. Age was significantly related to locomotor subtest scores, ball skill subtest scores and total gross motor development scores in both males and females ranging from .64 to .85. Internal consistency was evaluated by calculating coefficient alphas for each subtest score and the total gross motor development score by age, without age, and by gender & race. All coefficients indicate excellent internal consistency. An exploratory factor analysis was conducted to test a 2 factor model (locomotor, ball skills) as a form of construct validity. Results indicate that 2 primary factors within FMS measured by this test are: locomotor (eigenvalue =6.3) and ball skills (eigenvalue = 1.2.) accounting for 58% of the total variance. Unfortunately, significant gender differences continue to be present in terms of ball skill competency in girls. Given the public health research that indicates that competency in ball skills is related to a child's physical activity level and risk for unhealthy growth in childhood, this problem needs to be seriously addressed.

- **The relation between cognitive and motor performance: A latent variable approach**

Benjamin Holfelder**,** Nadja Schott
University of Stuttgart, Germany

It is well known, that for learning, planning and performing such complex motor skills (FMS) like throwing, catching or kicking a ball, cognitive abilities like executive functions (EF) are required. The main objectives of this study are (1) the investigation of age- and gender-specific courses of development of qualitative and quantitative parameters of FMS and for EF as well as (2) testing the interrelations between and the predictive power of FMS and EF among each other. This 1-year longitudinal cohort study included 156 children (aged 8.01 ± 1.18 years, 6 to 10 years). FMS were assessed using a performance- and process-based approach (throwing and kicking speed, number of successful catching trials; video-based component analysis). The EFs were tested computer-assisted with a Go/NoGo-Task and a Flanker-Task. FMS as well as EF increase with class level, while boys outperform girls in all FMS (with only small differences for catching). Furthermore, subjects exhibit a significant improvement for both dimensions across the school year. The structural equation model shows a significant relationship between FMS and EF ($r=-.58$, $p<.001$) at t1. Both domains proved to be stable from t1 to t3, which is reflected by high correlations for FMS ($r=.96$, $p<.001$) and EF ($r=.69$, $p<.001$). Testing the predictive power of FMS and EF among each other, both paths are non-significant. Finally, the factor gender was included as a moderator, but the model comparison shows no significant differences ($\Delta\chi2=9.28$, $df=6$, $p=.159$). The results didn't confirm the suggested bidirectional relationship between FMS and EF. Although, many questions are not clarified yet, the current state of knowledge and practical experiences should be used to implement specific interventions in the everyday school life and sports clubs in an early stage of development seems promising to promote the development of FMS and EF.

- **Investigating the differentiation and stability of the concept of motor abilities across childhood**

Till Utesch1, Bernd Strauss[1], Dirk Büsch[2], Jochen Zinner[3], Roland Naul[1], Dennis Dreiskämper[1], Ilka Seidel[2], Maike Tietjens[1]
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Motor abilities are defined as general traits underlying the performance of a variety of different movement skills (e.g. endurance, strength; Burton & Miller, 1998). Well-known classifications are from Fleishman (1964) or in Germany Bös (2001). The aim of this study was to investigate the differentiation and stability of the concept of motor abilities across childhood. Data were collected using the seven fitness/coordination items (e.g. sit-ups, jumping sideways, balancing backwards) of the German Motor Test (DMT 6-18; Bös et al., 2009). We examine the latent structure of motor abilities in eleven samples (790≤N≤1495, in total 13685) for the age groups from six- to ten-year-olds using item response theory modelling. For six-, seven- and eight-year-olds all seven items show a global model fit with respect to ordered threshold parameters for the one-class solution. For nine- and ten-year-olds six items meet the model requirements, balancing backwards had to be excluded due to unordered threshold parameters. This means a one-dimensional latent trait underlies the performance of the DMT 6-18. Further item analyzes show stability of relative item difficulty and reveal, that e.g. the item sit-ups is very difficult and well discriminating for six-year-olds. Existing taxonomies should be specified for particular age groups. For six-, seven- and eight-year-olds all seven items and for nine- and ten-year-olds the remaining six items can be accumulated to one valid general motor score. Analyzes show no differentiation of motor abilities across childhood but stability regarding to relative item difficulty. This meets the definition of a single trait underlying the performance of a wide variety of motor skills, e.g. motor competence (Haga, Pedersen, & Sigmundsson, 2008) or general motor ability (Burton & Rodgerson, 2001), rather than differentiated motor abilities in childhood.

- **Evaluation of basic motor competencies in primary school – development of a test instrument**

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A central aim of physical education (PE) is the promotion of basic motor competencies (BAMOC), which are prerequisites for children's active participation in sports culture. While instruments for measuring motor abilities in schoolchildren have been developed, less is known about the measurement of BAMOC. We introduce a newly developed measure of BAMOC, which contains dichotomous items representing eight BAMOC. Findings from two validation studies are presented. Study 1 (N=317 first-graders ♀=55%; M=7.0 years) took place in Zürich (CH) and study 2 (N=1061 first-graders ♀=45%; M=6.8 years) in Frankfurt (D). Both studies focused primarily on construct validity (e.g., the factorial validity of the instrument) and Study 1 also investigated the relationship between BAMOC and motor abilities. The studies also assessed the extent to which the instrument may be useful in detecting distinct pattern of BAMOC. Exploratory (EFA) and confirmatory factor analyses (CFA) as well as latent class analysis (LCA) were performed using MPlus. In both studies we found two factors consisting of four items each. The related EFA (Study 1: CFI=.98; RMSEA=.024) and CFA (Study 2: CFI=.95; RMSEA=.044) revealed good model fit indices. The first factor "Locomotion" represents body movements (e.g., balancing), the second factor "Object-control" represents ball control (e.g., catching). In Study 2 four distinct patterns could be identified by LCA, which indicate high and low "scorers" in each dimension. Adding four motor ability tests (e.g., jumping sideways, sprinting) in EFA with the eight BAMOC-items (CFI=.99; RMSEA=.031) did not result in a change of the BAMOC factor structure, indicating that motor abilities form a separate factor. The developed BAMOC test instrument meets

psychometric validity demands, i.e. factorial, prognostic and discriminant validity. Future research is warranted to further validate the psychometric properties of the measure.

S6.02: Symposium - Can't Get You Out of My Head: Examining the efficacy of visual and auditory distractions in the exercise context

Chair(s): Costas I. Karageorghis (Brunel University London)
Discussant(s): Stuart J. H. Biddle (Victoria University, Australia)

One of the most compelling challenges for public health in the 21st century is finding effective ways by which to increase physical activity and decrease sedentary behaviour (Biddle, O'Connor, & Braithwaite, 2011). After decades of focusing on cognitive variables, such as self-efficacy, perceptions of benefits and barriers, and appraisals of social support as the main drivers of motivation for physical activity, researchers are now also beginning to consider the possible role of affective variables, such as pleasure and enjoyment (e.g., Ekkekakis, Hargreaves, & Parfitt, 2013). Music- and video-related interventions are two obvious targets for research given their considerable popularity among exercisers as a means by which to improve the overall affective experience of exercise. The symposium presenters will begin by exploring the mechanisms that underlie the efficacy of visual and auditory distractions commonly used in the realm of exercise. They will continue with two recent studies on collegiate and clinical samples. The presenters will then appraise a range of music- and video-related applications in the exercise context and consider new evidence pertaining to the use of motivational primes. The first presenter will address potential mechanisms underlying visual and auditory distractions from a predominantly neurophysiological perspective. The second presenter will consider emerging evidence on the combined influence of music and video. The concept of "green exercise" will be highlighted and the affective benefits of music-and-video interventions applied above and below the ventilatory threshold will be expounded. The third presenter will detail the initial findings of a clinical investigation that entailed a music-video based intervention with older adults at the diabetes clinic of Mercy Medical Center in Springfield, Massachusetts – The Diabeates Project. The fourth presenter will illustrate how visual and auditory distractions might be exploited by exercise practitioners.

- **How does dissociation enhance affective responses to exercise? Shedding (near-infrared) light into the brain in search for answers**

Panteleimon Ekkekakis
Iowa State University, IA, USA

Discomfort and displeasure are commonly considered inevitable accompaniments of exercise among adults attempting to return to an active lifestyle after periods of sedentariness. These negative early experiences, however, often prove a substantial motivational barrier, leading to dropout. Of the various interventions aimed to alleviate the unpleasantness of exercise among physically deconditioned adults, attentional dissociation by music and video is the most extensively used in the field and, therefore, the one most likely to have an impact at the population level. While considerable experimental evidence suggests that dissociative interventions can indeed enhance affective responses to exercise, the underlying mechanisms remain unclear. The purpose of this presentation is to explicate the operational principles of near-infrared spectroscopy (NIRS) and illustrate its utility in the context of exercise. NIRS is the only brain imaging method that can yield estimates of oxygenated and deoxygenated haemoglobin in the human cortex during exercise, from which inferences can be made about neural activation. Recent studies have shown a biphasic response in the dorsolateral prefrontal cortex, with an increase in oxygenation at moderate exercise intensity, followed by a decrease when intensity approaches maximal capacity. This decrease has been associated with both the deterioration of affect and the limit of exercise tolerance. A study of recumbent cycling, using continuous ramps to maximal capacity, showed that, compared to association, inducing a dissociative attentional focus by music and

video can delay the decrease in oxygenation in the right dorsolateral prefrontal cortex and the accompanying decline in pleasure.

- **Emerging evidence on the combined influence of music and video during exercise**

Leighton Jones[1], Costas I. Karageorghis[2], Jasmin C. Hutchinson[3], Panteleimon Ekkekakis[4]
[1]Sheffield Hallam University, UK, [2]Brunel University London, UK, [3]Springfield College, MA, USA, [4]Iowa State University, IA, USA

Recent studies (e.g., Hutchinson, Karageorghis, & Jones, 2014; Jones, Karageorghis, & Ekkekakis, 2014) have sought to explore the effects of multiple purposely selected external stimuli (music and video) on affective responses during exercise. These studies have examined the effects of such stimuli in relation to the important biological marker of ventilatory threshold (VT). This marker has been identified as a key turn point in affective responses during exercise (Dual-Mode Model; Ekkekakis, 2003). However, interventions that seek to positively enhance the exercise experience beyond the VT are scarce. Jones et al. (2014) examined a range of psychological responses during cycle ergometry at exercise intensities below and above VT, and found that participants (N = 34) enjoyed music-only and music-and-video conditions more than video-only and control conditions at both intensities. Using a similar research design, Hutchinson et al. (2014) explored responses before, during, and after treadmill running. Participants (N = 24) responded most positively, and recorded the highest levels of dissociation, during a music-and-video combined condition at both exercise intensities. Key methodological differences between the Hutchinson et al. (2014) and the Jones et al. (2014) studies may have implications for future research efforts in this field. The findings that purposely selected stimuli (such as music and video) can influence attentional and affective responses beyond VT are significant in the context of exercise prescription. Interventions that enhance affect during the early stages of exercise participation—when exercise intensity frequently exceeds VT owing to low levels of physical fitness—may have a role in improving medium- and long-term adherence to exercise. With current audio-visual technologies, the potential to implement creative interventions during exercise is greatly enhanced.

- **The Diabeates Project: Effects of music and music-video during exercise in a clinical setting**

Jasmin C. Hutchinson[1], Costas I. Karageorghis[2], Suzanne T. Pottratz[1], Jessica D. Black[3]
[1]Springfield College, MA, USA, [2]Brunel University London, UK, [3]Mercy Medical Center, MA, USA

There is evidence that combined auditory and visual stimuli can significantly enhance the exercise experience (Hutchinson, Karageorghis, & Jones, 2014); however this effect has yet to be examined in a clinical exercise population. The present study examined the effects of music and music-and-video on physiological (blood glucose, heart rate), psychological (attentional focus, affective valence, enjoyment), and psychophysical (RPE) variables during exercise in a clinical outpatient setting. Patients with diabetes (N = 18) enrolled in a hospital-based supervised exercise programme completed 30 min of cardiovascular exercise and a strength training circuit under three conditions: music, music-video, and control. Analyses of variance revealed a main effect of condition on attentional focus ($p < .001$) and affective valence ($p = .011$) during cardiovascular exercise but not strength training. During cardiovascular exercise, the music-video condition yielded the highest level of dissociation, followed by the music-only condition, and then the control condition. Affective valence was more positive in the two experimental conditions compared to control. RPE and heart rate did not differ across conditions in either exercise modality. Post-session measures of exercise enjoyment revealed a main effect of condition ($p = .043$) and follow-up pairwise comparisons indicated that enjoyment scores were higher in the music-video condition than control. There was an acute glucose-lowering effect of exercise in all conditions ($p = .002$); paired t tests

indicated that the effect was more pronounced in the experimental conditions (Cohen's d = .67 and .66 for music- and music-video, respectively) compared to control (d = .44). In conclusion, while exercising with auditory and visual stimuli, diabetic patients experienced a larger decrease in blood glucose and reported higher affective valence and enjoyment scores compared to control. These findings have important implications for health outcomes and the promotion of exercise adherence in a clinical setting.

- **Has video killed the radio star? Advances in music and video-related interventions in the exercise context**

Costas I. Karageorghis
Brunel University London, UK

In the industrialized world, both music and video have become almost ubiquitous in the course of our everyday activities. Music videos are routinely streamed into gymnasia, teenagers develop an obsession for YouTube clips, and one's entire music library can now fit onto a digital device weighing little more than 30 grams. The central question to be addressed in this applied practice presentation is: "How can we harness the power of music and video to enhance the affective experience of exercise and promote greater adherence?" Empirical research has shown some promising initial evidence in regard to music and highlight videos (Barwood, Weston, Thelwell, & Page, 2009), music and videos used to create an immersive "green exercise" experience (Jones, Karageorghis, & Ekkekakis, 2014), traditional music videos (Hutchinson, Karageorghis, & Jones, 2014), and verbal primes combined with video highlights and music (Loizou, Karageorghis, & Bishop, 2014). Collectively, the evidence presented in such studies indicates that the combination of auditory and visual distractions during exercise can promote attentional dissociation as well as more positive affective responses at intensities below ventilatory threshold (VT) and up to 10% above VT. When the auditory stimuli are congruent with the visual stimuli (e.g., as in music videos), visual stimuli appear to have an additive effect if combined with asynchronous music. There is a further additive effect with respect to when verbal primes are embedded in highlight videos and presented with music prior to a motoric task (e.g., Loizou & Karageorghis, 2015). Priming techniques are concerned with activation of the organism and how environmental information (e.g., verbal cues) interacts with internal readiness to influence perceptions as well as motivations and behaviours. This presentation will illustrate by use of examples how music, video, and video-embedded primes can be integrated as motivational tools both prior to and during exercise. The implications are particularly salient for practitioners working with people who struggle to remain habitually active.

S6.03: Symposium - Exercise dependency

Chair(s): Melanie Schipfer (Martin-Luther-University Halle-Saale, Germany), Claudio Nigg (University of Hawaii, USA)
Discussant(s): Oliver Stoll (Martin-Luther-Universtiy Halle-Saale, Germany)

There are an increasing amount of overweight individuals in industrial countries, suffering from the consequences through illnesses such as diabetes type 2, cardiovascular diseases and metabolic syndrome ... The main therapy approaches are a balanced diet, exercise and medical treatment. On the other hand there are also an increasing amount of individuals aiming for/or trying to maintain good physiological and psychological health through a healthy diet and exercise. If this behaviour develops too excessively, it may lead to eating disorders (bulimia nervosa, anorexia nervosa), exercise dependency or a combination of both. While the reasons are multifactorial, these individuals have in common that exercise plays a vital role in their life. Exercise addiction presents itself through repeated, frequent, stereotyped exercise behaviour that results in physical and/or psychological harm. This can be difficult to reduce or control. In the recent past, exercise dependency has been connected to endurance sports, such as running. This is the sport where most of the studies regarding or relating to primary exercise dependence can be found. Numerous studies are available investigating eating disorders and secondary exercise dependency. In the past few years the amount of

research focused on exercise dependency is noticeably increasing. This interdisciplinary symposium combines different point of views and approaches to deal with exercise dependency as a multifactorial phenomenon involving the following topics : (1) Testing the plausibility of the physical activity maintenance (PAM) theory; (2) Exercise dependence, eating disorders and fitness sport; (3) The exercise-addiction/exercise-commitment-model; (4) Exploring the relationship between psychological structure and exercise dependence.

- **Exercise dependence, eating disorders and fitness sport**

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Exercise dependence in females with eating disorders (ED) is common. Fitness centres have become fashionable places to be and may be considered high-risk environments for the development of ED. Nevertheless, studies on ED among female fitness class participants are rare and studies on exercise dependence among females with ED often used quantitative methods only. Using both quantitative and qualitative methods, the purpose of this study was to identify and better understand exercise dependency in fitness classes among females with ED. A total of 1270 women who attended fitness classes and who ranged in age from 14 to 30 years (M=23.68, SD=3.04) completed a questionnaire, including the “Eating Attitudes Test” (EAT-26) and the “Exercise Dependence Scale-Revised” (EDS-R). In addition, forty women who participated in fitness activities (25 of whom were suffering from ED and 15 of whom were not) were interviewed. Results show a total of 10.31% of fitness class participants at risk in the development of ED (EAT-26 score ≥ 20). Both quantitative and qualitative data show that exercise dependency is related to ED. Nevertheless, females with ED engaged preferentially in certain specific fitness activities (cardio-based classes) and in private fitness centers. They used sometimes fitness activities to lose weight, but fitness sports were not their main physical activities and were only used in complement to other less structured and more individualized cardio activities, where they could manage more freely their sport engagement. It seems important to target prevention actions to the most popular fitness activities among females with ED.

- **Testing the plausibility of the physical activity maintenance (PAM) theory**

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Purpose: Physical activity maintenance (PAM) is not well understood but has important long term protective health outcomes. Therefore, the purpose of this study is to explore the applicability of the PAM Theory in a study of moderate and vigorously active adults. Methods: Participants (N=144; 76.4% female; mean age=42.65 (SD=14.96) years; BMI=23.64 (SD=3.56) Kg/m2 ; 57.0% married; 84.4% had a college degree or higher; 72.7% Caucasian) who were moderately active for at least three months qualified and completed an online survey of the PAM variables (satisfaction, attainment and commitment of goal-setting; self-motivation, pros and cons; barrier and relapse self-efficacy; the PA environment, social environment, and life stresses). PAM was operationalized as the PAM volume of lifetime minutes of MVPA. Results: The psychological variables are correlated at $p<.01$ with MVPA volume, whereas the social environment and life stress only at $p<.05$, and the physical environment not at all. Regressing the PAM predictors explained 28% MVPA volume. Pros and cons were the only significant predictors of MVPA volume ($p<.05$). Conclusion: Preliminary support for the psychological variables of the PAM model was found. Studies testing specific interventions related to various aspects of the proposed theory may provide further understanding of PAM and stronger evidence for or against the PAM model.

- **Exercise-addicion/exercise-commitment-model (EACOM)**

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Exercise-addiction/exercise-commitment-model is a connection of Schack`s (2000) 'model of exercise dependency in endurance sport' and Brown`s (1997) 'hedonic management model of addiction' including obsessive passion and concerns of imperfection as moderating variables of primary exercise addiction. The aim of this study was to verify the EACOM empirically. The sample consists of N=317 athletes exercising minimum four hours per week. They completed 'questionnaire to diagnose exercise dependency in endurance sport' (FESA; Schipfer & Stoll, 2013), 'multidimensional inventory of perfectionism in sport' (Stoeber et al., 2004), 'social readjustment rating scale' (Holmes & Rahe, 1967), 'passion scale' (Vallerand et al., 2003) and 'locus of control' (Krampen, 1991). Spearman's correlation and CATREG were used for data analysis. Based on these results the FESA total score (criteria), obsessive passion (predictor) and concerns of imperfection (predictor) were analyzed by the structural equation model (SEM). Univariate ANOVA was used to determine FESA total score differences between committed, focused and risk of exercise addiction. Appreciable correlations were found between FESA total score and obsessive passion (r=.523) and FESA total score and concerns of imperfection (MIPS; r=.368). CATREG shows a R2=.349 (R2cor.=.332) and SEM a CFI=.920, RMSEA=.070 and TLI=.905. Committed, focused and at risk of exercise addiction athletes differ in FESA total score and obsessive passion increases from committed over focused up to at risk of exercise addiction. The degree of obsessive passion and concerns of imperfection seem to have a moderating effect on the occurrence of exercise addiction, which confirms one of the assumption of the EACOM.

- **Exploring the relationship between psychological structure and exercise dependence**

Almut Zeeck, Hasan Alatas, Viola Welter, Armin Hartmann
Albert-Ludwig-University, Freiburg, Germany

There are different theoretical models on the etiology of exercise dependence (Schipfer, 2015; Zeeck et al., 2013), but they lack a developmental and psychodynamically informed perspective. Current psychodynamic theory which integrates evidence from developmental psychology and attachment theory might add important aspects to the understanding of pathological forms of exercising. Based on psychodynamic theory, it is assumed that pathological exercising (or exercise dependence) serves a psychological function in individuals with restricted structural abilities as operationalized with the Operationalized Psychodynamic Diagnosis (OPD axis IV, OPD Task force 2008). We hypothesise that deficits in psychological structure will show a significant relationship to current low self-esteem, negative affect and body dissatisfaction ("dysphoric mood"). We further assume that "dysphoric mood" shows a significant relation to features of exercise dependence. Finally, we expect that structural deficits will have no direct relation to exercise dependence. In a cross-sectional study, 250 students and visitors of fitness-centers are asked to fill in questionnaires on psychological structure (OPD-SF; Ehrenthal et al., 2012), body image (DKB-35; Pöhlmann et al., 2013), attachment (BFPE; Höger & Buschkämper, 2002), self-esteem (Rosenberg, 1965), emotion regulation (DERS; Ehring et al., 2008) and body dissatisfaction (EDI-2; Meermann et al., 1987). Features of exercise dependence are assessed with the Exercise Dependence Scale (Hausenblas & Symonds-Downs, 2002). Structural equation modeling (Leonhardt 2013) will be used for data analysis. Recruitment and data analysis will be finished by June 2015.

S6.04: Symposium - Innovative concept for adaptation under stress

Chair(s): Gershon Tenenbaum (Florida State University), Selen Razon (Ball State University), Edson Filho (University of Cheiti), Itay Basevitch (Anglia Ruskin University)

The symposium consists of one conceptual and four papers which interactively aim at presenting the concept adaptation processes under stress. First, an innovative probabilistic approach to the concept of adaptation is presented. The approach assumes that emotions, cognition, and behaviors result from a perceptual difference between how one perceives his/her self and how he/she perceive the environmental demands. A positive difference between the two perceptions evokes an approach motivation, positive feelings, efficient cognitive processes, and constructive behaviors, while the opposite is true when the difference is negative. One presentation consists of adaptation to a juggling task when performed in two modes (e.g., individually and together) and several difficulty levels. Attention, emotional and physiological adaptations to the two conditions showed unique patterns when performed individually and synchronization pattern when performed together. Another presentation summarizes a volume of experimental studies pertained to effort perception and attention allocation as a function of workload. A final presentation introduces a team sport decision-making model where one must process information and anticipate the moves of rival and peer actors. A positive adaptation is evident when processes such as gaze behaviors, cue utilization, anticipation, and decision-making are efficiently utilized; all of which are dependent on the capacity to adapt to the temporal and spatial environmental characteristics. Critical concepts, crucial assumptions, and future directions are discussed and elaborated on.

- **Adaptation to environmental stressors: A conceptual framework and experimental evidence**

Gershon Tenenbaum[1], Selen Razon[2]
[1]Florida State University, [2]Ball State University

A two-perception probabilistic concept of adaptation is presents and experimentally validated. The concept accounts for both fast and slow adaptation processes which are distinguished on a time axis. The concept consists of the perceptual difference (termed herein a quantum) between how one perceives his or her abilities, skills, and capacities (βv) to interact, cope, and perform a given task, and how he/she perceive the task difficulty (δi). Thus, the adaptation process is determined by βv – δi. Fast adaptation processes target aspects that require immediate responses, while slow adaptation processes involve ongoing adaptation to long-term demands. We introduce this concept in several domains of inquiry which rely on fast adaptation process (perceptual-cognitive-action coupling, performance routines, psychological crisis, reversal states), slow adaptation process (career aspirations, burnout), and processes that can be either fast or slow (flow, affect and mood changes, emotion regulation). We also show how the data and concepts presented in the following presentations (synchronization of physiological and perceptual components in dyadic interaction, shared mental model in team situation, and adapting to physical stress) can be explained by this concept.

- **Shared coordination in dyadic juggling: Perceptual-cognitive and physiological synchronization**

Edson Filho[1], Davide Pierini[1], Silvia Comani[1], Claudio Robazza[1], Gershon Tenenbaum[2], Maurizio Bertollo[3]
[1]University of Cheiti, [2]Florida State University, [3]University G. d\'Annunzio Chieti-Pescara

Recent efforts in social cognition have been directed to decision making in team sports, particularly through interactive tasks (Schilbach et al., 2013). In the current study we detected physiological markers underlying the conceptual notion of “shared mental models" through biofeedback monitoring of two professional jugglers performing a juggling task of

increasing difficulty. The two participants had over 10 years of experience and were able to juggle seven balls in the "shower juggling pattern". The participants' breathing and heart rates were measured with two synchronized Thought Technology biofeedback systems (FlexComp Infiniti-System) in two experimental conditions: "individual" and "interactive". In the "individual" condition jugglers performed a solo task. In the "interactive" condition the two jugglers established a cooperative interaction by juggling sets of balls with each other. In both conditions, the number of balls juggled increased (3, 5, 7 balls) in congruence with the "perturbation paradigm" in social neuroscience (Kelso, 2012). We also collected data on psychosocial variables. Specifically, we asked participants to report their arousal and pleasantness levels, attention strategy, perceived self-efficacy and other's efficacy. Inferential analysis revealed that the jugglers' heart rate and breathing rate differed in the "individual" but not "interactive" condition, thus signalizing a synchronization of physiological responses throughout the dyadic interaction. Jugglers' synchronization of physiological responses was positively related to task difficulty, with greater synchronization in the moderate and hardest tasks (i.e., 5 and 7 balls). Patterns of arousal, pleasantness, self and other efficacy mirrored their juggling partners, with attention being related to the task difficulty. Altogether, these results suggest that individuals create a "we-space", manifested through synchronization of physiological and socio-cognitive appraisals, in interactive tasks in which shared decision making is paramount for optimal performance.

- **Visual information and decision making in team sports**

Itay Basevitch[1], Gershon Tenenbaum[2]
[1]Anglia Ruskin University, [2]Florida State University

Athletes perform complex motor tasks that require efficient cognitive processes (i.e., decision making (DM)). To perform these tasks successfully athletes must rely on visual cues from the environment. The majority of research in the sport domain has focused on individual sport settings (e.g., tennis serves, penalty shots). Findings from these studies indicate that efficient search strategies, and cue utilization techniques, facilitate an athlete's ability to successfully predict what will occur next, and contribute to the achievement of successful performance. However, in team settings visual information is more complex than in individual settings (e.g., more athletes are involved), consequently affecting the DM process. Specifically, in team settings athletes are required to integrate information in situ from two main sources, individual player movements with changes in team patterns and formations. Thus, we propose a specific Team Sport Decision Making (TSDM) model that is based on a study conducted to examine DM processes in soccer (Basevitch & Tenenbaum, 2013). In the TSDM model we emphasize the characteristic differences involved in processing individual movement and team pattern information. These include: (a) temporal – rate of information change and crucial temporal points, (b) spatial – area and location of information, and (c) complexity of information – including coordination and communication. The model further describes the integration of both sources of information and the effects on relevant cognitive processes, such as gaze behavior, cue utilization, anticipation and decision making. Additionally, based on the proposed model future research studies and applications for coaches and athletes are discussed.

Sensory stimuli and effort perception in sport and exercise

Selen Razon[1], Itay Basevitch[2], Edson Filho[3], Gershon Tenenbaum[4]
[1]Ball State University, [2]Anglia Ruskin University, [3]University of Cheiti, [4]Florida State University

Effort perceptions are important determinants of effort output in sport and exercise. Effort-related Model (ErM; Tenenbaum, 2001) purports that effort perceptions increase as a function of task intensity and time on task. The notion of attention threshold implies that beyond specific intensities and time spent on task, dissociative attention is compromised and associative attention begins dominating the focal awareness to accelerate the cessation of the applied effort. Consistent with the ErM view and attention threshold framework, Dual

Mode Model (DMM; Ekkekakis & Acevedo, 2006) also stipulates that during activities above ventilator threshold (VT) effort perceptions take over the awareness and negative affect responses (to the activity) result. A series of trials were conducted to test the effectiveness of select sensory stimuli to mediate attention focus to impact effort perceptions and effort output. Specifically, the effects of visual, auditory, and olfactory stimuli were tested on effort perceptions and effort expenditure. A number of protocols ranging from hand-grip squeezing to cycling above VT were used. Attention focus, rates of perceived exertion (RPE), time on task, heart rate (HR), and lactic acid accumulation were measured. Drawing upon the findings, practical recommendations to optimize performance and effort output through attention mediation are outlined. Caveats and considerations for future research are discussed.

S6.05: Symposium - Issues of violence and violence perception in football

Chair(s): Annemarie Schumacher Dimech (University of Bern)

Individual perception of potential and actual violence applied to the football context is the phenomenon under scrutiny in this symposium. Perception influences various associated factors such as one's experience of a violent situation, legitimisation of a possible violent reaction as well as decision-making. Moreover, violence perception has an effect on both individual (Geen, 1998) as well as group behaviour/reactions (e.g. Elaborated Social Identity Model; Drury & Reicher, 2000) to the actual or potentially violent situation. Further knowledge about this phenomenon supports a better understanding of individual as well as group violence in football and contributes to the further development of preventive and control strategies. Perception of potential and actual violent situations involving fans as well as the influence of football uniforms' colour on violence perception are the main topics in this symposium. In the first presentation, a working definition of critical situations (CS) involving football fans is put forward: Observable criteria defining a CS were identified using an expert focus group. In the the next presentation, theory and research findings are applied to eight case studies of CSs in Swiss national league football. Individuals involved in identified CSs were interviewed using the narrative method providing a comprehensive, multi-perspective picture of each situation and its dynamics. The third presentation illustrates an investigation of socio-psychological determinants of hooliganism in Chinese association football. Incidents from the past twenty years between two rival clubs' fans were examined and main factors contributing to violence identified. In the closing presentation, the influence of footballers' uniform colour on violence perception is discussed. Results show a significant influence of the colour red on spectators' judgements relating to harshness of foul play. A general discussion is planned to follow these presentations.

- **Identifying observable criteria defining a critical situation involving football fans: an expert focus group study**

Annemarie Schumacher Dimech, Alain Brechbühl, Roland Seiler
University of Bern, Switzerland

Critical situations (CSs) involving football fans is a well-researched phenomenon with most studies examining factors leading to an escalation of violence (e.g. Braun & Vliegenthart, 2008). However, research so far has fallen short of analysing CSs that do not escalate (e.g. Hylander & Guvå, 2010) as well as establishing observable criteria that constitute such CSs. Granström et al. (2009), for instance, put forward a definition of a CS describing such situations as characterised by a discrepancy between peace and war-making behaviours between police and demonstrators. Still, this definition remains vague and does not provide concrete, defining criteria that can be identified on site. The present study looks beyond fans' violent acts per se and focuses on these situations with a potentially – but not necessarily - violent outcome. The aim of this preliminary study is to identify observable criteria defining such a CS involving football fans. This focus group comprised of five experts working with football fans in the German-speaking area of Switzerland who discussed observable characteristics of a CS. Inductive content analysis led to the identification of

specific criteria such as, “arrest of a fan”, “insufficient distance (<30m) between fans and police” and “fans mask themselves”. These criteria were then assigned to four phases of a CS highlighting the dynamic aspect of this phenomenon: Antecedents, Causes, Reactions, Consequence. Specifically, Causes, Reactions and Consequences are observable on site, while Antecedents include relevant, background information directly influencing a CS. This study puts forward a working definition of a CS that can facilitate the assessment of actual situations in the football context as well as for further research on fan violence prevention and control. These results also highlight similarities with studies investigating fan violence in other European countries while acknowledging unique characteristics of the Swiss German fan culture.

- **Perceptions of critical situations involving football fans: the dynamics of conflict escalation or de-escalation**

Alain Brechbühl, Annemarie Schumacher Dimech, Roland Seiler
University of Bern, Switzerland

Fan violence in the context of football matches has drawn the attention of stakeholders and the media. This phenomenon has also attracted the scientific community’s attention, where research mostly focused on reasons for violence escalation. The Elaborated Social Identity Model (ESIM; Drury & Reicher, 2000) for example focuses on group-interactions and social identities, while the Aggravation Mitigation Model (AM model; Hylander & Guvå, 2010) concentrates on factors contributing to an escalation or a non-escalation of group-violence. However individual perceptions of the different persons involved in potential conflicts have not been sufficiently examined. Beside of that research in domestic football or involving ultra-fans is scarce. Especially in Switzerland, there is a lack of research concerning the dynamics of the development or non-development of fan violence. This exploratory study included eight critical situations from the season 2012/2013 of the Swiss premier league to gather data about the perceptions of various persons involved (fans, police officers or security) and the dynamics contributing towards escalation or de-escalation. Fifty-nine narrative interviews were conducted and analysed with interpretative phenomenological analysis (Smith, Flowers, & Larkin, 2009). The individuals involved (fans, police and security personnel) showed group-specific perceptions and a tendency to stereotype the opponent group. Provocative symbols (balaclavas or riot-gear uniforms) were important for the interpretation of the situation. No escalation occurred when successful communication and sufficient distance between the groups was established. Knowledge about the local fan culture is important, because it influences the perception of legitimacy on the side of the fans. This study improves the understanding of fan violence and is congruent with the ESIM and the AM model. It is suggested to deploy police dialogue teams without riot gear. Their task is to establish direct communication with the fans to facilitate a peaceful ending of a critical situation.

- **A social psychological analysis of violence between Beijing Guo’an supporters and Tianjin Teda supporters in the past twenty years**

Mei Yang
Wuhan Sports University, China

The rivalry between Beijing Guo’an and Tianjin Teda represents the extremity of football hooliganism in China, embracing deep social, economic, cultural, and psychological factors. The purpose of this study is to understand and identify such factors so as to contribute towards the anticipation, prediction and control of future violence. Incidents of violence between Beijing Guo’an and Tianjin Teda supporters at the football matches of the past twenty years were examined applying Simons and Taylor’s (1992) psychological model of fan violence. A literature study, questionnaire, video and logical analysis were employed to investigate attitudes and behaviour of the two teams’ supporters. Results focus on five severe clashes out of the 21 matches. Regionalism ranked top of the reasons for these clashes. Conflicts between supporters of the two teams led to rivalry between the cities of

Beijing and Tianjinan as supporters viewed their teams as an extension of themselves and experienced defeat as a personal threat. When violence occurred, supporters employed numerous methods of stadium aggression in order to maximize humiliation and shame the opponent. “Jingma”, obscenities screamed in Beijing dialect at Teda supporters, was a direct cause of the violence. Violence was also closely related to the dissatisfaction with the referees and to the supporters’ social status. About 80% of the supporters involved were self-employed young males. Besides, the media and the supporters’ blogs targeting opponent teams exacerbated and escalated the violence. The administrative system with the Chinese characteristics was accountable for the loss of control over violence. Nonetheless, a decrease of violence in the last five years is ascertained due to the popularity of “wechat” as supporters do not want to be exposed online. Furthermore, with rising consumption power, supporters focused more on personal concerns, enjoyment, luxuries, and less on involvement in violence.

Do red uniforms increase individuals’ judgements of aggression in association football?
Björn Krenn
University of Vienna

Past research ascertained that uniform colour affects athletes’ performance (Hill & Barton, 2005) as well as referees’ decisions in sport (Krenn, 2014). Athletes wearing red were judged to be more aggressive and dominant, which was associated with beneficial (e.g., in combat sports; Hill & Barton, 2005) but also negative outcomes. In this regard, Krenn (2014) found that football tackles committed from behind were judged more harshly for players wearing red. The current study examines the effect of red uniforms on tackle judgments in football and considered possible interactional effect with crowd noise (Unkelbach & Memmert, 2010). Students of sports sciences (n = 132) with experience in football judged 24 video scenes of football tackles with or without crowd noise from 1 (no foul) to 9 (very harsh foul). The uniform colour of the team committing the tackle was changed to blue and red, whereas the opposing team’s uniform was achromatic. Participants were randomised to four groups judging each scene once (Randomising red vs. blue/crowd noise vs. no crowd noise). ANOVA revealed that tackles committed from behind by a player wearing red were judged more harshly than those committed by a player in blue ($F(1, 131) = 4.51$, $p = .04$, $\eta 2 = .03$). Moreover, crowd noise increased the perceived harshness of tackles ($F(1, 131) = 11.68$, $p < .01$, $\eta 2 = .08$), whereas interaction with uniform colour did not turn out to be significant ($F(1, 131) = .50$, $p = .90$). Tackles committed from the side or from the front did not reveal significant findings related to uniform colour. These results emphasize the role of uniform colour in sports and its impact on social perception. It appears that the colour red signalises aggression and dominance causing harsher tackle judgments for players wearing red uniforms in football.

S6.06: Symposium - Determinants of performance in sports teams
Chair(s): Stewart Thomas Cotterill (University of Winchester)

There has been a renewed focus in recent years on the factors that both influence and determine performance and increasingly well-being in sports teams. This reflects a recognition that performance in teams is a complex phenomenon with a wide range of variables influencing performance outcomes. Indeed, research in this area has moved beyond an exploration of group dynamics to explore a range of more focused factors including leadership, resilience, confidence, and the complementary fit of individuals within the team. As a result, the main aim of this symposium is to explore a range of factors that impact directly or indirectly upon the performance of sports teams. Specific presentations will explore a number of domains within both soccer and rugby union. The symposium will also explore a range of methodological approaches that can be utilized in the study of sports teams and related performance factors. These presentations will also serve as the starting point for a wider discussion about factors both influencing and determining team

performance. The four presentations will explore a range of differing factors that each both influence and determine performance in sports teams. The first presentation will explore leaders' capacity to enhance confidence and performance by strengthening players' team identification. The second presentation will explore resilience in elite rugby world cup winning players. The third presentation will explore the relationship between symmetric and complementary fit and identification, performance, and well-being in soccer teams. The final presentation explores the impact of the team captain on performance from the perspective of the captain.

- **Believing in 'us': Leaders' capacity to enhance confidence and performance by strengthening players' team identification**

Katrien Fransen[1], Alexander Haslam[2], Niklas Steffens[2], Norbert Vanbeselaere[1], Bert De Cuyper[1], Gert Vande Broek[1], Filip Boen[1]
[1]KU Leuven, [2]University of Queensland

Although the majority of leadership research has focused on the coach, also athletes within the team can influence their teammates' feelings and behaviour. This presentation includes two experimental studies that examined the impact of athlete leaders' confidence on their teammates' confidence and performance. Study 1 (Fransen, Haslam, Steffens, Vanbeselaere, De Cuyper, & Boen, 2015) included 102 male basketball players, whereas Study 2 (Fransen, Steffens, Haslam, Vanbeselaere, Vande Broek, & Boen, 2015) included 144 male soccer players. In both studies, players participated in groups of four under the guidance of a team leader (a confederate). In order to manipulate the leader's team confidence, the appointed athlete leader of each newly formed team (i.e., the confederate) expressed either high or low team confidence. In Study 2, a neutral experimental condition was added. The results of both studies revealed an effect of team confidence contagion such that team members had greater confidence in the team when the leader expressed high (rather than low) confidence in the team's success. Second, in line with the Social Identity Approach to leadership (Haslam, Reicher, & Platow, 2011), structural equation modelling demonstrated that this effect was partially mediated by team players' increased team identification. Third, a significant interaction effect indicated that when the leader expressed high (versus low) team confidence, team members' performance increased (versus decreased) during the test. Athlete leaders thus have the capacity to create a team confidence contagion within their team in both positive and negative ways. The present studies went beyond mere description and sought to explain the underlying mechanisms through which this contagion occurs. In doing so, the findings highlighted that leaders' team confidence can be transferred to the confidence of team members, by strengthening members' connection to the team and by facilitating efficacious team behaviours. More specifically, by showing that leaders believe in 'us', leaders are able not only to make 'us' a psychological reality but also to transform 'us' into an effective operational unit. It is by such means that teams of champions can become champion teams.

- **Understanding team resilience in the world's best athletes: A case study of a Rugby Union world cup winning team**

Paul Morgan[1], David Fletcher[2], Mustafa Sarkar[3]
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The recent developments in resilience research have advanced psychologists' knowledge of the nature, meaning, and scope of team resilience. Although Morgan et al.'s (2013) study extends resilience research by providing definitional clarity of resilience at a team level (i.e., what team resilience is) and proposing a framework to profile the resilient characteristics of elite sport teams (i.e., what resilient teams look like), this knowledge does not explain how resilient teams function. The objective of this study, therefore, was to explore the psychosocial processes underpinning team resilience in elite sport. Narrative inquiry was

employed to better understand team resilience. The sample consisted of eight members of the 2003 England rugby union World Cup winning team. The autobiographies of these team members were analyzed using three types of narrative analyses: holistic-content analysis, holistic-form analysis, and categorical-form analysis. The quality of the methodological approach was evaluated using four main criteria: purposive sampling, consensual validation, the development of width and comprehensive evidence, and practical significance. Findings revealed five main psychosocial processes underpinning team resilience: transformational leadership, shared team leadership, team learning, social identity, and positive emotions. An examination of narrative structure within the autobiographies revealed a progressive narrative form characterized by a collective positive evaluation of setbacks. This study extends previous team resilience research by going beyond the identification of resilient characteristics to explaining the underpinning psychosocial processes. To achieve success at the highest levels of elite sport, the cultivation of team resilience processes appear to be pivotal over time in protecting teams from the pressures encountered along the pathway to excellence. It is anticipated that this study will provide practitioners with a framework to build team resilience during the course of a team's journey.

- **The relationship between symmetric and complementary fit and identification, performance, and well-being in soccer teams**

Christian Zepp, Jens Kleinert
German Sports University Cologne

Symmetric and complementary fit between a person and a group influences the identification, well-being and the individual's ability to perform (cf. Kristof-Brown, Zimmerman & Johnson, 2005). Aim of the study was to analyze and describe the influence of symmetric and complementary fit on the individual's ability to perform and well-being in soccer teams. In addition, we examined, if identification is able to mediate this influence.The sample consists of N = 294 athletes (54.7 % male; M age = 23.6 yrs, SD age = 4.4 yrs) from twenty soccer teams. Symmetric and complementary fit (α = .79-.82) as well as identification (α = .75-.91) were assessed using self-developed questionnaires. Affective well-being was operationalized using the multidimensional state questionnaire (α = .84; Steyer, Schwenkmezger, Notz, & Eid, 1997). To assess the individual ability to perform, athletes were asked to indicate what percent of their total performance ability they were able to exhibit on their current team. Results demonstrate that identification was able to mediate the influence of symmetric fit on the individual ability to perform (point estimate = 4.88, SE = 2.04, BCA CI LLCI = 1.25, BCA CI ULCI = 9.25) and well-being (point estimate = 0.38, SE = 0.06, BCA CI LLCI = .27, BCA CI ULCI = .51). Only a direct effect from complementary fit on the individual ability to perform was identified (B = 7.16, SE = 2.31, p = .002). Identification appears to be one necessary condition for the relation between symmetric fit and both, well-being and the individual's ability to perform. Additionally, as complementary fit influences the athlete's perception of his or her abilities within their respective team, complementarity in sport teams could be one mechanism to enhance individual and team performance.

- **An exploration of the role of the captain in determining team performance: The captains perspective**

Stewart Cotterill, Richard Cheetham
University of Winchester

Effective leadership in sport at the elite level can make the difference between success and failure. Indeed, effective leadership has been highlighted as a factor both influencing and determining team performance under pressure. However, while this is the case there is little research that has explicitly explored the role of the captain, and less still that has explored the role from the Captains perspective. As a result the aim of this study was to explore the challenges of leadership from the captains' perspective. The participants were 4 elite (professional) rugby captains who were interviewed individually to gain an understanding of

each participant's perspective on the role and influence of the team captain relating to team performance. The data were thematically analysed using interpretative phenomenological analysis (IPA) to highlight emergent themes and to identify links between themes. Preliminary data analysis identified 8 super-ordinate themes emerged; decision-making, challenges, managing relationships, leading by example, personal characteristics, development, communication and reputation. However, a fuller set of findings will be presented at the conference. The general themes that emerged from the participants suggest that the captain players an important role both on and off the pitch within the domain of professional rugby union. However, while this is the case there appears to be little structured developmental opportunities for captains within the sport.

S6.07: Symposium - Prevention and rehabilitation of sport injuries

Chair(s): Urban Johnson (Halmstad University, Sweden)

During the last 10-15 years a steady increase of studies has been published in scholars about psychosocial factors and sport injuries. This is especially valid for studies focusing competitive sport and prevention intervention designs, but also identification of critical psychosocial factors mediating injury occurrence in sports settings. As will be presented in this symposium, promising results exist in relation to prevention of sport injury incidence as well engagement in critical factors during rehabilitation. Altogether five studies will be presented. In a research overview of studies based on the stress and athletic injury model, present results that support the model's suggestion that stress responses have a direct relationship with injury will be firstly be presented. In the second presentation, a review of seven psychological prevention interventions' effects of reducing sport injuries will be emphasized, concluding that results indicate that psychological injury prevention interventions have a large effect on reducing the number of injuries in sport populations. In the third presentation it is highlighted the importance of considering behavioral mediation of the effects of sport injury prevention interventions and emphasize is stressed on the importance of assessing and reporting adherence in investigations of sport injury prevention interventions. In a study aimed to evaluate the effect of a stress management injury intervention program based on Spanish youth soccer players, the fourth presenter show results that underline the effectiveness of applying a well-organized program in reducing the number of injuries suffered by the players. Finally, the fifth presenter examine anxiety moderators during sport injury rehabilitation, and highlight the usefulness of studying cognitions and coping strategies in understanding the influence of rehabilitation adherence and rehabilitation process among elite athletes. In the symposium practical implications for athletes, coaches and sport psychology practitioner will be discussed, such as intervention programs helping athletes decrease their stress responses.

- **Psychosocial predictors of sport injury rates: A meta-analysis**

Andreas Ivarsson[1], Urban Johnson[1], Mark B. Andersen[1], Ulrika Tranaeus[2]
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Sport injury prediction research has traditionally focused on physiological and physical factors. Nevertheless, during the last 30 years there has been increased interest in psychosocial factors related to sport injuries. The most cited theoretical model developed to explain psychosocial variables' influences on injury risk is the model of stress and athletic injury (Williams & Andersen, 1998). The model, suggests that personality (e.g., anxiety, hardiness), history of stressors (e.g., life event stress, daily hassles), and coping (e.g., social support resources) will influence athletes' stress responses (e.g., physiological, attentional changes) that, in turn, are related to injury risk. The aim of the study was to examine the past research on the relationships of the psychosocial variables in the model (i.e., personality, history of stressors, coping, stress responses) on sport injury rates. The literature review resulted in 47 published studies and 180 effect sizes. The results showed that stress responses (r = .22, 80% CI = .14 - .30) had the strongest associations with injury rates. Moreover, history of stressors (r = .12, 80% CI = .11 - .13) and coping (r = -.05, 80% CI = -

.03 - -.08) had smaller relationships with injury rates. Finally, the associations of positive (r = .01, 80% CI = -.03 - .04), as well as negative (r = .01, 80% CI = -.01-.03) personality variables on injury rates was marginal. The results support the model's suggestion that stress responses have a direct relationship with injury, whereas other variables potentially have indirect relationships with injury rates. In line with these findings it is suggested that intervention programs should focus on helping athletes decrease the magnitude of their stress responses.

- **Do psychological based intervention programs prevent sport injuries to occur?**

Ulrika Traneus[1], *Andreas Ivarsson[2], Urban Johnson[2]*
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Researchers have suggested psychological factors as possible risk factors to sport injuries (Bahr & Krosshaug, 2005; Williams & Andersen, 1998). Consequently, studies have been conducted aiming to evaluate psychological prevention interventions' effects of reducing sport injuries. The purpose was to conduct a systematic review of published articles aiming to prevent sports injuries with psychological interventions and to perform a meta-analysis of the effects in such interventions. Appropriate electronic databases and also sport psychology journals were searched for published studies. Out of 560 screened articles, 15 were potentially eligible studies. With additional information from the authors of some of the studies, finally, seven articles were included in the meta-analysis. These articles fulfilled the inclusion criterion: sport injury prevention using psychological interventions, study designs that included control groups, and necessary data available in article or from authors. The participants were mainly soccer players and athletes in individual sports at high competitive level of both genders. The aged ranged from14 to 33 years. The main outcome in the studies included in the analysis was injury frequency. All studies but one resulted in fewer injuries per person in the intervening group compared to the control group. The intervention strategies were stress management and cognitive behavioural therapy, e.g. stress inoculation training and relaxation. Length of interventions varied between 1 and 19 (M = 8, SD = 6.16) weeks and contained 1 to 36 (M = 11.57, SD = 11.64) sessions. The result showed a total Hedges' g effect size of 0.82 ($p < 0.001$), 95 % CI (0.55 to 1.11). The results indicate that psychological injury prevention interventions have a large effect on reducing the number of injuries in sport population and are suggested to be incorporated in the sport injury prevention strategies. Consequently, it is recommended to include sports psychologists in the sports medical team.

- **Behavioral mediation of the effects of sport injury prevention interventions**

Britton W. Brewer
Springfield College, USA

A variety of training, equipment, regulatory, and psychosocial interventions have been implemented to prevent sport injuries. Although not always recognized explicitly, the effects of the interventions on sport injury prevention outcomes (e.g., injury occurrence, time loss) are all behaviorally mediated. Presumably, preventive interventions can only be effective to the extent that athletes, coaches, sports health care professionals, or other individuals implementing the interventions adhere to validated intervention protocols. Consequently, the purpose of this presentation is to discuss issues associated with adherence to interventions intended to prevent the occurrence of sport injury. Not consistently measured in research studies and reported in journal articles, values for adherence to sport injury prevention interventions in the literature range from 0% (Duymus & Gungor, 2009) to 100% (Heidt, Sweeterman, Carlonas, Traub, & Tekulve, 2000). Meta-analytic evidence of an inverse dose-response relationship between adherence to preventive intervention protocols and the occurrence of ACL injuries (Gagnier, Morgenstern, & Chase, 2013) illustrates the behavioral mediation of the effects of sport injury prevention interventions and highlights the importance of assessing (ideally with validated measures) and reporting adherence in investigations of

sport injury prevention interventions. Consideration of behavioral mediators of the effects of sport injury prevention interventions has important implications for efficacy versus effectiveness trials in research and is essential to understanding whether and how preventive interventions work.

- **Stress management intervention with Spanish youth soccer players for preventing sport injuries**

Aurelio Olmedilla[1], Victor Rubio[2], *Enrique Ortega[1], Alexandre García-Mas[3], Pilar Fuster-Parra[3], Ana Boladeras[1]*
[1]Universidad de Murcia, Spain, [2]Universidad Autonoma Madrid, Spain, [3]Universitat de les Illes Balears

Psychosocial stress has been found to play a crucial role in sport injury (Andersen & Williams, 1998). It is expected that psychological interventions aimed to improve stress management should reduce such incidence. Nevertheless, there are a few empirical studies trying to test so. The present work shows the results on sport injury incidence of a psychological intervention based on stress management with Spanish youth male soccer players. Twenty-eight soccer players from two different teams (from 16 to 19 years old; Mean = 17.5) participated in the study. Both teams competed in the Spanish National Youth Championship. The stress management program included relaxation training and arousal control. The program was delivered during the second half of the season. It took six 1-hour sessions on a group basis including a preliminary presentation, the skill training itself and a final discussion and summing-up. Injuries sustained during the previous and the first half of the current season were recorded retrospectively from players' and coaches' report. Injuries sustained during the second half of the season were gathered in a follow-up-basis. The average of the number of sport injuries per month were computed for both periods. Total amount of injuries during these two seasons were up to 34. The average number of injuries per month suffered before the training program started was .26, while it reduced to .12 during the second half of the season when it was carried out. There were significant differences between the average of injuries per month before and after the program [$F1,24=26.591$; $p=.000$; $\eta 2p = .228$]. The results showed a program aimed to managing stress to be effective in reducing the number of injuries suffered by youth soccer players. New research should be carried out in order to check if such results are stable along the time.

- **Anxiety moderators during sport injury rehabilitation**

Alioune B. Toure
Sportlycée Luxembourg

Facing a severe injury is a major threat for elite athletes therefore, the rehabilitation is considered as a challenging period that generates emotional affect (Brewer, 2010). Severe injuries lead to continuous adjustment of athletes' goals to reduce discrepancy between their physical condition following injury and their pre-injury level. Emotional factors are supposed to be influenced by goals and regulated by coping strategies. In order to analyze severely injured athletes' anxiety levels depending on their goals and coping strategies during rehabilitation period our aim was to propose a model that explained the relation between these variables. A total of 128 elite athletes were followed for the present study, Mean age 23, 78 (6.64) years, Male n= 84, female n= 44. A long-term follow-up of severely injured (interruption > 28 days) elite division athletes at three periods: beginning of rehabilitation (T1); mid-term rehabilitation (T2), end of rehabilitation (T3). At each occasion athletes filled-up the HADS, the Brief COPE, and the QAEAS Questionnaire. We used Smartpls 2.01 software to conduct a structural equation modeling of effects of goals of approach and coping strategies at three periods of rehabilitation (T1, T2, and T3). At T1, approach goals did not generate anxiety, but at T2 and T3 approach goals were associated with anxiety. At all times problem focus coping was related to less anxiety, but at the contrary using of emotion focus coping generated more anxiety. Mastery and performance goals are set early during

rehabilitation, coping strategies helps to moderate anxiety. Depending on goals and coping strategies anxiety that might either (1) help athletes to increase effort during rehabilitation or (2) lead them to reduce adherence. Therefore we recommend using an S.M.A.R.T goal setting approach to in order to increase confidence and reduce negative psychological consequences during rehabilitation.

W6.1: Workshop - Challenges and interventions before and during major events, especially at the Olympic Games

Jörg Wetzel[1,2]
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In this workshop, the challenges and obstacles of major sporting events are presented from a theoretical perspective guided by evidence-based research (Birrer & Wetzel, 2009; Birrer, Wetzel, Schmid & Morgan, 2012; Elsborg, Diment, & Elbe, 2014) as well as personal experience. Important topics like preparing for major events, dealing with the media, what to do in crisis situations and other specific challenges are discussed. This includes different conditions requiring either sport psychological or emergency psychological interventions. Numerous case studies from the perspective of the athlete, the coach and the psychologist are presented and discussed. All this is guided by the experience of the author by attending several Olympic Games. The participants develop an insight concerning the psychological and sporting challenges of major events, experience some cases from different perspectives (athlete, coach, and psychologist) and integrate the lessons learned in their own counselling practice and speciality. To reach these goals, background information is provided about the most important topics at major sporting events. This includes the different perspectives of athletes, coaches, team coaches and psychologists. Group discussions concerning crisis situations, dealing with media and what to consider in preparing for such events should enhance the personal involvement and enable the participants to transfer these topics into their own practice. The whole workshop is guided by the author who attended the last five Olympic Games since 2006 in Torino.

W6.2: Workshop - Biofeedback in sport: Scientific and applied perspectives

Guenter Amesberger, Thomas Finkenzeller
University of Salzburg, Austria

Biofeedback (BFB) is a clinical accepted method with high empirical evidence (Schwartz & Andrasik, 2003). It offers possibilities to associate mental phenomena like feelings and thoughts with effects on (neuro)physiological processes. Additionally, individuals get aware of and learn to influence bodily processes. In applied sport psychology, many personal statements of practitioners as well as single case studies support the efficacy of BFB in sports (Kao, Huang, & Hung, 2014; Strack, Linden, & Wilson, 2011). However, very little research using a control group design has been published on biofeedback in sport (Perry, Shaw, & Zaichkowsky, 2011). This workshop addresses persons who want to get first insights into the use of biofeedback. In addition, persons who already apply biofeedback in sport should gain knowledge that will be helpful for their work. The purposes of this workshop are to (i) present empirical results of biofeedback studies in sport using control group designs, (ii) show and discuss case studies, methods and artefacts in using psychophysiological measures like heart rate variability (HRV), skin conductance response, skin temperature, and electromyogram, (iii) demonstrate the application of biofeedback devices and, (iv) share experiences in the work with biofeedback in applied sport psychology. Within the theoretical part (i), the role of commercially available products e.g. measuring HRV with automatically generated feedback, ethical aspects of using psychophysiological data and BFB, and limitations of biofeedback in sports will be discussed. Within the practical parts (ii-iv), biofeedback trainings (with two BFB devices) using well-established biofeedback protocols will be demonstrated on volunteer participants. All participants of the workshop are then invited to contribute to the interpretation and discussion of the obtained results.

W6.3: Workshop - Working with self-confidence from a CBT perspective

Karin Moesch[1,2], Göran Kenttä[1,3], Andreas Claeson[1]
[1]The Swedish Sport Confederation; [2]Lund University, Sweden; [3]The Swedish School of Sport and Health Sciences, Sweden

Cognitive behavioural therapy (CBT) is an evidence-based approach in clinical psychology (Beck, 2011). Also in sport psychology, many interventions are based on a CBT framework. However, mostly they are limited to teaching athletes psychological skills. Little information exists on how a structured CBT approach is applied in the sporting context (Puig & Pummell, 2012). This is somewhat surprising, since a detailed and systematic applied behaviour analysis (ABA) is considered a core feature when working with CBT (Beck, 2011; Sundel & Sundel, 2005). Moreover, there has been a strong emphasis in traditional psychological skills training on cognitive techniques, meanwhile behavioural techniques, and the underlying learning theory, have been sparsely acknowledged. In this workshop, we will present a counselling approach that goes beyond skills training. Self-confidence, as one of the core topics in sport psychology, will be used to illustrate the process. We start with a theoretical module where the basic principles of CBT, including the formulation of an ABA, will be introduced. Thereafter, a case is distributed. The participants will work in groups and try to draft an ABA and propose intervention techniques based on the ABA. The presenters will follow up with their solution of the case, which will be handed out to the participants at the end of the workshop. To conclude, some advantages of the CBT approach will be highlighted. This workshop is addressed to sport psychology consultants who work with individual athletes. Participants will get basic knowledge in the principles of CBT with a focus on ABA. ABA can be used for working with a wide range of problems that are usually dealt with by sport psychologists.

W6.4: Workshop - Incorporating mindfulness practices into mental training for athletes experiencing extreme performance anxiety

Jacob Cannon Jensen
California State University, USA

Mindfulness practices can be incorporated into mental training to help athletes manage extreme performance anxiety that negatively impacts athletic performance (Hickman, 2014). The workshop's specific learning objective is to provide participants with practical hands-on experience and detailed information about how to apply key mindfulness practices and techniques in order to help athletes manage extreme performance anxiety. Workshop participants will learn how to use mindfulness techniques to help athletes (1) be more self-aware of the mind-body connection in order to more effectively handle performance anxiety, (2) stay in the moment during performance, and (3) learn to better cope with the sometimes paralyzing and often demoralizing impact of extreme anxiety. The teaching methods used in the workshop will include a presentation and discussion of research and applied work, as well as hands-on practice with mindfulness techniques that can be used and taught to athletes facing the effects of extreme performance anxiety, such as "choking" and the "yips" (Jensen & Fisher, 2012). The workshop will include demonstrations of how to incorporate mindfulness practices into mental training programs for athletes. In addition, workshop participants will have the opportunity to practice mindfulness techniques on fellow participants in mock consulting sessions. Specific techniques covered in the workshop will include meditation, particularly a demonstration of clinically standardized meditation (Carrington, 1997), the relaxation response (Benson & Proctor, 1984), and autogenic training (Schultz & Luthe, 1969). The workshop presenter will draw on his own experience of overcoming the yips as an elite athlete, along with his research and consulting experiences working with athletes from a variety of sports. Workshop participants will be provided with a copy of the presentation slides, as well as a handout with examples of mindfulness training tools that can be incorporated into their own applied work with athletes and exercise populations.

Session 7 – Friday 17 July, 2pm-3.30pm

IS7.1: Invited Symposium - Mental disorders in elite sport: Mechanisms, diagnostic, and treatment

Chair(s): Jens Kleinert (German Sport University Cologne, Germany)

Mental disorders in elite sport are as as frequently seen as as respective disorders in society. On the one hand, sport is a resource and protecting factor for the development of mental health problems, on the other hand, stress, strains, and demands of elite sport seem to counterbalance this positive effect. Moreover, double burden of stress in job/education and high performance sport settings accentuate this situation. The current symposium thus deals with clinical and subclinical issues of mental disorders or disturbances of mental health. In this context, the presentations address both, athletes and applied sport psychologists (ASPs), who are involved in processes of diagnostic and intervention. During the symposium, special attention is dedicated to the situation of young athletes. Additionally, the presentations deal with both, the mechanisms behind the development of mental disorders in elite sport and opportunities in diagnostic, treatment, and ASPs education. Based on interdisciplinary developmental approaches the discussion on perspectives should clarify, what kind of diagnostic or treatment Sport Psychology has to implement in practical settings of sport psychological counselling and in educational programs for ASPs.

- **Sport specific factors and the vulnerability for mental disorders in young elite athletes: Results from a 1-year follow-up study**

Wanja Wolf[1], Thomas Borchert[2], Jürgen Hoyer[3], Ralf Brand[1]
[1]University of Potsdam, Germany, [2]University of Leipzig, Germany, [3]Technical University of Dresden, Germany

Elite student-athletes have to manage extremely ambitious daily routines, as they are expected to combine the demands of everyday school education with likely stresses and strains that arise from high-performance athletic training and competitions (Brand, Wolff & Hoyer, 2013). The predictive validity of sport-specific stressors on mental health risks (e.g. Ingram & Luxton, 2005) for young elite athletes has not yet been investigated longitudinally. Data from a representative sample of 396 elite student-athletes (12-15 years old) were analyzed in a prospective 1-year follow-up design. The association of three known sport-specific stressors (injuries, training load and success in competitions) with self-reported symptoms of the most prevalent and clinically important mental disorders was analyzed with multiple stepwise logistic and linear regression models. The three sport-specific stressors differentially predicted increased risk of mental disorders over and above the effect of subject variables (age and gender). For example, excessive training load during season was associated with elevated symptom reports in the questionnaire at follow-up (beta = .06), whereas comparable training load during off-season was associated with less symptom reports (beta = -.08). Our analyses support the hypothesis that poor training regiments and pressure that arises from injuries and athletic failure cause variation in young elite athletes' mental health status. In our view interdisciplinary developmental approaches are necessary to explain interactions between physiological (e.g. consequences arising out of injuries), psychological (e.g. depression) and social factors (e.g. social support) in the accruement of mental disorders in elite athletes.

- **Screening of depression and wellbeing in elite youth sport: Experiences with the instruments WHO-5 and PHQ-2**

Jens Kleinert, Marion Sulprizio, Jeannine Ohlert, Christian Zepp
German Sport University Cologne, Germany

Depression, burnout, and other stress-related disorders are of growing interest in Sport Psychology, both in research and applied settings. Even young elite athletes are at risk for these problems due to growing and multi-facets stressors and strains. Thus, clinical or pre-

clinical problems of young athletes should be assessed as early as possible in the course of screening processes in practice. Against this backdrop, the current study describes practice experiences with two screenings instruments. 192 young elite athletes (age M =16.8 yrs., SD = 3.4; 62.3% female) were involved in a sport psychological diagnostic program aimed to assess psychological performance and health conditions. As screening instruments for stress related disorders the Patient Health Questionnaire (PHQ-2; range 0-6; high risk for disorder >2; Kroenke, Spitzer, & Williams, 2003) and a five item wellbeing-scale (WHO-5; range 0-25; WHO, 1998) were part of this assessment. On average athletes reach PHQ-2 scores of M = 1.45 (SD = 1.29) and WHO-5 scores of M = 15.61 (SD = 4.74). 14.1% of athletes scored above the PHQ-2-cut off, while 11.3% of athletes indicated suspicious scores in the WHO-5 questionnaire (<10). Both scales show a significant but low correlation ($r = -.35$, $p < .001$). Moreover, only 33% of athletes with suspicious scores in the WHO-5 indicate high scores in the PHQ-2. In addition, still 11% of athletes are identified as having risk of being depressive in the PHQ-2, although their scores on the WHO-5 are not suspicious. Data show that negative feelings and the absence of positive feelings are not the same. Thus, for practical use in applied sport psychology both screening instruments are necessary since they carry different constructs and messages. Consequently, future perspective must be to evaluate and define specificity and sensitivity for a combined score of PHQ-2 and WHO-5.

- **From performance enhancement in sport psychology to a clinic for elite sports and mental health: Some reflections**

Göran Kenttä[1], Johanna Belz[2]
[1]*Swedish School of Sport and Health Sciences Stockholm, Sweden,* [2]*German Sport University Cologne, Germany*

Being an athlete or coach performing at international level is primarily about performance accomplishments, thus implying high demands and stress. Sport psychology (SP) has traditionally adopted a psychological skills training (PST) approach, based on the assumption that athletes are inherently mentally healthy (Bond, 2002). However, research indicates that elite athletes are at the same or greater risk of developing mental health problems as non-athletes (Brewer & Petrie, 2002; Schaal et al., 2011). In order to more comprehensively enhance psychological support for elite sports, a cognitive behavioral therapy (CBT) counseling education for SP practitioners was introduced in Sweden in 2009. As a result of this program, clinically-educated sport psychologists have the ability to not only treat, but also diagnose subclinical issues which negatively impact sport performance. Consequently, support and subclinical treatment have been integrated in SP interventions with elite athletes and coaches. The presenter will introduce a recent study investigating the professional development of the first graduates of this novel program. Benefits and challenges of receiving an education in both traditional SP and clinical counseling will be discussed. A systematic review of mental illness in athletes noted three possible assumptions regarding athletes and psychiatric disorders: (1) athletes may obtain high levels of athletic success despite a coexistent primary psychiatric disorder, (2) athletes may have chosen the athletic arena as means of coping with their disorder, and (3) the athletes' psychiatric illness may be precipitated or worsened by the sport itself (Reardon & Factor, 2010). To shed light on these assumptions, in early 2015 the first clinical center specifically devoted to support mental well-being in elite sports was inaugurated in Stockholm, Sweden. This clinic is meant to evolve into a research-based learning center in clinical SP. Reflections about the early stages of this first-of-a-kind clinical center will be discussed during the presentation.

- **Reconceptualizing recovery in athletes with eating disorders**

Anthony Papathomas[1], David Lavallee[2]
[1]*Loughborough University, UK,* [2]*University of Stirling, UK*

Athletes, male and female, across a variety of sports, experience disordered eating behaviours and clinically defined eating disorders. Research within the psychology of sport

has predominantly focused on risk and prevention at the expense of factors pertaining to treatment and recovery. There is minimal evidence as to what an athletes' journey to recovery from an eating disorder might look like. Addressing this gap, the goal of this study was to explore athletes' understandings of the eating disorder recovery process. The findings presented here draw on a large corpus of qualitative data; amassed over the last decade through in-depth, open-ended, semi-structured interviews with male and female elite athletes' with eating disorder experiences. In total, more than 30 hours of fully transcribed interview data was subject to a narrative analysis of content and structure. The results of the narrative analysis demonstrated that the way an athlete defined and interpreted recovery determined the nature of their recovery experience and shaped their recovery efforts. For example, athletes who bought into the medical model of recovery – characterised by an absence of symptoms – often felt guilt and frustration when symptoms persisted. Those who constructed recovery as not eradicating but managing symptoms in order achieve a personal growth described healthier psychological states. The findings present potentially controversial practical applications regarding eating disorder treatment strategies and these are critically discussed.

SS-S7.1: Special Session - Symposium: FEPSAC 2015 Young Researcher Award contest for oral presentation

Chair(s): Juergen Beckman (Technische Universität Muenchen, Germany)

This is the final round of the FEPSAC 2015 Young Researcher Award contest for oral presentation. Twenty three candidates fulfilled the contest criteria and submitted short papers presenting their research. These were evaluated by the FEPSAC 2015 Young Researcher Award Evaluation Committee and five of them qualified for the final round. During this session, the five finalists will present their research orally and will be asked questions from the evaluation committee who will then decide on the award winners (for more information, see http://www.fepsac2015.ch/young_investigator_award.html).

- **Perfectionism and burnout in junior athletes: A three-month longitudinal study**

Daniel J. Madigan, Joachim Stoeber, Louis Passfield
University of Kent, UK

Perfectionism in sports has been shown to be associated with burnout in athletes (e.g., Gotwals, 2011). Cross-sectional studies have consistently shown that perfectionistic concerns are positively associated with athlete burnout, whereas perfectionistic strivings are negatively associated with athlete burnout. Whether perfectionism predicts longitudinal changes in athlete burnout, however, is still an open question. Using a two-wave cross-lagged panel design, the present study examined the relationship between perfectionistic strivings (striving for perfection, personal standards), perfectionistic concerns (concerns over mistakes, negative reactions to imperfection), and athlete burnout in 101 junior athletes (mean age 17.7 years) over 3 months of active training. When structural equation modeling was employed to test a series of competing models, the two best-fitting models showed opposite patterns for perfectionistic strivings and perfectionistic concerns. Whereas perfectionistic concerns predicted increases in athlete burnout over the 3 months, perfectionistic strivings predicted decreases. No evidence for reciprocal effects was found. The present findings suggest that the concerns dimension of perfectionism contributes to athlete burnout. In contrast, athletes who are striving for perfection may be protected from burnout as long as they are not overly concerned about making mistakes and do not show strong negative reactions to imperfection. Regarding athlete burnout, perfectionism in sport thus appears to be a "double-edged sword" (Stoeber, 2014) providing a shield against athlete burnout while at the same time putting athletes at a greater risk of burning out.

- **The mediating role of basic needs satisfaction between transformational-relational coaching environment and positive outcomes**

Aleksandra Krukowska, Sophia Jowett
Loughborough University, UK

Recently transformational leadership (TL) framework has gained importance and traction in sport environments (e.g. Callow et al., 2009; Price & Weiss, 2013); however, there is still little known about the mechanisms underlying its effectiveness in the context of various outcomes. One of the most important characteristics of TL is the ability to relate to each of the followers, what can be understood as a capacity to build effective coach-athlete relationship (C-A-R). Transformational coaching environments based on caring relationships have a potential to satisfy athletes' basic psychological needs for autonomy, competence and relatedness which in turn can support their motivation and well-being indicators (Deci & Ryan, 2000). In the present study we tested a model in which the effect of coaches' transformational behaviours (Burns & Riggio, 2006) combined with C-A-R quality (Jowett, 2009) on engagement in and passion for sport was transferred by satisfaction of the three needs. Following the guidelines of Baron and Kenny (1986), three structural models were tested: (1) a model of direct effects where the independent variable (C-A-R and TL combined) predicted dependent variables (engagement and harmonious passion); (2) a model with a mediator; and (3) a combined model that contained both direct and mediation effects. The mediation model showed the best fit to the data: CFI=.92; NNFI=.91; RMSEA=.08; SRMR=.08. These results expand the understanding of the processes underlying transformational leadership influence by linking this type of leadership with self-determination theory. Moreover, the results highlight that the integration of transformational leadership and relationship models can result in higher levels of positive outcomes.

- **Perceptions of critical situations involving football fans: the dynamics of conflict escalation or de-escalation**

Alain Brechbühl, Annemarie Schumacher Dimech, Roland Seiler
University of Bern, Switzerland

Fan violence in the context of football matches has drawn the attention of stakeholders and the media. This phenomenon has also attracted the scientific community's attention, where research mostly focused on reasons for violence escalation. The Elaborated Social Identity Model (ESIM; Drury & Reicher, 2000) for example focuses on group-interactions and social identities, while the Aggravation Mitigation Model (AM model; Hylander & Guvå, 2010) concentrates on factors contributing to an escalation or a non-escalation of group-violence. However individual perceptions of the different persons involved in potential conflicts have not been sufficiently examined. Beside of that research in domestic football or involving ultra-fans is scarce. Especially in Switzerland, there is a lack of research concerning the dynamics of the development or non-development of fan violence. This exploratory study included eight critical situations from the season 2012/2013 of the Swiss premier league to gather data about the perceptions of various persons involved (fans, police officers or security) and the dynamics contributing towards escalation or de-escalation. Fifty-nine narrative interviews were conducted and analysed with interpretative phenomenological analysis (Smith, Flowers, & Larkin, 2009). The individuals involved (fans, police and security personnel) showed group-specific perceptions and a tendency to stereotype the opponent group. Provocative symbols (balaclavas or riot-gear uniforms) were important for the interpretation of the situation. No escalation occurred when successful communication and sufficient distance between the groups was established. Knowledge about the local fan culture is important, because it influences the perception of legitimacy on the side of the fans. This study improves the understanding of fan violence and is congruent with the ESIM and the AM model. It is suggested to deploy police dialogue teams without riot gear. Their task is to establish direct communication with the fans to facilitate a peaceful ending of a critical situation.

- **The interconnection between athletes' psychological momentum processes during and across matches**

Ruud J. R. Den Hartigh[1], Paul L. C. Van Geert[1], Nico W. Van Yperen[1], Ralf F. A. Cox[1], Christophe Gernigon[2]
[1]University of Groningen, The Netherlands, [2]Montpellier 1 University, France

Many athletes are familiar with the experience of an upward or downward spiral during a match, called psychological momentum (PM). Recently, researchers proposed that PM can be considered as a dynamical system that can move toward a positive or negative PM state (e.g., Briki, Den Hartigh, Markman, Micallef, & Gernigon, 2013; Den Hartigh, Gernigon, Van Yperen, Marin, & Van Geert, 2014). According to the theory of dynamical systems, processes that take place on the short-term influence long-term processes, and vice versa (Newell, Liu, & Mayer-Kress, 2001). In this study, we empirically tested the interconnection between athletes' PM processes during a single match and across matches. Twenty-two male athletes competed to win a rowing-ergometer tournament (long-term), consisting of multiple races (short-term). The races were manipulated so that participants in the positive momentum condition won the first two races, whereas those in the negative momentum condition lost. In the third race, all participants took a lead at the start, after which they gradually moved toward a defeat. The athletes' perceptions of long-term momentum and self-efficacy, measured before each race, showed an increase for participants in the positive momentum condition, and a decrease for those in the negative momentum condition. During the third race we measured exerted force continuously, and perceptions of momentum and self-efficacy at repeated intervals. Compared to participants in the negative momentum condition, those in the positive momentum condition displayed higher within-race momentum perceptions, self-efficacy, and exerted efforts ($p < .001$), and their momentum perceptions and self-efficacy decreased less rapidly ($p < .001$). These results imply that PM is a dynamical process, which takes place at interconnected short- (during a match) and long-term (across matches) time scales. From an applied perspective, coaches should be aware that their athletes are likely to carry their performance history into the next match.

- **Investigating the differentiation and stability of the concept of motor abilities across childhood**

Till Utesch[1], Bernd Strauss[1], Dirk Büsch[2], Jochen Zinner[3], Roland Naul[1], Dennis Dreiskämper[1], Ilka Seidel[2], Maike Tietjens[1]
[1]University of Münster, Germany, [2]Institute for Applied Training Science Leipzig, Germany, [3]University for Health & Sport, Technique & Art, Germany

Motor abilities are defined as general traits underlying the performance of a variety of different movement skills (e.g. endurance, strength; Burton & Miller, 1998). Well-known classifications are from Fleishman (1964) or in Germany Bös (2001). The aim of this study was to investigate the differentiation and stability of the concept of motor abilities across childhood. Data were collected using the seven fitness/coordination items (e.g. sit-ups, jumping sideways, balancing backwards) of the German Motor Test (DMT 6-18; Bös et al., 2009). We examine the latent structure of motor abilities in eleven samples ($790 \leq N \leq 1495$, in total 13685) for the age groups from six- to ten-year-olds using item response theory modelling. For six-, seven- and eight-year-olds all seven items show a global model fit with respect to ordered threshold parameters for the one-class solution. For nine- and ten-year-olds six items meet the model requirements, balancing backwards had to be excluded due to unordered threshold parameters. This means a one-dimensional latent trait underlies the performance of the DMT 6-18. Further item analyzes show stability of relative item difficulty and reveal, that e.g. the item sit-ups is very difficult and well discriminating for six-year-olds. Existing taxonomies should be specified for particular age groups. For six-, seven- and eight-year-olds all seven items and for nine- and ten-year-olds the remaining six items can be accumulated to one valid general motor score. Analyzes show no differentiation of motor abilities across childhood but stability regarding to relative item difficulty. This meets the

definition of a single trait underlying the performance of a wide variety of motor skills, e.g. motor competence (Haga, Pedersen, & Sigmundsson, 2008) or general motor ability (Burton & Rodgerson, 2001), rather than differentiated motor abilities in childhood.

S7.01: Symposium - Motives for participation in physical activity: Measurement, prediction, and profiling

Chair(s): Tony Morris (Victoria University, Australia)

Sport and exercise science researchers have demonstrated that participation in physical activity (PA) has many benefits for physical and psychological health and wellbeing. However, around 50% of adults in many countries do not undertake sufficient PA to obtain these benefits. Motivation plays an important role in physical activity participation. Researchers from around the world have been involved in development, validation, and application of a measure of motives for participation in PA called the Physical Activity and Leisure Motivation Scale (PALMS). PALMS motives reflect aspects of Self-determination Theory (Deci & Ryan, 1985) and Achievement Goal Theory (Nicholls, 1982). It was developed to examine motives across competitive sport and non-competitive PA. Recently, a shorter version of PALMS, the Youth PALMS (PALMS-Y) has been developed for administration to adolescents. In this symposium, researchers report on recent studies, examining development, validation, and potential application of PALMS and PALMS-Y. In Presentation 1, the authors describe the development and validation of a Malay-language version of the adult PALMS in a rural region of Malaysia. The context for Presentation 2 is also Malaysia, where the original English-language version of PALMS was used to examine the relationship between the eight PALMS motives and the amount of PA that participants undertook among a sample from metropolitan Kuala Lumpur. In the third presentation, the authors describe two studies that developed and validated the youth version of PALMS in Chinese. Finally, in Presentation 4, the authors propose and illustrate a standard way to present group or individual PALMS data based on vertical bar graphs, using examples from recent PALMS and PALMS-Y studies. These presentations depict a measure with growing support from research across language, culture, and age, supporting the proposal that PALMS has potential as a research instrument and as a tool for application to enhance participation in PA globally.

- **The Physical Activity and Leisure Motivation Scale: a confirmatory study of the Malay language version**

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Physical activity has become a crucial factor in maintaining people's health. Therefore, it is important to motivate people to undertake more physical activity and to maintain exercise adherence. Understanding the motives people have for engaging in an activity is important to enhance physical activity adherence in the community. The present study aimed to validate a Malay language version of the Physical Activity and Leisure Motivation Scale (PALMS), using a confirmatory approach. Participants were 494 undergraduate students of health (female 66.6%, male 33.4%), mean age 21 years, in University Sains Malaysia (USM), Malaysia. Motivation for physical activity among the students was assessed using the PALMS questionnaire. The PALMS questionnaire consists of 40 items with eight subscales. The PALMS questionnaire was first translated into Malay using standard procedures of forward and backward translation. The PALMS-Malay (PALMS-M) was then distributed to the students. The confirmatory factor analysis (CFA) was carried out through AMOS 17.0 on the eight subscales of the PALMS-M. The hypothesized model consisted of 40 observed variables (or items) and 8 latent variables (or subscales). The hypothesized model did not result in a good fit to the data based on the CFI index ($\chi 2/df = 2.878$, CFI = .827, RMSEA = .062). Examination of the CFA results suggested some modifications to the path model in order to improve the fit indices. These modifications included deleting two problematic items (item 10 and item 18) and co-varying the error terms for item 19 and item 31. This resulted in

improvement of model fit indices (χ2/df = 2.112, CFI = .900, RMSEA = .047). The final measurement model for the PALMS-M questionnaire consisted of 38 items. The majority of the items were retained and items were considered fit for the sample in this study.

- **The relationship between motives for physical activity and amount of physical activity over time**

Keyvan Molanorouzi[1], Selina Khoo[2], Tony Morris[3]
[1]Tehran University, Iran, [2]University of Malaya, Malaysia, [3]Victoria University, Australia

In recent years, there has been a decline in physical activity (PA) among adults. Motivation has been shown to be a crucial factor in maintaining physical activity. The purpose of this study was to examine whether PA motives measured by the Physical Activity and Leisure Motivation Scale (PALMS) predicted actual amount of PA at a later time to provide evidence for the construct validity of the PALMS. A quantitative, cross-sectional descriptive research design was employed. The Demographic Form, PALMS, and International Physical Activity Questionnaire-Short form (IPAQ-S) questionnaires were used to assess motives and amount of physical activity in adults on two occasions. A sample of 493 (77%; 378 males, 115 females) undergraduate students aged 18 to 25 years (mean ±SD; 22.30±8.13 years) took part in the study. Male participants were divided into three types of activities, namely exercise, racquet sports, and team sports, and female participants took part in one type of activity, namely team sports. At the start of the semester (Occasion 1) participants completed all measures. At the end of the semester, 14 weeks later (Occasion 2) they completed the PALMS and IPAQ-S again. Results showed that pertinent sub-scales of PALMS positively related to amount of physical activity: affiliation for team sports in both genders, physical and psychological condition for exercise, and competition for racquet sports). Also, separate regression analyses showed the positive predictive effect of PALMS motives for amount of physical activity for each type of physical activity. This study supported the construct validity of the PALMS by showing that PALMS motives expected based on theory and previous research did predict amount of PA. This indicates that motives can be used to match people with a specific sport or activity to promote greater involvement in the specific activity.

- **Development and validation of a youth version of the Physical Activity and Leisure Motivation Scale (PALMS-Y)**

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Physical activity (PA) is declining among youth in China (Sun, 2001). Motivation is a key driver of PA (Zhang & Solmon, 2013), which must be measured appropriately. In this study, we developed and examined psychometric properties of a youth version of the Physical Activity and Leisure Motivation Scale (PALMS). The 40-item adult version of PALMS comprises eight, 5-item sub-scales each reflecting a motive for participation in PA. Based on validation of the adult version of PALMS in Australia, Israel, Malaysia, China, and Japan, and pilot work with adolescents in China, we excluded the subscale “others’ expectations”, which mainly comprises items referring to adult behaviours. In Study 1, we examined psychometric properties of the resulting 35-item version. Participants were 232 seventh-grade students (age = 13.33 + 0.52 yrs) recruited through schools in Hangzhou, China. Internal consistency of PALMS was good with alpha coefficients between 0.79 and 0.92 for all seven sub-scales and 0.96 overall. In exploratory factor analysis (EFA), we identified seven factors with an eigenvalue greater than 1, which corresponded to the seven PALMS sub-scales. By examining item-factor correlations and deleted-item alpha coefficients, we identified and removed the weakest item in each factor, producing seven 4-item sub-scales for the 28-item final version of PALMS for youth, the PALMS-Y. In Study 2, the 28-item PALMS-Y was examined for validity, reliability, and factor structure in 434 students (age = 15.12 + 1.74 yrs) recruited through middle schools in Hangzhou and Guangzhou, China. The confirmatory factor analysis (CFA) resulted in an excellent solution indicative of a seven-factor model

without uniquenesses [χ2/df = 3.06, CFI = .98, RMSEA = .07 (90% CI = .065-.076)]. Internal consistency for the overall PALMS-Y was 0.95, and 0.82-0.93 for subscales. The 28-item PALMS-Y possesses satisfactory reliability and validity for researchers to further examine it in different countries and languages.

- **Profiling motives for participating in physical activity in adults and youth using PALMS and PALMS-Y**

Tony Morris[1], Liang Hu[2], Keyvan Molanorouzi[3], Selina Khoo[4], Dev RoyChowdhury[1]
[1]Victoria University, Australia, [2]Zhejiang University, China, [3]Tehran University, Iran, [4]University of Malaya, Malaysia

Long-term participation in physical activity (PA) is beneficial for physical and mental health. Motivation is critical to sustained involvement in PA. Recently, researchers have demonstrated that the Physical Activity and Leisure Motivation Scale (PALMS) provides useful information about motives for participation in a wide range of PA (Molonorouzi et al., 2014; Zach et al., 2012). PALMS is a 40-item scale that measures eight motives for PA, namely mastery, enjoyment, psychological condition, physical condition, appearance, others' expectations, affiliation, and competition/ego. Specific motives have been shown to play a key role in different types of PA (Molonorouzi et al., 2013; RoyChowdhury, 2012) and to predict amount of PA participation (Molonorouzi et al., this symposium). There is potential to present different patterns of motives associated with participation in each of a number of types of PA. To help practitioners match individuals' motives to these patterns, Morris et al. (2013) proposed a standard framework for profiling that uses vertical bar graphs. Here, we present examples of profiles from two new studies (Molonorouzi et al., 2013, this symposium) to illustrate the potential use of PALMS profiles. In addition, Hu et al. (2014, this symposium) developed a Youth version of PALMS, conducting two studies in China to validate PALMS-Y. In the first study of this shorter measure, the others' expectations subscale was removed, leaving a 35-item scale that was administered to Chinese school students. Analysis of the seven subscales reduced each to four items, producing a 28-item scale that was validated in the second study with Chinese youth. Here, we also depict the PALMS-Y data, using a version of the standard profile reflecting the seven subscales. We recommend that sport psychology researchers and practitioners employ the profiling method systematically to facilitate the presentation, interpretation, and application of motives for participation in PA.

S7.02: Symposium - Perception-action coupling in sports with an emphasis on the Quiet Eye phenomenon

Chair(s): André Klostermann (University of Bern, Switzerland), Sam Vine (University of Exeter, UK)

A variety of phenomena that appear in the world of sport emphasize the close and bidirectional link between perception and action. In this symposium we are interested in how the perceptual, emotional and physical constraints of a task may influence the perception (and subsequent motor accuracy) of a performer. The work discussed will focus specifically, although not excursively, on gaze behaviours and the quiet eye (QE) phenomenon, which has received much attention in recent years. The researchers contributing to this workshop will present recent empirical and theoretical advancements in our understanding of the relationship between task constraints, gaze control and perception in a number of different motor and sporting tasks. The first presentation will introduce the QE phenomenon by giving a critical review of current QE research, presenting experimental approaches as well as discussing different mechanism explaining its functionality. Thereafter, a concussion prevention project will be presented in which the QE was adopted as an objective measurement of perceptual awareness that was used to understand how ice hockey players perceive their environment and remain safe. The third presentation will demonstrate the close link between task complexity and the QE in an archery task, discussing some of the underlying neural mechanisms of perceptual cognitive expertise. Subsequently, in the fourth

talk it will be shown that gaze strategies change as a function of the task design (artificial vs. real), highlighting important methodological and conceptual considerations for this field of research. Finally, in a series of studies the relevance of cognitions and emotions for perception-action coupling will be discussed, in particular, their influence on judgement criteria and perceptual sensitivity.

- **The Quiet Eye in motor performance and learning – Functional and theoretical considerations**

Sam Vine[1], André Klostermann[2]
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High precision in motor skill performance, in both sport and other domains (e.g. surgery and aviation), requires the efficient coupling of perceptual inputs (e.g. vision) and motor actions. A particular gaze strategy, which has received much attention within the literature, has been shown to predict both inter- (expert vs. novice) and intra-individual (successful vs. unsuccessful) motor performance (see Vine et al., 2014). Vickers (1996) labelled this phenomenon the quiet eye (QE) which is defined as the final fixation before the initiation of the crucial phase of movement. While the positive influence of a long QE on accuracy has been revealed in a range of different motor skills, there is a growing number of studies suggesting that the relationship between QE and motor performance is not entirely monotonic. This raises interesting questions regarding the QE's purview, and the theoretical approaches explaining its functionality. This talk aims to present an overview of the issues described above, and to discuss contemporary research and experimental approaches to examining the QE phenomenon. In the first part of the talk a brief and critical review of the literature will be provided, highlighting recent empirical advancements and potential directions for future research. Afterwards, the second presenter will communicate three different theoretical approaches to explain the relationship between QE and motor performance. Drawing upon aspects of all three of these theoretical approaches, a functional inhibition role for the QE (related to movement parametrisation) will be proposed.

- **The look-up-line: Quiet Eye and head orientation of elite ice hockey players during on-ice body checking drills**

Joan N. Vickers[1], Joe Causer[2], Michael Stuart[3], Elaine Little[1], Sean Dukelow[1], Carolyn A. Emery[1]
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Each season approximately 30% of Canadian youth ice hockey players sustain an injury. Over 50% of these injuries occur during body checking and a significant proportion includes contact with the boards. Some lead to life changing injuries, including spinal cord injury and paralysis. Anecdotally, it is thought that a player checked into the boards with the position of the head and neck in flexion may be at greater risk of spinal cord injury or concussion. A potential remedy is the look-up line (LUL), an orange 40 in (1 m) warning strip painted on the ice at the base of the boards. The LUL visually warns the puck carrier and/or checker that evasive action is needed prior to contact with the boards. The quiet eye (QE) is defined as the final fixation on a location prior to a final movement. An earlier and longer QE duration has consistently been shown to be a characteristic of superior performance in many sports tasks, including ice hockey. Elite male ice hockey players each wore a mobile eye tracker and performed on a rink with either the LUL being present or absent, which served as the control condition. An external camera recorded their skating movements. Changes in head orientation were determined using Dartfish and an electro-goniometer. The QE was defined as the final fixation on or near the LUL prior to contact (or a similar region on the rink without the LUL). We expected the QE to be earlier and longer when the LUL was present than when it was absent, resulting in a change upward in the gaze and orientation of the head to a safer position as contact occurred. The LUL could lead to a lower incidence of checking injury without losing the fundamental physicality of the sport that makes it so popular.

- **Gaze tracking behavior changes when hitting targets launched by a real opponent rather than a ball-projection machine**

David L. Mann[1], Ross A. Pinder[2]
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Much of what we know about gaze in skilled interceptive actions is based on the seminal study by Land and McLeod (2000) that examined the gaze behaviour of three cricket batters of contrasting skill levels. However, participants in that study hit balls launched by a ball-projection machine rather than a bowler, therefore (1) increasing the predictability of the ball-flight and (2) removing the pre-release kinematic information (from the bowler's body) known to facilitate interceptive performance. As a result, it is unclear whether the gaze strategies found by Land and McLeod truly represent those used in the natural environment. To investigate this we examined the visual gaze strategies of five developmental level cricket batters who faced a ball-projection machine (in both blocked and random ball-delivery conditions) and a live bowler. Results showed that batters were less likely to produce saccades when facing a bowler, but when present, saccades occurred later than they did in the random and blocked ball-machine conditions. Despite knowing precisely where the ball would be released in the two ball-machine conditions, batters initiated their pursuit tracking of the ball significantly earlier when facing the bowlers and as a result spent more time tracking the ball through the air. Facing the bowler rather than ball-projection machine significantly altered the eye movements of batters, whereas prior knowledge of where the ball was likely to land (when comparing the blocked and random ball-machine conditions) had little influence on gaze. Previous interpretations of visual saccades and their relationship to visual pursuit tracking may be limited by artificial task designs, and as a result, so might be our understanding of gaze during skilled interceptive actions.

- **Identifying the functional mechanisms of the quiet eye in expert and novice archers during aiming tasks**

Claudia C. Gonzales[1], Sean Williams[1], Joe Causer[2], Chris Miall[3], Michael Grey[3], Glyn Humphreys[4], A. Mark Williams[1]
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Investigations into performance-enhancing gaze strategies have determined that longer quiet eye durations (QED) are characteristic of expert performance. The aim of the study was to investigate task complexity effects on QED and examine distinct cognitive programming loads involving the parameterization and fine-tuning of the required motor response. Ten expert and 13 novice archers completed a field-shooting task and eye movements were measured using electroculography (EOG), which validated skill-based QED effects. Participants then took part in a computer-based archery task in which shooting was controlled using a joystick, used to manoeuvre the reticule (crosshairs) on the screen. Task complexity was manipulated by implementing 2 levels (high and low) of random movement (noise) into the crosshair position as the participants attempted to aim at the target. Since expertise QED effects in the field task were validated with EOGs, eye movements in the computer task were measured using both EOG and an ASL Mobile Eye gaze-tracker. Both experts and novices showed reduced accuracy in the high-noise blocks. EOG results showed longer QED in experts compared to novices in the high-noise condition. The experts' longer QED in the high-noise conditions may suggest superior processing efficiency and/or reduced distractor-effects of the joystick's movement. Also, a linear relationship between accuracy and QED was only observed during high-noise conditions. ASL results did not show group effects but revealed that both groups had longer QED in the high-noise task. The longer QED of the groups did not result in better performance, but may reflect the increased processing demands of the more complex task. Our results further identified task complexity

effects in QED and demonstrate the importance of online control mechanism during the critical QE programming period.

- **Cognitive biases in perception-action-informed judgments**

Rouwen Cañal-Bruland
VU University Amsterdam, The Netherlands

Several theories assume that couplings between perception and action account for and explain judgments and overt behaviors in sports. I argue that such theories fall short in their attempts to predict overt motor behaviors in sports because they do not take into account contributions of cognitive (and emotional) processes. I further submit that if cognitions (and emotions) indeed influence perception-action-informed judgments and behaviors, it is likely due to the fact that cognitions (and emotions) shift the judgment criterion (independent of the perceptual sensitivity), thereby causing a judgment bias. In my talk I will flesh out my theoretical considerations and provide initial evidence indicating that 1) cognitive processes do influence perception-action-informed judgments; and 2) that they do so by shifting the judgment criterion rather than influencing perceptual sensitivity directly. I will present several studies in which my collaborators and I have consistently found that cognitions such as expectations (Cañal-Bruland & Schmidt, 2009; Cañal-Bruland, Filius & Oudejans, 2014), knowledge of action preferences (Mann, Schaefers & Cañal-Bruland, 2014) and social cognitive processes (Cañal-Bruland, Balch & Niesert, 2014) indeed bias perception-action-informed judgments and behaviors. These findings call for new theories that integrate perception, action, cognition (and emotion) in order to explain and predict judgments and behaviors in sports.

S7.03: Symposium - Sport-concussion in youth: Recent advances and directions for future research

Chair(s): Dave Ellemberg (Université de Montreal, Canada), Davis Moore (Université de Montreal, Canada)

Sport-related concussion represents a growing public health concern. The vast majority of research has focused on adults with developing populations being an often-neglected population. As a result, the outcomes of sport-related concussion incurred during development remain relatively unclear. Contrary to the traditional belief that a concussion incurred during development is offset by physiological and adaptive factors, recent research indicates that a concussion may lead to persistent symptoms, alter neurocognitive development, and predispose athletes to subsequent and potentially catastrophic injury. Therefore, raising scientific and clinical awareness of these injuries is of vital importance. Accordingly, the aim of the current symposium is to highlight cutting edge research focusing on the long-term outcomes of sport-related concussion during development. A panel of researchers will bring together research findings regarding injury outcomes on the symptological, neuropsychological, neurophysiological, and neurobiological levels. Presentations will highlight recent advances in the understanding of important clinical issues such as second impact syndrome, post concussion syndrome and cognitive functioning. The proceedings from this symposium will serve as a thorough introduction to youth concussion for interested clinicians and researchers, and will be presented in a manner that is accessible to novice and expert psychologists alike. The novel information and synthesized findings presented will educate and provide an impetus for further psychological research, and the translational nature of the symposium will foster collaborative exchange to promote a more unified science of concussion.

- **Sensitivity of the CogState test battery for detecting persistent concussion-related cognitive deficits**

Dave Ellemberg, Véronik Sicard, Davis Moore
Université de Montreal, Canada

Persistent concussion-related deficits in executive control have been observed when assessed cross-sectionally with experimental paradigms (Moore et al., 2014). Therefore, identifying commercial assessment tools, which are also sensitive to persisting cognitive deficits is of critical importance. Accordingly, the current study examined whether a commonly used computerised assessment tool would be sensitive to persistent concussion-related cognitive deficits. Eighty-two collegiate athletes, (41 history of concussion (HOC); 41 controls) completed a modified CogState test battery, to which we added a 2-back condition (N-back task). All participants were symptom-free at time of testing and HOC athletes were 8+ months from injury (21.80 months ± 9.72). In addition to the clinical variables provided by the CogState, we computed standard scientific variables (mean RT, mean ACC, commission & omission errors), from raw data obtained by request from CogState LLC. Although no group differences were observed for tasks measuring lower-level cognitive functions, deficits were observed for the N-back task, which requires multiple aspects of executive control. Specifically, evaluation of CogState clinical variables revealed that HOC athletes were less accurate than controls ($p < 0.01$), but only for the 2-back condition. Conversely, scientific variables revealed multiple group differences for the 1-and 2-back conditions of the task, with HOC athletes exhibiting greater errors ($ps \leq 0.02$, Cohen's $ds > 0.48$) and decreased accuracy ($ps \leq 0.04$) for the 1-and 2-back conditions, as well as greater RT for the 2-back condition ($p = 0.04$). Correlations did not reveal a relation between task performance and number of injuries. Together, the current results reaffirm that a single concussion can produce persistent deficits in executive function; however, these deficits would have gone unnoticed in the absence task modification (2-back) and scientific variables. Hopefully the current results will engender the addition of simple, but sensitive modifications to commercial assessment tools.

- **Sensitivity of event-related potentials for detecting long-term neurophysiological alterations following youth concussion**

Davis Moore[1], Charles Hillman[2], Dave Ellemberg[1]
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Recent research indicates that concussive injuries may alter the developmental trajectory of functions essential to academic and vocational success, as well as overall effective functioning. It is of paramount importance to identify measures with the requisite sensitivity to detect and track alterations stemming from youth concussion. This presentation emphasizes the sensitivity and utility of event-related brain potentials (ERPs) for identifying and tracking concussion-related alterations in developmental neurocognition. Data from two studies are presented, both of which recorded ERPs to evaluate the long-term neurocognitive outcomes of pediatric concussion. Specifically, P3-ERP components elicited during a visual discrimination task (i.e., an oddball task) were used to evaluate children (ages 9-12), adolescents (ages 13-16), and young adults (ages 19-24) six months after injury. Irrespective of age, participants with a concussion history exhibited smaller P3b amplitude relative to control participants ($p's < .05$), however, adolescents with a concussion history trended towards the largest alterations. These results indicate that a single concussion is related to persistent alterations in the neural resources underlying the allocation of attention, and that age may relate to the magnitude of alterations. A second study recorded ERPs during switch, go-nogo and flanker tasks to evaluate cognitive control in children (ages 8-10) approximately two years after injury. Visual attention (N1), inhibition (N2), attention/working memory (P3b), action monitoring (ERN), and error awareness (Pe) were significantly altered in children with a concussion history relative to matched controls ($p's \leq .05$). Together, these results suggest that pediatric concussion can lead to pervasive and persistent alterations in lower- (visual

discrimination) and upper-level (cognitive control) processing. In sum, this presentation illustrates the utility of ERPs for detecting and delineating neurophysiological alterations stemming from youth concussion, and provides valuable insight into a poorly understood, but significant, public health concern.

S7.04: Symposium - Cognitive mechanisms in team action

Chair(s): Silvan Steiner (University of Bern, Switzerland), Sören D. Baumgärtner (Johann Wolfgang Goethe-Universität Frankfurt/M., Germany)
Discussant(s): Nancy J. Cooke (Arizona State University, USA)

Team action results from the contributions of multiple agents. For teams to build a functional unit, individual contributions need to be well coordinated. The symposium will be dedicated to current theoretical and empirical research related to the question of what cognitive mechanisms underlie coordination and decision making in team contexts and how they can be optimized. Team cognition refers to different aspects of task-relevant knowledge and its distribution among team members. It is assumed to be a central component underlying team coordination. Finding ways to enhance team cognition has included the development of the "Training TeamKognitionen" (TTK). The conceptualization and empirical evaluation of this standardized and modular program will be outlined. Coordinating action can be impeded by the unpredictability of complex and dynamically changing performance contexts. Moving agents of opposing teams represent large amounts of informational cues to be processed by individual athletes. Given the limited capacity to process information, directing attention becomes indispensable. Divided attention is regarded as highly relevant in several team sports. An insight will be given. Constrained time availability during team contests will complicate the coordination of interpersonal processes by means of verbalized feedback. Debriefing is a way to compensate for this as performance related information will be exchanged past performance. Undertaken appropriately, debriefing can lead to diverse favourable outcomes and will enable performance improvement. Data on preparation, transmission, and contents of debriefings in elite team sports will be presented. As opposed to theories of cognitively steered coordination, dynamical approaches have highlighted the role of situational constraints on decision making and team behaviour. A study aimed at quantizing the effects of both player knowledge and situational constraints on decisional processes in customized football scenarios will be presented.

- **Training TeamCognition: A training program to optimize the cooperation in team sports**

Sören D. Baumgärtner[1], Frank Hänsel[2]
[1]Johann Wolfgang Goethe-Universität Frankfurt/M., Germany, [2]Technische Universität Darmstadt, Germany

Solving complex game situations through cooperation is a significant performance factor within team sports. Team performance research in sport sciences discusses team cognition as a central variable (e.g., Cannon-Bowers & Bowers, 2006). The properties of team cognition include: (1) shared knowledge, (2) correctness, (3) consciousness of situations and the team, (4) mutual awareness, and (5) communication (e.g., Eccles & Tenenbaum, 2004; Hänsel & Baumgärtner, 2014). Based on these properties and oriented in sport psychology techniques, a standardized training program was developed to enhance team cognition (TTK – from the German name "Training TeamKognitionen"). The training program includes seven modules, a foundational module and six follow-up techniques from sport psychology: (1) self-confrontation (video-based foundation module), (2) counterfactuals, (3) mental practice, (4) perspective-taking, (5) goal-setting, (6) freezing, and (7) verbal / nonverbal cues. These modules are flexible and can generally be applied in-vivo (e.g., during practice or training sessions). The evaluation of TTK shows an increase of knowledge for the athletes (M = 35%, R = 23%-46%). Also, their representations of team cooperation are more elaborate (48%), more differentiated (30%) and better structured (22%). In addition, all teams and coaches

included in the intervention showed high acceptance of the program, and all gave positive ratings regarding the outcomes and usability.

- **Visual attention in sports**

Daniel Memmert
German Sport University Cologne, Germany

Attention is a crucial factor regarding sport related performance (Memmert, 2015). As team players and referees are constantly overwhelmed with a mul-titude of visual and auditory stimuli, which they cannot process at once due to a limited capacity of information processing, the question arises how at-tention can be directed efficiently to make optimal decisions. Athletes and referees should be able to control the direction of their attention to such an extent that they can distinguish between relevant and irrelevant information. Especially in team and racket sports, the orientation and direction of atten-tion plays an important role. The respective players need to rely on atten-tional skills during the execution of different simultaneous tasks, in order to act successfully in complex situations of any type of sport. Based on neuro-logical and psychological findings, sport-related attention research is speak-ing of four sub-processes of attention: attentional orienting, selective atten-tion, divided attention, and sustained attention. To understand attention in the world of sports in a better way and make it accessible for training pur-poses, these four different sub-processes are presented in more detail. The emphasis of my talk is on divided attention, because this process is regarded as highly important in a variety of different team and racket sports. Addition-ally, I will demonstrate that the new attention window paradigm is important to measure attention breadth in complex environments like training situa-tions of athletes. In the past years, different testing procedures in various racket sports were developed regarding measurements of all of the four di-mensions of attention, and numerous strategies for optimal attentional direc-tion and control were tested. This has direct consequences for the develop-ment of new training programs for players and referees.

- **Debriefing in elite team sports**

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Debriefing is defined as a discussion between the coach and athlete after a competition. It enables to improve performance, learning, motivation, confidence. Undertaken appropriately, it reduces negative emotional effects and foster coach-athlete relationships. To date, there are few studies on debriefing in sports. The present study aimed to explore the tasks undertaken by staff to prepare and transmit debriefing in elite team sports as well as explore the content of debriefing during major competitions. Nine national coaches of team sports volunteered to participate in the study. Data collection involved semi-structured interviews with each participant separately. Coaches were invited to explain how they prepared for, and conducted their debriefings to players in major competitions. The data were analyzed using inductive and deductive analysis of verbal reports. Results showed that debriefing consisted of two main parts: (a) preparing for the game assessment; (b) transmitting the game assessment and fostering players' involvement in the following match. Preparing for the game assessment involved: (a) preparation of video material (14% of meaningful units concerned with the first part of results); (b) assessment of own team's game (70% of meaningful units concerned with the first part of results); and (c) development of presentation material (16% of meaningful units concerned with the first part of results). Transmitting the game assessment and fostering players' involvement in the following match was done in relation to two styles of leadership: transactional (69% of meaningful units concerned with the second part of results) and transformational (31% of meaningful units concerned with the second part of results). Each style leadership was related to different tasks. Tasks were divided between staff and players. Results suggest that debriefing involves tactical work

related to the work done, and psychological work concerned with players' attitudes, commitment and motivation. Tactical and psychological works were ruled both by what went well and badly and possible causes, as well as highlighting the areas for progress in the near future. Finally, results suggest that the work of debriefing was divided according to staff and players' roles, competencies and experience. Results have been used to improve communication between the coach and players and enhance team performance.

- **Effects of team knowledge and ecological constraints on decisional processes in customized football game scenarios**

Silvan Steiner
University of Bern, Switzerland

Several theories assume that successful team coordination is partly based on knowledge that helps anticipating individual contributions necessary in a situational task. It has been argued that a more ecological perspective needs to be considered in contexts evolving dynamically and unpredictably. In football, defensive plays are usually coordinated according to strategic concepts spanning all members and large areas of the playfield. On the other hand, fewer people are involved in offensive plays as these are less projectable and strongly constrained by ecological characteristics. The aim of this study is to test the effects of ecological constraints and player knowledge on decision making in offensive game scenarios. It is hypothesized that both knowledge about team members and situational constraints will influence decisional processes. Effects of situational constraints are expected to be of higher magnitude. Two teams playing in the fourth league of the Swiss Football Federation participate in the study. Forty customized game scenarios were developed based on the coaches' information about player positions and game strategies. Each player was shown in ball possession four times. Participants were asked to take the perspective of the player on the ball and to choose a passing destination and a recipient. Participants then rated domain specific strengths (e.g., technical skills, game intelligence) of each of their teammates. Multilevel models for categorical dependent variables (team members) will be specified. Player knowledge (rated skills) and ecological constraints (operationalized as each players' proximity and availability for ball reception) are included as predictor variables. Data are currently being collected. Results will yield effects of parameters that are stable across situations as well as of variable parameters that are bound to situational context. These will enable insight into the degree to which ecological constraints and more enduring team knowledge are involved in decisional processes aimed at coordinating interpersonal action.

S7.05: Symposium - Parental influences in youth tennis players: Children and parents' perspectives

Chair(s): Olivier N. Schmid (University of Bern, Switzerland)
Discussant(s): Nicholas L. Holt (University of Alberta, Canada)

Tennis is an ideal context for studying talent development and parenting approaches in youth sport (Gould, et al., 2008). Sustained parental involvement is essential due to the individual and costly nature of the sport, the potential to achieve elite levels at an early age, and the extensive demands from training and competition schedules. The considerable time children and parents spend together has the potential to benefit or harm the quality of the parent-child relationship and also provides multiple opportunities for parents to impact their children's athletic and personal development. Even though parental involvement has tended to be stereotyped as excessive and pressuring by stakeholders and the media, a decade of research findings suggests that most tennis parents are supportive and valuable role models (see Harwood & Knight, 2012 for a review). The purpose of this symposium is to present a contrasting review of the latest research on the parenting process in tennis, from the influences and consequences of parenting involvement to effective parent education. Parents' self-perceptions of their parenting approaches and goals for their child involvement in a national governing body under-10 youth tennis program will be discussed first. Conversely, the range and nature of emotional experiences during tennis tournaments will be

examined from the perspective of four children in the second study, with an emphasis on the environment parents create and the subsequent influence this has on children's goals and expectations. Then, the player's perspective on parental motivational climate will be examined within the specific context of emotional and physical abuse in father-daughter coaching dual-role relationships. The symposium will conclude with a longitudinal evaluation study testing the effectiveness of a parent education program designed to promote healthy motivation and stress-coping strategies in competitive situations. Practical implications for sport psychology practitioners and parents will be emphasized in each presentation.

- **Roles of parents in United States Tennis Association 10 and under tennis**

Ian Cowburn[1], Eric Martin[2], Dan Gould[2]
[1]Saginaw Valley State University, USA, [2]Michigan State University, USA

The United States Tennis Association (USTA) recently introduced 10 and Under Tennis (10&U), a reformatted version of tennis where equipment has been modified to the physical size and ability of participants to enhance development. A recent focus group with 10&U coaches suggested some parent resistance to 10&U (Pierce et al., in review), therefore a need existed to better understand parent perceptions of 10&U and their roles within it. An online survey was distributed to 10&U parents, consisting of four sections: (1) demographics and an adapted Parental Authority Questionnaire (PAQ; Buri, 1991); (2) parent goals for 10&U involvement; (3) parent experiences of 10&U; and (4) parent perceptions of 10&U coaches. After completing demographics and the PAQ, participants were randomly assigned to one of four forms of the survey. One group completed all three remaining sections (n = 117). The other three groups only completed one of the remaining sections (n = 37, n = 38, and n = 38 respectively). Descriptive results showed that parents scored higher on the authoritative (mean = 40.19) than on either the permissive (mean = 20.28) or authoritarian (mean = 23.62) subscales of the PAQ. Parent goals for involvement (e.g., have fun), and the best (e.g., see their child improve) and worst (e.g., cost of tennis) aspects of tennis parenting were consistent with prior literature. Results also showed that the parents rated their child as improving and having fun. However, only 28 % and 48 % of parents reported that coaches conducted a parent session and explained long-term athlete development, respectively. These results suggest a potential disconnect between parent goals, outcomes, and understanding of 10&U. Implications include the need for better parent understanding regarding the goals of 10&U and better coach education for communicating these goals to parents.

- **Emotional experiences in tennis players: Understanding the influence of parents and coaches**

Camilla J. Knight, Francesca R. Lewis, Stephen D. Mellalieu
Swansea University, UK

Participation in competition is an integral part of the youth sport experience and competition is often identified as a reason children participate in sport (e.g., Gould et al., 1982). However, concerns have been raised regarding the competitive nature of youth sports and the negative consequences associated with competition (cf. Passer, 1981; Sagar & Lavallee, 2010). The purposes of this study were to identify the range of emotions youth tennis players experience when competing, examine the underlying causes of these emotions, and explore how children cope with these emotions. Case studies of four youth tennis players were conducted. Each player competed in four or five matches under the observation of the research team. Immediately following each match, participants completed a post-match review sheet and a semi-structured interview. A further semi-structured interview was completed at the end of the tournament. All the data were analyzed through content analysis. During the course of the matches, participants cited 25 different emotional experiences including feeling angry, nervous, excited, sad, and happy. These emotions appeared to be a consequence of athlete goals and appraisals of demands, along with perceived parent and

coach expectations. Specifically, participants indicated that perceptions of pressure or expectations to win from parents or coaches could increase the likelihood of experiencing negative emotions before and during matches. Further, these pressures or expectations appeared to influence the goals children's held for matches. Children described various strategies to cope with these emotions such as controlling breathing rate, focusing on positive thoughts, and individualized routines. Overall it was apparent children experienced a range of positive and negative emotions during tennis matches, many of which were underpinned by their perception of parental expectations.

- **"I felt trapped… I had no other way out": The dynamics of abuse in female tennis players coached by their fathers**

Olivier N. Schmid
University of Bern, Switzerland

In tennis research, parents and coaches were encouraged to endorse distinct and development appropriate roles (Gould, et al., 2008; Wolfenden & Holt, 2005). Ideally, early high parental involvement should transition into a more active role from coaches' at adolescence, during sport specialization. However, anecdotal and empirical data suggest that tennis is notorious for a high prevalence of parents adopting the dual-role of parent-coach. Despite some beneficial features, handling the blurred boundaries between the parenting and coaching roles was overly difficult and caused role conflicts and controlling and abusive behaviors in seven daughters and father-coaches dyads (Schmid et al., in press). Marion Bartoli's unexpected retirement shortly after her Wimbledon title elicited curiosity regarding the dynamics of her relationship with her father-coach. Several professional tennis players coached by a parent were victims of abusive behaviors (e.g. Jennifer Capriati, Mary Pierce, and Andre Agassi). The purpose of the current study was to further understand the dynamics of emotional and physical abuse in coaching dual-role relationships. Unstructured interviews were conducted with four elite female players who were coached by their fathers during childhood. Content analysis was used to code and interpret the narratives. Father-coaches' needs for winning were imposed and standards of reference for which behaviors were appropriate on and off the court were lacking. Acts of physical violence, instrumental emotional abuse (e.g. manipulation, public humiliation) and expressive emotional abuse (e.g. insults) were recurring. During their interviews, participants presented typical features of abuse (James & Gilliland, 2005), including ambivalent perspectives, learned helplessness, internalized oppression, and rationalization to reduce cognitive dissonance. In most severe cases, feelings of entrapment led to suicide attempt and ongoing depression symptoms. To prevent and cope with abuse, the participants emphasized the importance to discuss the respective needs and expectations, negotiate roles, and regularly assess the interpersonal dynamics of dual-role relationships.

- **Optimizing the role of the tennis parent: An action research study**

Sam N. Thrower, Chris G. Harwood, Christopher M. Spray
Loughborough University, UK

There currently exists an in-depth empirical understanding of parental involvement in junior tennis. Despite this, published intervention studies are conspicuous by their absence in the literature (Harwood & Knight, 2012). This has led to recent calls to encourage applied researchers, practitioners and sports organizations to use this body of literature to provide proactive interventions, which meet parents' stage specific education and support needs. The purpose of this study, therefore, was to longitudinally evaluate the effectiveness of a field based tennis parent education program. Using an organizational action research framework, seven workshops were run for mini tennis parents (with children between the ages of 5 and 10 years) across three British high performance centers. On average, 22 parents attended each educational workshop over a four-month period. Data was collected using social validation feedback forms after each workshop, participant diaries between workshops, and

three semi-structured focus groups after the program (n = 19). The impact and effectiveness of the program was evaluated qualitatively using a thematic analysis. Results indicated that the program was effective in improving parents' awareness, knowledge and skills in relation to their tennis parenting. Parents reported more confidence in their ability to create and maintain a task-involved motivational climate for their children, make key developmental decisions and communicate with their child in competitive situations. Importantly, this confidence appeared to serve as a buffer against the stressors tennis parents faced and improve their overall emotional experiences. Furthermore, findings also offer an insight into the underlying mechanisms of tennis parent learning, and the factors that influence the effectiveness of face-to-face tennis parent programs. From an applied perspective, the current study provides information that can be used by practitioners (i.e., coaches and sport psychologists) to educate and support mini tennis parents within British high performance centers.

S7.06: Symposium - Links between cortisol and performance: Emotion, motivity, and cognition

Chair(s): Franziska Lautenbach (German Sport University Cologne, Germany)

In our competitive society, performing well is of great importance. During a competitive encounter the need to perform well is particularly high, as our ego is greatly involved. This can lead to psycho-physiological changes, for example an increase in cortisol, which is also known as the stress hormone. Recently, neurophysiological markers (i.e., cortisol) became of greater interest in sport psychological research as they provide additional information in comparison to questionnaire and behavioral data that have previously been linked to performance. Thereby, cortisol for example facilitates comprehending our complex system in competitive environments (e.g., sport) and thus, deepens our understanding of how performance is influenced. The aim of the symposium is to provide a comprehensive overview about recent theoretical developments and empirical data within the research field of cortisol and different areas of performance as well as different target groups. In detail, it will address the relationships between (a) cortisol and emotional intelligence (EI) in athletes, presenting experimental data that investigated whether EI can function as a buffer in physical stressful situations and thus, influence motor performance (i.e., putting in golf). Furthermore, (b) changes in cortisol and cognitive performance (i.e., memory) in response to acute physical activity in children and adolescents will be addressed, providing important implications for performance in school. Lastly, (c) data on the impact of cortisol changes due to physiological stress (i.e., cold pressor task) on cognitive performance (i.e., selective attention) and motor performance (i.e., putting) in golfers will be presented and discussed in regard to the cognitive processing hypothesis.

- **Cortisol and emotional intelligence in athletes**

Stefanie Elsner[1], Sylvain Laborde[2], Franziska Lautenbach[1]
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Emotional Intelligence (EI) is of great importance to performance in sports. EI appears to be supportive in relation to psychological stress occurring within competitive settings and presumably reduces the extent of a potentially harming stress reaction through emotion regulation (Mikolajczak, Roy, Luminet, Fillée, & Timary, 2007). Most studies focus on the role of EI under psychological stress conditions although physiological stress emerges in sports as well (e.g. Cadore et al., 2012). Therefore, this study aimed to investigate the influence of EI on cortisol secretion following an artificial, physiological stressor (i.e., cold pressor task) and its impact on performance in a golf related task (1,5m putting). Initially, 68 experienced male golfers (age: 25,5 ±4,1) were instructed to put one arm for 3 minutes into either cold water (i.e., 0-4°C) or water at body temperature (control group). Participants performed 15 one-handed putts preceding and following water immersion. Every 7–8 minutes cortisol was assessed. Golf performance was recorded by means of hits, distance from the whole and technical parameters (SAM PutLab System). EI was assessed using Trait EI Questionnaire

(Freudenthaler et al., 2008). Preliminary results show that the induced stressor led to a significant increase of cortisol in comparison to the control group. Also, for the control group a negative correlation between EI and cortisol was detected throughout the experiment, that was not present for the experimental group. Performance parameters are still being analyzed.
In conclusion, first results indicate that the nature of the stressor influences the protective role of EI, that is EI appears to have little impact on cortisol secretion following an artificial, physiological stressor.

- **Children and adolescents' cortisol kinetics and cognitive performance in response to acute physical stress**

Flora Koutsandréou[1], Mirko Wegner[2], Henning Budde[1]
[1]Medical School Hamburg, Germany, [2]University of Bern, Switzerland

Exercise as physical stress has been previously shown to promote cognitive functioning in children and adolescents (Sibley & Etnier, 2003; Hillman, Erickson & Kramer, 2008). Several physiological explanations have been given for the exercise-effect on cognition. One factor identified to affect attention, perception, and memory is the stress hormone cortisol (Erickson, Drevets, & Schulkin, 2003). However, studies examining the acute exercise-induced changes of cognitive performance and the cortisol response in children in adolescents yielded inconsistent results. Glucocorticoids like cortisol are involved in the stress response, provide energy, and coordinate adaptation of behavior thus are assumed to improve cognitive performance in response to exercise. It is assumed that the relation between cortisol activity and cognitive functioning follows an inverted-U shape function with moderate cortisol levels being most beneficial (Erickson et al., 2003). We conducted an experiment on the acute effects of physical activity on cortisol responses and cognitive performance with 10-year-old elementary school children (N = 67). Participants were randomly assigned to an aerobic exercise group (AE), a coordinative exercise group (CE), and a control group (CON). The salivary cortisol levels as stress parameter were measured before and after a 40-minute exercise (AE, CE) or an assisted homework session (CON). The letter-digit span task was performed to measure participants' working memory capacity at the same time points. The presentation will include first results for cortisol levels and cognitive performance for this sample of children. The change in cortisol from pre to post stressor was significantly associated with the change in children's letter-digit span performance. More studies are needed on the link between cortisol and cognitive performance in response to acute physical activity because previous studies show inconsistent findings. Participants' age, the timing of cortisol measurement as well as the type of cognitive assessment affect the results. For application of the findings to school settings it is important that future studies attempt to control measurement timings and apply different cognitive assessments in varying age groups.

- **Cortisol's effect on selective attention to emotional stimuli in athletes**

Franziska Lautenbach
German Sport University Cologne, Germany

In all sport settings an athlete needs to be able to focus attention on task-relevant information in order to perform successfully, thereby inhibiting task-irrelevant information, which can be emotion-laden, such as worries about performance (Mann et al., 2007). Therefore, studying the impact of emotional task-irrelevant information is particularly applicable and of great importance for the competitive sport setting, and yet missing. Cortisol, a stress hormone that increases before competitive situations (e.g., Ehrlenspiel & Strahler, 2012), is known to impact cognitive processing, that is the processing of emotional information (i.e., selective attention; see Putman & Roelofs, 2011 for a review). In detail, cortisol helps redirecting attentional focus regarding the theoretical predictions of the cognitive processing hypothesis and empirical data (Putman & Roelofs, 2011). We aimed to investigate whether the same

effect, that is allocating attention away from emotional stimuli due to higher levels of cortisol, thereby reducing the Stroop interference effect, can be found in athletes in regard to emotional stimuli that are of interest in the sport setting (e.g., words such as loser, winner). In a mixed design, 68 male golfers (Mage = 25.5±4.1) participated. Cortisol was measured eight times during the experiment and was increased due to the cold-pressor test (CPT; 0–4°C water temperature; Cahill, Gorski, & Le, 2003). The control group had to put their underarm in warm water (35–39°C). Before and after, participants were asked to perform a cognitive performance task (i.e., emotional Stroop task using validated emotional sport words; Lautenbach, 2015). Preliminary results show an increase in cortisol due to the CPT. Also, a change in processing emotional task-irrelevant information between the groups after water immersion was detected. This is in accordance with the cognitive processing hypothesis and hints to the positive effect of cortisol redirecting attentional focus towards task-relevant information also in athletes.

S7.07: Symposium - An Ecological Dynamics framework for understanding cognition, perception and actions in sport: Implications for learning design

Chair(s): Keith William Davids (Sheffield Hallam University, UK), Duarte Araújo (University of Lisboa, Portugal), Ludovic Seifert (University of Rouen, France)

This symposium examines how the inter-twined relations between cognition, perception and action underpin skilled performance in sport. The theoretical framework of Ecological Dynamics has become more popular in recent years and this symposium focuses on the mutuality and reciprocity of a sport performer and the performance environment. Under this synergy, biology and physics and psychology come together to define human behaviours at a new scale of analysis – the ecological scale. In Ecological Dynamics a major challenge is to understand how each individual athlete is able to perceive information from the performance/learning context which can be used to regulate actions. From this perspective, the role of information and intentionality in cognition and action needs to be understood in physical terms, not as part of internally-located inferential mechanisms in more traditional psychology. The presentations of this symposium outline theoretical and empirical work which exemplifies the inter-twined nature of the cognition, perception and action relationship used to support performance in individual and team sport contexts.

- **Learning design in sport: An Ecological Dynamics rationale**

Keith Davids[1], Ian Renshaw[2], Jia Yi Chow[3]
[1]Sheffield Hallam University, UK, [2]Queensland University of Technology, Australia, [3]Nanyang Technological University, Singapore

According to the theory of Ecological Dynamics, athletes and sports teams can be characterised as complex adaptive systems and successful performance emerges through co-adaptation of system degrees of freedom (components of the body or cooperating and competing players), continuously re-organised under informational constraints. From this perspective, perception of affordances invites actions predicated on the relations formed between each athlete and a performance environment. Seeking and accepting affordances for utilisation is ubiquitous in human behaviour. This presentation discusses past research from our group illustrating how multiple affordances exist to constrain performance in sport environments related to movements of other individuals, events, objects, field and court markings. This idea is supported by data from our previous work in Ecological Dynamics, on the regulation of dynamic interceptive actions such as catching, hitting and diving. These results show how the design of informational constraints in practice tasks can influence the specificity of the coordination patterns that emerge to achieve performance outcomes. Similarly, research in team sports illustrates how practice task design can lead to more or less regularity in behaviours, respectively providing an athlete with more or less contact with a competitive performance environment. These findings suggest that, implementing affordances, an important feature of architectural and industrial design, forms an essential strategy for planning learning environments in sport. For affordance design to be successful,

task constraints during training should be representative of those encountered in competitive performance environments. They need to be designed to invite specific actions from different athletes from an array of action possibilities inviting exploratory movement behaviours. These behaviours should be functional and adaptive, inviting athletes to couple their movements to specifying informational variables. Practice task simulations which contain specifying information variables used in regulating actions enhance the contact that an athlete has with a performance environment. When athletes pick up affordances, based on specifying information sources, contact with a performance environment is greater and more specific transfer is likely to occur between training and competitive performance environments. On the other hand if athletes were to perceive affordances based on non-specifying informational variables, through inadequate learning design, contact is less functional and more general transfer processes may emerge, delaying progress and inhibiting the acquisition of expertise in sport. In summary, data from our research in Ecological Dynamics has shown that representative learning designs in sport have a greater contact with specifying information of a performance environment and are likely to enhance specificity of transfer between training simulations and competitive performance environments.

- **Team coordination: Group cognition and action are grounded on shared affordances and synergies**

Duarte Araújo
University of Lisboa, Portugal

Expert team performance is distinguished from non-expert performance by achievement of high levels of task outcomes, with effective and adaptive interactions between team members. Specific constraints like the players' individual characteristics, or strategy and coaching, may impact on the functional and goal-directed synergies formed by players during performance. However, these informational constraints merely shape the perception of shared affordances available for players, which underpin the assembly of interpersonal synergies expressed in collective decisions and actions. In this talk I propose that these group processes can be captured by (eco-)physical variables. These team variables have revealed that effective teams tend to be self-organized based on environmental circumstances. Developments in methods of analysis of expert team performance can benefit from a theoretical approach that situates and traces relevant team processes.

- **Neurobiological degeneracy and affordance perception support functional movement variability: The context of climbing**

Ludovic Seifert
University of Rouen, France

Research in the field of motor control following an Ecological Dynamics framework has seen the development of new insights about the functional role of movement variability as an emergent response to interacting constraints in order to satisfy task-goals. This talk presents how complex neurobiological systems are highly degenerate, providing a surplus of potential motor structures that support perceptual-motor adaptability. We clarify how this adaptability can emerge from degeneracy property, and how climbing wall can be designed to favor learning and exploratory behaviors. Degeneracy refers to the ability of elements that are structurally different to perform the same function or yield the same output. We exemplify how degeneracy property could reveal ongoing co-adaptation of an individual's behaviours to dynamically changing, interacting constraints, individually perceived and encountered in climbing tasks. Based on performer-environment circular coupling, we explain how climbers can exhibit perceptual-motor adaptability, which overcome the paradox between stability and flexibility. In particular, the variability in neurobiological systems may produce the relative stability of motor coordination ensuring robustness (i.e., insensitivity of some functionality to external disturbances like change in texture of climbing surface), the behavioral flexibility to

respond to changes in the environment as well as provide distinct behavioral options for innovation and creativity (i.e., exploitation of new opportunities; for instance by exhibiting new pattern to grasp hold).

- **A nonlinear pedagogical approach to understanding skill acquisition**

Jia Yi Chow[1], Lee Chang Yi Miriam[1], Tan Wee Keat Clara[1], Chris Button[2], Keith Davids[3]
[1]Nanyang Technological University, Singapore, [2]University of Otago, New Zealand, [3]Sheffield Hallam University, UK

Nonlinear Pedagogy, underpinned by theoretical grounding from Ecological Dynamics, can provide a viable approach for practitioners to design learning experiences that are situated and meaningful. Importantly, the learner and the process of learning of movement skills often demonstrates features of nonlinear behaviour and thus, pedagogical principles should account for such nonlinearity. Specifically, key pedagogical principles that focus on the manipulation of constraints, establishing representativeness, encouraging variability, managing attentional focus and ensuring strong coupling between information and movement are central to a nonlinear pedagogical approach. These pedagogical principles work through the pedagogical channels of instructions, practice and feedback to allow for the emergence of goal-directed behaviours in a learning context. Taking the example of the Singapore PE curriculum as a case for study and exemplification in this presentation, it is highlighted how Nonlinear Pedagogy can play a critical role in the skill acquisition process for game skills in a PE context. Importantly, the PE curriculum should be student-centred that challenges practitioners to play a more facilitative role to encourage learners to be exploratory in their learning. Undoubtedly, advances in motor learning research have further provided evidence on how learning is nonlinear in nature. For example, there are non-proportional and spontaneous changes in learning, multi-stability in movement solutions, alteration in parameters such as instructions and rules that can lead to greater exploratory behaviours and the functional role of 'noise' or variability in enhancing learning. Nonlinear Pedagogy can account for such nonlinearity in learning and be relevant to inform practitioners on a student-centred pedagogical approach in PE and sports.

- **Affective Learning Design: The individualised emotional and coordination tendencies of a cricket batter facing fast(er) bowling**

Ian Renshaw
Queensland University of Technology, Australia

Recently we have highlighted the importance of considering emotions in learning and introduced the concept of Affective Learning Design. A key principle of ALD is the ongoing interaction between affect, actions, and cognitions, meaning that there is a need to explore the individualised emotional and coordination tendencies that are associated with different periods of learning. The aim of this pilot study was to consider the interaction of affect, intentions and perception-actions of a junior international (U-19) cricket batter who was required to learn to face 'fast' bowling. The batter faced 5 sets of 12 progressively faster balls delivered by one bowler (U-19 state representative bowler). After each set the batter was asked to complete the Emotion in Learning Questionnaire (Headrick et al., in review) in order to identify his emotions in response to the task. Real-time observation and videotaping of the session allowed collection of performance measures included runs scored; shot types; contact quality and assessments of movement patterns. Additionally, the player reported his thoughts after each set and his intentions with regards to the next set. Results allowed us to see how manipulating temporal constraints of time-to-contact influenced affect, cognitions and behaviours of the batter. At a critical ball sped of 135 kmh-1 step length shortened, the range and intensity of emotions increased and the batter became more conservative in his intentions resulting in a narrower shot range and lower runs being scored. Analysis is ongoing and findings will be discussed in the context of Ecological Dynamics and the proposals of Lewis (2000) who highlighted that increased range and intensity of emotions

would act as a marker of metastability. The pilot study findings will form the basis of a larger study with batters to cross-validate the findings with this one batter.

S7.08: Symposium - Diverse behaviours in exercise psychology

Chair(s): Ineke Vergeer (Victoria University, Australia)
Discussant(s): Reinhard Stelter (University of Copenhagen, Denmark)

Exercise psychology has developed rapidly over the past two decades but remains largely focused on 'traditional' exercise behaviours such as fitness activities. These are often described as somewhat functional, utilitarian and, in some cases, 'Western' in their orientation (Li, 2012). Moreover, exercise psychologists have tended to adopt 'conscious' and 'planned behaviour' approaches in this field (Biddle, Mutrie, & Gorely, 2015). There is a need to study more diverse forms of 'movement' behaviours to better understand how and why people engage with physical movement. This symposium will present concepts, findings and discussion across diverse behaviours relevant to the field of exercise psychology. Four papers will cover two main sets of issues. First, holistic and 'non-traditional' movement practices, such as yoga, free dance and qigong will be discussed in relation to mindfulness (Kabat-Zinn, 2003) and embodied self-awareness (Fogel, 2013). Second, two papers will address non-exercise activity thermogenesis (NEAT; Levine et al, 2005), using experimental research, and sedentary behaviour (sitting; Dempsey, Owen, Biddle, & Dunstan, 2014) – two clusters of behaviours rarely addressed by exercise psychologists. These latter behaviours will be considered in relation to conscious and less conscious processing. Implications for exercise psychology will be discussed, including targeting different groups previously disengaged with traditional forms of physical activity.

- **Holistic movement practices and features of mindfulness**

Ineke Vergeer
Victoria University, Australia

A variety of holistic movement practices have been gaining in popularity over the last decades. Sometimes referred to as 'mind-body' disciplines, these practices are non-competitive and non-performance oriented in nature, and tend to be embedded in an integrative philosophy, often non-western in origin, that links the movement forms and instructional framework to physical as well as mental and often spiritual well-being. These practices are different from traditional forms of exercise in their philosophical acknowledgment of training a 'self' and the possibility of developing aspects of 'self', while often including an emphasis on somatic experiencing. Holistic movement practices have not received much attention by exercise psychologists; however, they do offer some unique psychological aspects both in philosophical embedding and nature of movement forms. One of these aspects is mindfulness, which is frequently assumed to be an integral part of these practices. Early research (e.g., Caldwell, Emery, Harrison, & Greeson, 2011) suggests the potential for mindfulness improvement through participation in holistic movement practices, implying the possibility that these practices could serve as a form of mindfulness training. Mindfulness is a variedly interpreted and multi-faceted construct, however (Shapiro & Carlson, 2009), and it is important to be aware of distinctions in conceptualizations of mindfulness when considering mindfulness in the context of holistic movement practices. Drawing on evidence and theory from the mindfulness and embodiment literature, this conceptual presentation will analyse the features of the mindfulness construct in relation to the psychological dimensions of these embodied holistic practices, with particular attention to the potential of these practices to serve as a form of mindfulness training. As mindfulness is gaining increasing prominence in the fields of both mental and physical health, investigating the potential of holistic movement disciplines as avenues for training mindfulness would seem an apt and contemporary topic for exercise psychology.

- **Holistic movement practices and psychological benefits of embodied self-awareness**

Mattias Johansson
Örebro University, Sweden

Physical activity has been used in a number of ways to promote different psychological constructs such as mood, self-esteem and quality of life. Studies have mainly used an instrumental perspective with physical activity assuming to cause something in the near future. Mindful physical activity through holistic movement practices offers a different perspective. These practices provide means for the exerciser to explore what is taking place in the present moment. By way of mindfulness the exerciser may increase their embodied self-awareness (Fogel, 2013). Given the many cognitive demands of modern life and the focus on outer beauty for approval and status, low bodily awareness may be the natural state for many people. Yet, being disconnected from one's own body, one becomes more vulnerable to negative concerns related to body-image, self-esteem and psychological well-being, as proposed by Objectification Theory (Fredrickson & Roberts, 1997). Studies show that higher body awareness is related to higher subjective life satisfaction (Brani, Hefferon, Lomas, Ivtzan, & Painter, 2013) and mindful practices like yoga have been found to be associated with higher body satisfaction than, for example, aerobic dance (Daubenmier, 2005). This paper will present empirical evidence from literature on the benefits of becoming more bodily aware. This will be illustrated by research by the author and others on two popular forms of holistic movement practices, including a literature review of Qigong and the preliminary results of a pilot study on free dance. Rooted in an ancient philosophical tradition, Qigong uses mainly structured mindful movements to increase sensitivity of the body, while free dance uses mainly spontaneous movements to increase body awareness. Psychological benefits associated with embodied self-awareness through mindful physical activity in the context of these types of practices offers a new and different perspective for exercise psychology.

- **Sedentary behaviour psychology: implications for behaviour change**

Stuart Biddle
Victoria University, Australia

Exercise psychology has tended to focus on structured moderate-to-vigorous physical activity typically found in national and international guidelines. However, health behaviour researchers have now started to view 'physical activity' as a continuum from highly vigorous movement to no movement at all (Dempsey, Owen, Biddle & Dunstan, 2014). The latter, when referring to behaviours adopting the posture of sitting, is 'sedentary behaviour'. Moreover, too much sitting is implicated in poor health. This conceptual paper will address the issue of how exercise psychology can contribute to sedentary behaviour change, that is, less sitting. This is a new behaviour for psychologists. Both conventional theoretical approaches from social psychology and more contemporary approaches using 'nudge' and 'less conscious' approaches (Michie, van Stralen & West, 2011), along with example interventions, will be used to illustrate possible ways for psychologists to contribute to this important new behavioural direction. Current results of interventions show that various approaches are possible, including educational, environmental and psychological strategies (Biddle et al., 2014). Moreover, self-monitoring might prove to be a valuable behaviour change technique for psychologists and others to use, especially as new technologies emerge (Michie et al., 2011). There are important implications of this area of study for 'exercise' psychologists, including making contributions to different psychological approaches for behaviour change, the use of behaviour change techniques, and optimising self-monitoring for the purposes of changing sedentary behaviour attitudes, motivation and actual behaviour.

- **Non-exercise activity thermogenesis: reflective and impulsive processes**

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Understanding the determinants of non-exercise activity thermogenesis (NEAT) is crucial given its extensive health benefits. Some scholars (Levine et al., 2005) have assumed that a proneness to react differently to environmental cues promoting sedentary versus active behaviors could be responsible for inter-individual differences in NEAT. In line with this reflection and grounded on the Reflective-Impulsive Model (Strack & Deutsch, 2004), two studies were carried out. The first one tested whether impulsive approach tendencies towards PA (IAPA) and sedentary behaviors (IASB) can prospectively predict moderate to vigorous PA (MVPA) recorded for one week with accelerometer, over and above intentions. A second study aimed to test whether IAPA and IASB, but not reflective intention, can prospectively predict NEAT, operationalized as spontaneous effort exerted to maintain low intensity muscle contractions within the release phases of an intermittent maximal isometric contraction task. Participants (n=101 study 1, n=91, study 2) completed a questionnaire assessing their intentions to adopt PA behaviors and a manikin task to assess IAPA and IASB. Participants were then asked to wear an accelerometer over 1 week (Study 1) and to perform a maximal handgrip strength task and an intermittent maximal isometric contraction task (Study 2). As hypothesized, (a) objective MVPA was positively predicted by PA intentions and IAPA, and negatively predicted by IASB, and (b) spontaneous effort was positively predicted by IAPA, negatively predicted by IASB, and was not predicted by PA intentions. These studies demonstrated that impulsive processes allowed for a better prediction of PA behavior and, most importantly, may play a unique role in prospectively predicting spontaneous PA behaviors. Theoretically, this finding reinforces the utility of a motivational approach based on dual-process models to explain inter individual differences in NEAT. Implications for health behavior theories and behavior change interventions are outlined.

W7.1: Workshop - Game Time: From the classroom onto the practice field

Michel Hogue
CMP Performance inc., Canada

The aim of this workshop is to support students, young professionals and mentors in establishing themselves as experts in the realm of sport performance and psychology. Most educational programs (Masters and Ph.D.) are well designed and provide a sound scientific emphasis. Students are given the opportunity to link theories and research with applied interventions through internship & mentorship programs. However, most of these programs lack "business" training. The challenges in establishing a private practice are numerous. Particular elements need to be considered and assessed for professionals to be successful. By the end of this workshop, the participants will determine their business profile, outline the basis of their private practice model, and elaborate a plan to establish their practice. Based on recent business research and data, this workshop uses questionnaires, small team exercises and group discussions in order to offer an interactive and personalized learning experience. Also, it will use videos and testimonials in presenting some of its content. In the first part of the workshop participants will examine the difference between qualities of a successful sports psychologist and qualities of a successful entrepreneur. They will be initiated to the seven business functions relevant to any business model. Then, using Edward de Bono's six thinking hats model, they will understand how lateral thinking can aid them in taking on these responsibilities. In the second part of the workshop, participants will consider their private practice model. They will be provided tools to support its development. Using regional market data & research, they will perform a concise SWOT analysis. Additionally, some participants will be given the opportunity to practice their presentation skills with an "elevator pitch drill". The last part of the workshop will preview a business plan template. Participants will be presented its importance, its use and some of its contents.

W7.2: Workshop - Reflecting on four years applied sport psychology in professional team sport

Robert Buchli
Sport Psychologie Wetzel GmbH, Switzerland

In this workshop we will discuss challenges and obstacles of the mental work in team sports. Reflecting on four years applied sport psychology with a professional ice hockey team the workshop will focus on the following topics: How did the settings and the levels of intervention develop during the project? What are the “do’s and don’ts” of my own role as a sport psychologist? Which concrete methods were effective in the field? After a 30 minute presentation small groups gather to evaluate the effectiveness of the presented interventions. These interventions are mostly based on the three phenomena cohesion (Carron, Eys & Burke, 2007), shared identity (Statler, 2011) and goal setting (Kingston & Wilson, 2009) which are well proved in evidence-based research. The participants develop the awareness of different levels of intervention in team sports, get in touch with intervention methods in practical experience with teams, have the possibility to discuss about more and less effective interventions of a presented project with professional colleagues, and hear useful examples from the field and take from them tools for their own practice.

W7.3: Workshop - Vinyasa yoga as a way of life for athletes: Enhancing physical stability for challenging body and mind to move in new ways

Jayashree Acharya
Lakshmibai National Institute of Physical Education, India

Traditional yoga practice includes: breathing practices, chanting, meditation, relaxation, as well as the physical poses that most of us associate with yoga today. Research on high anxious athletes (Acharya, 2001,2005) ,mantra and breathing training for athletes: to control emotion, maximizing mental focus and inner strength (Acharya, 2001, 2002,2004,2005) and improvement in pain tolerance, will to win and self-esteem among athletes owing to breathing and meditation by Acharya and Kumar (2007) justifies the role of yoga for athletes. Vinyasa means "breath-synchronized movement” uses a progressive series of postures where each movement is accompanied by one breath, both inhaling and exhaling thus achieving conscious control of your body. The technique of vinyasa yoga helps build strength and flexibility, especially in the legs and the hips; to stretch the spine to its fullest extent, allowing the muscles around the spine to relax and strengthen; improves flexibility especially in the areas surrounding the hips, joints, neck, and shoulders; the coordination that you have to practice between the breathing and the pose can help increase concentration and the ability to focus on a specific thing. You can retain one posture for some time or you can explore more postures and can keep transiting from one posture to another. The postures are not held in a fixed position for long and they usually flow with rhythm to achieve synchronization which sometimes referred to as vinyasa flow, having mental and physical benefits. The synchronized breathing relaxes the mind and body thus releases any blockages of energy flow through the body. This workshop is open to practitioners that have an open mind and are willing to try new things. I shall demonstrate various poses (package), its benefit for athletes and others to cultivate awareness in each action, calming effect owing to breathing and balance in movement.

Session 8 - Saturday, 18 July, 8:30am-10:00am

IS8.1: Invited Symposium - Psychology of refereeing

Chair(s): Henning Plessner (University of Heidelberg, Germany)

In recent years, refereeing has received increased attention in various sports science domains. For example, this is evident in the organization of the 1st International Conference on the Practice and Science of Sports Refereeing last year in Clermont-Ferrand, France, and the first comprehensive publication on “Sports Officials and Officiating – Science and Practice” by MacMahon et al. (2015). In sport psychology, the study of refereeing followed different trends during the last decades. While older research was mainly concerned with referees’ personality and their stress regulation, erroneous decisions and their underlying processes are in the focus of the respective research for some time now. On the basis of numerous insights from this line of research, the interest of many researchers turned lately into the development and evaluation of measures and programs that aim at the improvement of referee performances. The contributions of our symposium mirror this current research direction in the psychology of refereeing. Specifically, the five presentations will be concerned with the following topics. At first, an adapted model from the work on athlete development will be introduced as a framework for the understanding and support of referees’ career development. The second talk provides an overview on research concerning the newly developed concept refficacy, i.e. the self-efficacy of referees. Subsequently, experimental work will be presented that examines how video training should be applied optimally in order to improve soccer referees’ decision making. The last two contributions address the current debate about the usefulness of technical aids for soccer referees. However, based on the results of their studies the authors come to slightly different conclusions.

- **The FTEM-O: A developmental model for sports officiating**

Clare MacMahon[1], Juanita Weissensteiner[2]
[1]Swinburne University, Australia, [2]Australian Institute of Sport, Australia

Sports officials are under-represented in sports science research, particularly from the perspective of understanding development (see MacMahon et al., 2015, for an overview of current research into sports officials). Although there are a variety of different types of sports officials, such as the interactor, reactor and monitor (MacMahon & Plessner, 2008; Plessner & MacMahon, 2013), the different stages of development and sources of skill transfer have not previously been considered to understand pathways for sports officials and principles of skill acquisition. A recent model centred on athlete development, the FTEM (Foundation, Talent, Elite, Mastery) framework (Gulbin, Croser, Morley & Weissensteiner, 2013) was adapted to officiating. The adaptation of the framework to officiating is used to help describe the common ‘routes’ in and out of the officiating development pathway, the types of officials, and the associated demands and developmental requirements at different stages. FTEM-O (Foundation, Talent, Elite, Mastery – Officials) framework considers the multidimensionality of officiating demands and requirements, acknowledging physicality, psychological skills and characteristics, as well as key skills such as decision making. The framework also considers that motivations, salary, and abuse are perceived and negotiated differently depending on the stage or level of officiating. Though there is much less formal research on the development of officials compared to that of athletes, the FTEM– Officials framework provides a tool that can be considered in sport- and system-level strategic planning and programming for officials at all levels. This talk will discuss the considerations and present the proposed FTEM- Officials framework.

- **Self-efficacy referee scale: An overview**

Félix Guillén[1], Sylvain Laborde[2]
[1]University of Las Palmas de Gran Canaria, Spain, [2]University of Caen, France

Nowadays, with the stakes surrounding sport competitions, the task of referees became very complex and difficult (Guillén, 2001). This complexity is due to the many actions they have to perform, the number of cues they need to attend to, the game speed, the decision-making speed, etc. Moreover, the referees tasks are made even more difficult given the pressure they have to face from players, coaches, fans and media, generating a loss of confidence, a higher anxiety, as well as increased stress levels (Dosseville & Laborde, 2011; Guillén, in press). Self-efficacy is considered to be one of the most influential psychological constructs mediating achievement striving in sport (Feltz, 1988). If it has extensively been studied in athletes, it has so far rarely been studied in referees (Guillén, 2003). This talk presents a conceptual model of referee efficacy, named refficacy (Guillén & Feltz, 2011) and the development of the scale measuring referee self-efficacy (REFS; Myers, Feltz, Guillén, & Dithurbide, 2012). Starting with the conceptual model, we analyze the sources of refficacy information (mastery experience, other significant, physical and mental preparation, and partner qualifications), its dimensions (game knowledge, strategic skills, decision-making skills, psychological skills, communication/control of game, and physical fitness) and its outcomes (satisfaction, performance, stress,…). Subsequently, the construction and development of the scale and translation into other languages is presented. Finally, the development of future research using the refficacy scale is proposed, together with the presentation of ideas regarding training programs for referees.

- **Is observational or feedback learning more effective for improving referee decisions?**

Geoffrey Schweizer[1], Henning Plessner[1], Patrick Laier[2], Ralf Brand[3]
[1]University of Heidelberg, Germany, [2]University of Mannheim, Germany, [3]University of Potsdam, Germany

Recently, several video based training programs for soccer referees have been introduced both into the scientific literature and into referee training (e.g., Catteeuw, Gilis, Jaspers, Wagemans, & Helsen, 2010; Schweizer, Plessner, Kahlert, & Brand, 2011). However, it is still an open question which feedback mechanisms lead to optimal training results. Specifically, it is unclear whether feedback is necessary at all, or whether training effects may also be obtained by the mere presentation of correct decisions. Research from category learning suggests that feedback training leads to better results for tasks based on associative processing, whereas observation training leads to better results for rule-based categorization tasks (Ashby, Maddox, & Bohil, 2002). As decisions in contact situations are supposed to rely on automatic processing, we hypothesize that for decisions in contact situations feedback training will lead to better learning success than observational training. We tested this hypothesis in two training studies. Participants in both studies took part in a video-training program that lasted for three weeks and consisted of a pretest, a posttest and several training sessions. Participants were randomly assigned to a control group, a feedback-training group and an observational-training group. Participants were soccer players (Study 1) and soccer referees (Study 2). Results suggest that feedback training does lead to better training effects than observational learning, however observational learning is not entirely ineffective. Interestingly, an exploratory analysis of learning effects for decisions on whether to call handballs suggests the opposite effect. We discuss possible theoretical explanations for this finding. Taken together, our findings suggest that different kinds of referees' decisions may call for different training environments. We discuss ensuing challenges both for the development of training environments and for further research.

- **The future of refereeing: Is technology all it takes?**

Werner Helsen[1], Williams Mark[2]
[1]KU Leuven, Belgium, [2]Brunel University London, UK

The cost to setup goal-line technology in a football stadium is 318.700€. To run the system in each club it takes 63.800€ per season. Regardless of this huge financial investment, it is used in very few incidents. In addition, at a cost of 300.000 USD per match in cricket, video review only results in 2.7% increase in umpiring accuracy (Borooah, 2013). On the other hand, on- and off-field referee training results in 15-20% performance enhancement. Web-based training (Put et al., 2013) resulted in a 23.3% transfer to the real match. Taken together, it remains an intriguing question to what extent the future of refereeing can best be certified by investments either in technology or referee training. First, we screened the literature to document the use of technology across professional sports. Second, we examined to what extent the implementation of additional assistant referees (AAR) impacts on the overall refereeing performance and game management. To determine the influence of AAR on refereeing performances, we examined post-match feedback reports issued by UEFA match officials during 3 consecutive seasons. In addition, we conducted an offside decision-making accuracy analysis of major tournaments over the last 12 years, with and without AAR. Feedback reports revealed that despite their limited number of interventions, AAR are involved in key incidents that impact on the course and final match outcome. Since the introduction of the AAR, the accuracy of non-flag offside decisions increased from 80,7% during the 2007/2008 season of the English Premier League to 98,7% and 98,0% in the 2012 UEFA Champions and Europa Leagues ($p < 0.001$). Together, the implementation of AAR enhanced both match management and offside decision-making accuracy. Thus, improvements in refereeing performances can be obtained, at a lower cost, by investing in referee training rather than in technology.

- **Does video technology improve the decisions of soccer referees?**

Alexandra Pizzera, Markus Raab
German Sport University Cologne, Germany

For the first time in soccer history, the FIFA allowed additional technology to support referees' decisions at the World Cup 2014. However, given the costs of some technologies, the gains obtained through better technology could also be obtained by investing in refereeing training (Borooah, 2013). The present study was aimed to investigate if participants change their decisions with video replay and if yes, do their decisions improve? In a pilot study, we asked 31 soccer players (age M = 25.52; playing experience M = 16.20 years) to judge 19 video clips on foul decisions in the penalty box. Each video clip was shown once in real time (RT) and twice in slow motion (SM). After the video clip in RT and SM respectively, the participants indicated if the situation should be categorized as no foul, foul, yellow card or red card and rated their decision confidence. From RT to SM displays, participants changed 3.61 decisions on average, with 2.42 decision improvements and 1.61 deteriorations. Overall, they significantly improved their decision accuracy from 12.13 (2.01) to 13.71 (1.92), $t(30) = 4.93$, $p < 0.01$, $d = 0.89$. Participants rated their decision confidence significantly higher after the SM (M = 4.95) than after the RT displays (M = 4.11), $t(30) = 10.83$, $p < .01$, $d = 1.93$. Participants changed their decisions after watching video clips in SM, resulting in more accurate decisions and higher confidence. The preliminary results seem interesting, considering the current discussions about additional technology in soccer (see also economic investigations, Borooah, 2013). So far, even the use of little technology (only SM, no additional viewing perspectives) increased decision accuracy and confidence.

SS-ME8.1: Special Session - Meet the Expert: Dr. Claudia Voelcker Rehage

Claudia Voelcker-Rehage
Jacobs University Bremen, Germany

Questions & discussions

SS-ME8.2: Special Session - Meet the Expert: Dr. Chris Harwood

Chris Harwood
Loughborough University, United Kingdom

Questions & discussions

S8.01: Symposium - Celebrating a distinguished global career in sport psychology: A festschrift in honor of Mark B. Andersen

Chair(s): Britton W. Brewer (Springfield College, USA)
Discussant(s): Judy L. Van Raalte (Springfield College, USA)

With the retirement of Mark B. Andersen from Victoria University and subsequent completion of a visiting international research professorship at Halmstad University, the career of one of sport psychology's most provocative and productive professionals came to a close. Circling the globe and spanning more than three decades, Professor Andersen's career was one of distinction, marked by major contributions in disparate areas of sport psychology, including a stress-based model of sport injury occurrence and prevention, development of a comprehensive service delivery network for university student-athletes, scholarship on the supervision of sport psychology trainees, multiple edited volumes that have shed light on the process of sport psychology consulting, and incisive and insightful commentaries on professional issues and research methods in sport psychology. In this festschrift, scholars from Europe and North America pay tribute to the accomplishments of Professor Andersen with presentations on: (a) an overview of Professor Andersen's career in sport psychology; (b) Professor Andersen's contributions to the prediction and prevention of sport injury; (c) Professor Andersen's contributions to qualitative research; and (d) Professor Andersen's contributions to the training and supervision of applied sport psychology practitioners. The festschrift highlights the lasting legacy of Professor Andersen's work in service to those with whom sport psychologists work.

- **Overview of the professional career of Mark B. Andersen**

Britton W. Brewer
Springfield College, USA

Prior to beginning his career in sport psychology, Mark B. Andersen had a variety of educational, teaching, research, clinical, and life experiences that laid the groundwork for the three productive decades he has spent in the field. In collaboration with his mentor, Jean M. Williams, he began a sustained and influential program of research on the psychosocial antecedents of sport injury that has continued to the present day. After completing his doctorate, Professor Andersen occupied a series of teaching and applied sport psychology positions that broadened his professional focus before landing an academic position at Victoria University in Melbourne, Australia, where he remained for the balance of his professional career. Through teaching, supervision, research, and a steady stream of scholarly writings and keynote addresses on every continent except Antarctica, Professor Andersen has had an impact of breath and depth on the field of sport psychology, extending far beyond his initial work on sport injury to include research methodology and the training and the training and supervision of applied sport psychology practitioners. Throughout his career, he has not shied away from addressing critical methodological and professional issues that confront the field, putting his own indelible stamp on sport psychology in the process.

- **Contributions of Mark B. Andersen to the prediction and prevention of sport injury**

Urban Johnson
Halmstad University, Sweden

Although Mark B. Andersen has had a substantial positive impact on many aspects of sport psychology, his first and possibly most enduring contribution is in the area of psychosocial antecedents of sport injury. With his mentor and long-time collaborator, Jean M. Williams, Professor Andersen proposed and later updated a stress-based model of sport injury occurrence and prevention that has guided research and practice over the past quarter century. In addition to inspiring a generation of scholars, Professor Andersen has conducted groundbreaking research on the hypothesized psychosocial mechanisms of sport injury occurrence and the preventive effects of psychosocial interventions on sport injury occurrence. Over the course of his career, he has used his vast knowledge of research methodology and statistics to inform researchers on matters of interpretation and analysis of data pertaining to sport injury and has generously shared his insights with students and colleagues around the world. Although he is stepping away from professional life in sport psychology, his footprint on the study of psychosocial antecedents of sport injury is large and sure to be followed and appreciated by many.

- **Professor Andersen - a parrhesiast and trickster**

Brett Smith
Loughborough University, UK

Professor Mark B. Andersen was not cast from the traditional academic mold. He is a rarity. He is a scholar, not an academic. He is pioneer who takes risks, cares about people, and pushes scientific boundaries. In this festschrift, the focus is on Professor Andersen's contribution to qualitative research. It also focuses on his (often subtle) challenges and resistances to the neo-liberal culture that increasingly pervades university life. No final word on Professor Andersen will be offered; he still has many more things to say! It will though be said that he has consistently embodied what Michel Foucault termed a parrhesiast - a truth teller, who takes the risk to speak 'truth' to power. It might also be said that Andersen is a trickster. Defining the trickster is paradoxical as one of the trickster's primary qualities is the ability to slip out of definitions that seek to limit whatever is defined. Andersen knows how to slip out of traps set by academic structures, traps that hold people to one identity, to believing in metrics as the key criteria for judging research (e.g., impact factors or a h-index), and to seeing sport psychology as a career concerned with individual progression and promotion, rather than as a vocation and social responsibility. Embodying a parrhesiast and approaching tricksterdom in his storytelling life are resources that Andersen has gifted us. For these resources, and the stories he has shared, a heartfelt appreciation is offered.

- **Putting psychology into sport psychology: Mark B. Andersen's contribution to the training and supervision of applied practitioners**

David Tod
Liverpool John Moores University, UK

An analysis of citations returned by Web of Science using the key words "sport psychology," "training," and "supervision," provides data revealing the contribution that Mark B. Andersen has made to knowledge regarding applied sport psychologist training and supervision. According to Web of Science, he has authored 35% of published referred academic articles on the topic. Also, he has written 4 of the 10 most cited publications. One key theme throughout these articles includes examining the role and influence of the practitioner in the process and outcomes of the service delivery relationship. His writings remind us that effective service delivery rests on the people involved and the relationships, trust, and love they share for each other. In addition to producing some of the most read articles on applied sport psychologist training and supervision, Mark, along with his colleagues, developed and headed up a taught master's degree and professional doctorate aimed at helping aspiring

practitioners learn the skills, knowledge, and attributes needed to be safe, effective, and ethical consultants. These degrees were accredited by the Australian Psychological Society and gave Mark the opportunity to practice in behaviour what he preached in written word. Both his writings and his teaching have inspired and transformed lives. In the current presentation, I will survey his written works to show the extent of his contribution to knowledge on the topic, and I will present the voices and stories of his past applied sport psychology students to illustrate the man behind the beard and to document his lasting impact on the people who will take the field forward beyond his retirement.

S8.02: Symposium - Inclusion of individuals with psychiatric disorders in sports

Chair(s): Nikolai Kiselev (PluSport Behindertensport Schweiz, Switzerland)
Discussant(s): René Will (PluSport Behindertensport Schweiz, Switzerland)

The symposium and the subsequent workshop in the afternoon are dedicated to the subject of disabilities and impairments in sports. The symposium and the workshop are co-organised by PluSport, the umbrella organisation of the Swiss organisations for sports for the disabled. PluSport strives to create and maintain adequate and sufficient sports activities for people with disabilities. Up until now, the psychic component has not been the topic of much discussion in disabled sports. Recently, PluSport has been studying how the integration for people with psychic disabilities is possible and which position this target group can take in the Swiss sports landscape. Modern empirical insights into the connection between sports and psychic health will be presented at the symposium. First, the focus will be on PluSport's study on the general situation regarding the sporting activity of people with psychic impairments in Switzerland, then the topic of inclusion and social interaction in connection with stereotype as well as behavioural insecurities will be discussed. This will be followed by the issue of barriers experienced when organising an inclusive sport activity. The third presentation will be about a study on reciprocal personality development of people with down syndrome and healthy people in a mixed dance group. Subsequently the last contribution will present a further practical project on the activity of football for people with chronic psychic disorders. In a discussion following the presentations possible aspects of sports in the societal (re)integration of people who are physically impaired will be clarified further.

- **Sports and psychic impairments (in Switzerland)**

Nikolai Kiselev[1], Hanni Kloimstein[1], Hans Lichtsteiner[2]
[1]PluSport Behindertensport Schweiz, Switzerland, [2]University Freiburg, Switzerland

For a long time the classical model for the treatment of people with depressive disorders consisted mainly of medicative therapy and psychotherapy (Perrez & Baumann, 2005). Recent research, however, has provided more insight into possible treatment approaches, so that these could be supplemented with additional methods (Ihde-Scholl, 2014). Among these methods is the suggestion of sports activities (Schulz, Meyer & Langguth, 2012). In Switzerland these new insights have been implemented fairly well, and most psychiatric clinics have started including sport therapeutic programs. However, the question remains of what happens to these people when they are released from stationary treatment or a day clinic. As disability and medical illness pictures are constantly changing, there are always new target groups with new specific needs emerging. Looking at a range of statistics in Switzerland (e.g. OBSAN- und OECD-reports (OBSAN, 2012; OECD, 2014)) it becomes clear that people with psychic problems are new and rapidly growing impairment segment that will challenge society in the future. This target group does currently neither fit in with classical disabled sports nor with non-disabled sports. For this reason PluSport has taken a first step in analyzing the situation regarding sports for people with a psychic impairment. To analyse the current situation, interviews were held with Psychiatric doctors and experts, which were followed by surveys among the affected parties. With the exception of patients in or shortly after an acute phase there are almost no adequate sports activities for the affected people. The programs that hardly exist are, on the one hand, mostly privately organized and not connected with each other, and on the other hand, not widely known among therapists.

The affected people have clearly spoken out for an expansion of such programs, whereby the aspect of the promotion of health and wellbeing stands out in particular.

- **Attitudes, social reaction, stigma and behavioural insecurity: Concepts and strategies to enhance the process of inclusion**

Manfred Wegner
Christian-Albrechts-Universität zu Kiel, Germany

In the context of inclusion, social interaction is accompanied by prejudice and behavioural insecurity. One reason might be seen in the lack of experience how to deal with someone who looks different or someone who behaves differently. The presentation offers two perspectives: (1) What are theoretical concepts and empirical data that can identify the problems in social interaction and (2) what are effective strategies to cope with social demands? In the first step, two approaches are taken into account, attitude and behaviour. The attitude theory offers concepts and descriptions on cognitive, emotional, and behavioural level. Concerning disability research Cloerkes (2007) identifies negative attitudes like disability characteristics, personality aspects or fear of contact. On behavioural level social interaction is based on individual und social expectations. Negative action tendencies can be seen in overt discrimination, jokes, or aggressive behaviours. This is defined as the “social reaction” to a person or group with a disability. Stigma-theory take in consideration that the visibility of the disability characteristics make a difference in accepting the stigma. People whose disability is not visible to everyone (asthma, diabetes, etc.) are not certain whether or not to tell people that they have problems. This defensive strategy is correlated with behavioural insecurity and the destructive feeling to accept the stigma (Wegner, 2001). In the second step, strategies to cope with the social reaction are presented. They are based on information, contact, simulation or combined strategies. Finally, concepts and empirical data are put together to offer opportunities to people who work in this field to step into the process of inclusion in sport settings as well as in society.

- **Establishing an inclusive course offer of self-defense (Wing Tsun) for people with and without chronical mental disabilities**

Susanne Quinten
TU Dortmund, Germany

The UN Nations Convention on the Rights of Persons with Disabilities (UNCRPD) suggests promoting joint sporting activities of people with and without disabilities. In this presentation, first results from a pilot project which examines the barriers that may arise in the process of establishing an inclusive course offer of self-defense (Wing Tsun) for people with and without mental disabilities (Quinten 2012). A qualitative empirical research approach was chosen, using semi-structured interviews with different stakeholders. Content analysis and evaluation was achieved by application of a software-based data analysis (Kuckartz 2010; Mayring 2010). The results show a wide range of possible barriers from the perspective of all stakeholders. For those with chronical mental disabilities barriers such as a lack of information about possible course offers, low motivation, a negative self-concept , trauma due to violence experience, medication, problems resulting from the personality of the coach and/or his/her behaviour became visible. Moreover the specific characteristics of the Wing Tsun training culture with its special requirements for movement coordination, load capacity, the training concept of partner work and the typical attack and defence techniques, constitute further barrier aspects. For external participants the following possible barriers were identified: a concern that the demands might be too low due to the participation of persons with chronical mental disabilities, uncertainty as how to treat them as well as a concern that they might not receive sufficient attention from the training coaches. As far as the coaches are concerned, a higher workload was anticipated because of the inclusive setting and the fear of not meeting the specific expectations of persons with mental disabilities. Finally, some recommendations for a successful construction of an inclusive training setting are presented.

- **Personal development of dancers with (and without) down-syndrome of an inclusive dance company**

Maria Dinold, Helga Neira
Universität Wien, Austria

The aim of the presentation is to acknowledge the influence of artistic dance activities on personal development of dancers with and without disability. Earlier studies in this context (Dinold, 2000) identified some important influencing factors. The development of personal identity and the impact of structures of space and time in dance on the individuals' orientation in space and time in daily living had been pointed out among others. Following Erikson (1968) the identity formation stage of psychosocial development is a crucial stage in life of the individual. Further aims for supporting personal development of individuals with impairment are developing trust and fostering independence. Such intentions are used purposely in many concepts of dance therapy. The inclusive dance company "Ich bin O.K." consists of (young) adults with Down Syndrome (DS) and professional dancers who rehearse and perform together regularly since many years. Recently they had been very successful with their program "Getrennt – Vereint" ("Separately – Together"). In order to give a picture of their stage of self-confidence, self-efficacy, and self-reported satisfaction with their level of achievements in dance, mobility, independence, social relations, and mastery of daily living, eight participants of the company were interviewed using semi-structured interviews. The qualitative analysis should enable to describe the significance of the artistic framework of dancing in an inclusive context, considering different abilities, gender, and performance experience in dance. As the evaluation of this project is not finished yet it can only be presumed that the inclusive dance activities is influencing personal development positively – both dancers with and without a disability. Teaching and performing experience had shown that inclusive dance pedagogy may contribute to the quality of life of persons with a disability and that similar additional benefits could be identified for participants without impairments as well.

- **Game of Life: Results of a motor-social intervention through soccer in individuals with psychiatric disorders**

Yeshayahu Hutzler[1], Malca Oz[2], Nadav Dagan[3], Sharon Barak[4]
[1]Zinman College of Physical Education and Sport Sciences, Israel, [2]Israel Sport Center for the Disabled Ramat Gan, Israel, [3]Mifalot – Sport or Education, Development, and Peace, Israel, [4]The Edmond and Lily Safra Children\'s Hospital, Israel

In Israel individuals with chronic psychiatric disorders that detrimentally influence their participation in vocational and other significant daily life domains are subject to legislative acts securing community rehabilitation services including leisure activities. Several physical activity modalities have been introduced by different non-governmental organizations including, among others, the soccer program of "Mifalot Chinuch" entitled "Game of Life". This program fosters the use of soccer as a medium for facilitating psycho-educational outcomes in children, youth and adults with social disadvantages or disabilities. Parallel participation of psychiatrically challenged persons in this program has recently evolved upon request of the Fund for Demonstration Projects of the Israel National Insurance Institute, which is the major funding agency for this program. The purpose of this prospective study was to derive motor and psycho-social outcomes from the program. Two teams comprising 20 persons in total with psychiatric disorders were followed. Ages ranged between 22 and 39 (mean age= 28.5 + 5.0). Upon admission and eight months later, participants underwent a battery of physical (soccer skills, Sit and Reach [SR], Sit to Stand [STS], Curl Ups [CU], Standing Long Jump [SLJ], and Timed up and Go [TUG]) and psycho-social tests (soccer self-efficacy, independence and social affiliation). After eight months SR, STS, and TUG significantly improved. In addition, effect sizes revealed a medium increase in social affiliation (Cohen's d=0.72), and a medium decrease in soccer self-efficacy (Cohen's

d=0.78), suggesting a more realistic perception. TUG time and independence significantly correlated at the post-test (r=-0.74). All "change scores" inversely correlated with the initial scores. Our moderate sample demonstrated program effectiveness in several physical and psycho-social outcomes, demonstrating its potential usefulness, particularly in participants with lower initial scores. Recommendations for future studies include increasing the sample size, randomizing a control group and incorporating specific psychiatric outcome measures.

S8.03: Symposium - Getting athletes into flow: New research directions

Chair(s): Stefan Koehn (Liverpool Hope University, Liverpool, UK), Tony Morris (Victoria University, Australia*)*

In the burgeoning field of positive psychology (Seligman, 1998), flow is a key concept (Csikszentmihalyi, 1975). Flow is a peak experience that occurs when challenge and skill are in balance and both high. It involves total absorption in a task, accompanied by clear goals and calm confidence. Researchers have reported that when athletes are in flow they experience enjoyment, which makes them want to experience flow again, intrinsic motivation, which enhances effort and persistence, and flow is often associated with peak performance (Jackson, 2011). For these reasons athletes and their coaches seek to increase the intensity (state) and frequency (disposition) of flow. Thus, sport psychology researchers are examining new directions to determine what factors can be managed to enhance the depth of flow that athletes experience in training and competition, and to increase the frequency with which athletes experience flow. In this symposium researchers report on their recent studies that have examined new variables that might promote flow. The authors of presentation 1 examined the relationship between flow state and the telic and paratelic, metamotivational states identified by reversal theory. In presentation 2, the authors studied the role of students' perceptions of feedback from their teachers, as well as the perceived learning environment as predictors of dispositional flow in the PE context. The moderating effects of competition importance and difficulty on the relationship between anxiety, self-confidence and flow state are examined in the study reported in presentation 3. In the fourth presentation, the authors examined the fit of a new 14-subscale measure, the Team Flow State Inventory (TFSI). In presentation five, the authors examined cross-cultural differences in the experience of flow. The authors discuss the implications of their research for enhancing flow in sport and physical education.

- **Flow theory – reversal theory: examining the differences in flow experience between telic and paratelic states**

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[1]ASPETAR, Orthopaedic and Sports Medicine Hospital, Qatar, [2]Liverpool Hope University, UK, [3]University of Athens, Greece, [4]Victoria University, Australia

The concept of flow refers to a subjective state that athletes report when they are completely involved in an activity, feeling pleasure, and enjoyment. Reversal theory proposes that athletes' behaviour can be explained by a pair of metamotivational states. Metamotivation refers to the way in which individuals' motives shift based on the demands of an activity. Two metamotivational states are the telic and paratelic states. In the telic state, athletes are usually serious-minded, future- and goal-oriented, and prefer low levels of arousal, whereas, in the paratelic state, athletes are playful, present- and process-oriented, and seek arousal (Kerr, 1999). The purpose of the present study was to examine differences between telic and paratelic athletes in flow experience. Two hundred and fifty four athletes, ranging from 16 to 38 years old, volunteered to participate in the study. The athletes completed the Flow State Scale-2 (FSS-2), the Telic/Paratelic State Instrument, and three 11-point scales measuring arousal, challenge, and skills of the athletes, based on how they felt during a competition in the near past. The instruments revealed acceptable reliability and validity values. The results indicated that athletes in the paratelic state, experienced increased levels of arousal and showed higher values on FSS-2 subscales, compared to athletes in the telic state. Additionally, with regard to the flow orthogonal model (low vs high challenge – skills),

athletes in the flow and relaxation quadrants were mainly in the paratelic state, whereas athletes in the telic state grouped mainly into the anxiety and apathy quadrants. The results indicated that athletes in the paratelic state experienced more positive characteristics compared to telic athletes, while the level of athletes' arousal was important in the quality of their sport experience. Flow and reversal theories provide useful information for improving athletes' emotional experience during competition.

- **Perceptions of teacher's feedback and learning environment as predictors of dispositional flow in physical education**

F. Hülya Aşçı[1], Feyza Meryem Kara[2]
[1]Marmara University, Zurkey, [2]Başkent University, Turkey

The purpose of this study was to investigate the role of perceived learning environment and perceived teacher's feedback in dispositional flow state in physical education lessons. The study also tested gender differences in flow state, perceived learning environment, and perceived teacher's feedback in physical education lessons for middle school children. One-hundred-and-twenty-seven girls (Mage = 12.44, SD = 0.89) and 112 boys (Mage = 12.57, SD = 0.86) aged 11-15 voluntarily participated in this study. Participants completed "The Physical Education Learning Environment Scale" "The Perception of the Teacher's Feedback Questionnaire" and "Dispositional Flow State Scale 2". Hierarchical multiple regression analysis was conducted to determine whether perceived learning environment and perceived teacher's feedback (independent variables) were significant predictors of dispositional flow (dependent variable) in physical education lessons. The ranges for Tolerance (TOL) and Variance Inflation Factor (VIF) in all independent variables were between .55 to .98 and 1.02 to 1.84, respectively, indicating no collinearity. Gender was included as covariate. Perceived learning environment and perceived teacher feedback were entered in step 2 and 3, respectively. Results revealed that at step 1, gender contributed significantly to the regression model and accounted for 2% of the variation in dispositional flow. Adding the perceived learning environment and perceived teacher feedback variables explained an additional 4% and 6.4% of variation in flow, respectively. Analysis indicated that perceived threat to sense of self (β= -0.16) and positive general feedback (β=0.16) were significant predictors of dispositional flow state in physical education lessons. T-test results revealed no significant gender differences in perceived learning environment and perceived teacher's feedback in physical education lessons. On the other hand, boys had significantly higher scores on flow state than girls. In conclusion, creating non-threatening learning environment and providing positive feedback in middle school physical education lessons help students to achieve optimal psychological states.

- **Anxiety, self-confidence and flow experience: the moderating effect of competition importance, difficulty, and skills**

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Anxiety and confidence are two key variables that have been proposed to be among the main antecedents of athletes' flow experiences (Jackson & Csikszentmihalyi, 1999). Engeser and Rheinberg (2008) underlined the role of perceived importance of the activity on the balance between challenge and skills. In addition, the perceived difficulty of the activity also seems crucial because it is closely linked to the perceived estimation of athletes' skills. The purpose of the study was to examine the moderating role of perceived importance and difficulty in the anxiety – flow relationship. Volleyball athletes (89 men, 101 women) volunteered to participate in the study ranging in age from 16 to 50 years old. The athletes completed the Flow State Scale-2, the Competitive State Anxiety Inventory-2, and three 11-point Likert scales measuring athletes' perceived importance, difficulty, and skills. Flow experience showed positive correlations with skills, and negative associations with

importance and difficulty of the competition. Comparing low- and high-importance levels, state anxiety explained some variance in flow state (cognitive anxiety: R2low = .22, R2high = .23; somatic anxiety: R2low = .27, R2high = .18; state confidence: R2low = .07; R2high = .16). Examining the moderation effect of difficulty levels, predictor variables accounted for a majority of variance between flow and cognitive (R2low = .35) and somatic anxiety (R2low = .41), and state confidence (R2low = .37) in the low-difficulty group. A majority of variance was explained on a high-skill level (cognitive anxiety R2high = .26; somatic anxiety R2high = .20; state confidence R2high = .23). A combination of high skills and low difficulty seems facilitative for the athlete to get into flow. Working on athletes' perceptions and interpretations of competition importance, as well as challenge and skill perceptions is important to experience positive emotions during competition.

- **Development of the Team Flow State Inventory: refinement using confirmatory factor analysis**

Erez Mosek, Tony Morris, Anthony P. Watt
Victoria University, Australia

The concept of individual flow (Csikszentmihalyi, 1975) is experienced as total absorption in a task, when challenge and skill are in balance and both high. It leads to enjoyment, intrinsic motivation, and often to enhanced performance, making flow an experience that athletes and coaches aim to recapture. Psychologists have proposed that flow can be experienced at a team level (Quinn, 2003), but researchers used individual flow scales to measure team flow. We conducted interviews with team sport athletes and coaches to examine the conceptualization of team flow (Mosek et al., 2012). We found seven themes that mirrored individual flow scales, but also another seven themes that were unique to team flow. Based on the qualitative statements we created a measure, the Team Flow State Inventory (TFSI), with four items on each of the 14 subscales (themes). Five sport psychology experts on flow provided face and content validity for the TFSI. In this study, 342 team sport athletes of both genders, aged 18 to 40 years, from Israel and Australia completed the TFSI. We conducted confirmatory factor analysis (CFA) to examine the fit of data to the 14-subscale model. Initially, the fit was moderate, which is understandable with so many subscales. We then examined the standardized residual covariances and item-deleted Cronbach's alpha coefficients and progressively removed weak items from subscales, limiting items removed to one from any subscale. The resulting CFA showed a sound fit to the 14-subscale model (Chi-squared ratio = 2.40, TLI = .886, CFI = .904, RMSEA = .064). We concluded that this refinement process produced a version of the TFSI that is suitable to be examined further as a measure of team flow in sport.

- **Cross-cultural differences in the experience of flow**

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Previous studies on optimal experience mainly examined flow within one cultural setting, without testing potential cross-cultural differences in the experience of flow. This study investigated the validity of the Dispositional Flow Scale-2 measurement model in Turkish, Australian, and Scottish samples, and cross-cultural differences in the experience of flow in competition. The Turkish sample consisted of 356 participants, including 227 male and 129 female athletes. Age ranged between 16 and 35 years, M = 22.39, SD = 3.97. A total of 374 athletes (240 males; 134 females) were recruited from Australia. Participants' ranged in age between 17 and 43 years, M = 20.71, SD = 3.13. In Scotland a total of 369 University athletes (235 males; 134 females) joined this study. Participants' were between 16 and 43 years of age, M = 19.87, SD = 2.68. As a sample, participants have been participating in their sports between 1 and 29 years (M = 10.33; SD = 4.51), and have been training on average for 8.21 hours (SD = 6.49). For the three samples, Cronbach's alpha reliability for the DFS-2 ranged between .91 and .93, and construct reliability between .71 and .74 for the three

samples. The model fit indices were acceptable for the Turkish (CFI = .916; TLI = .904; SRMR = .053; RMSEA = .043), Australian (CFI = .951; TLI = .945; SRMR = .048; RMSEA = .037), and Scottish (CFI = .938; TLI = .929; SRMR = .045; RMSEA = .041) samples. Analyses of mean and latent mean differences showed significant group differences, indicating that Turkish athletes scored substantially higher on flow than Australian and Scottish athletes. The results revealed variances between groups, which provides support for cross-cultural differences.

S8.04: Symposium - Measuring and addressing the organizational stressors encountered by sport performers in various populations and cultures

Chair: Dr. Rachel Arnold, University of Bath

The organizational and social environment surrounding sport performers can hinder their achievement of peak performance and create physiological and psychological maladaptations by imposing numerous demands on them. In view of these undesirable consequences, scholars have examined athletes' organizational stressors – defined as "the environmental demands associated primarily and directly with the organization within which an individual is operating" (Fletcher et al., 2006, p. 324). These demands are particularly prevalent in sport, with 640 distinct organizational stressors identified (Arnold & Fletcher, 2012). To assess these stressors, Arnold et al. (2013) developed and validated the Organizational Stressor Indicator for Sport Performers (OSI-SP), which measures the frequency, intensity, and duration of five subscales of organizational demands that performers have encountered over the past month. There is support for the internal consistency and content, concurrent, discriminant, and factorial validity of the OSI-SP (Arnold et al., 2013); however, it needs to be further validated so that it can accurately measure the phenomenon across various cultures. Moreover, although extant literature details which organizational stressors are encountered, we know little about how these experiences vary between athletes and how they can be best addressed. Such future investigations are crucial for providing an elaborated theoretical foundation and an evidence-based practical approach. The purpose of the proposed symposium, therefore, is to discuss how organizational stressors can be measured in various populations/cultures, how they differ, and ways to address them. First, a study will be presented that validates and uses the OSI-SP with Malaysian athletes. The second presentation will discuss a study on the validation and use of a Chinese version of the OSI-SP. Third, a study will be presented that investigates variation in the dimensions of organizational stressors as a function of demographic differences. Finally, a framework and recommendations for developing organizational stress management interventions will be discussed.

- **The validation and use of the Organizational Stressor Indicator for Sport-Performers (OSI-SP) with Malaysian athletes**

Daniel Gucciardi[1], Rachel Arnold[2], Vellapandian Ponnusamy[3]
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The initial validation of the Organizational Stressor Indicator for Sport Performers (OSI-SP; Arnold et al., 2013) included 1000+ participants who, collectively, represented over 20 nationalities. One country in which the OSI-SP has not been explicitly validated and used to date is Malaysia. Since the formation of the Olympic Council of Malaysia, elite sport in the country has undergone rapid growth with 30 Malaysian athletes competing at the 2012 Olympics. In view of these observations, and of organizational stress being commonly reported by athletes globally (Arnold & Fletcher, 2012), it is important to use the OSI-SP to investigate organizational stressors in Malaysia. The purpose of this study was, therefore, to conduct a validation of the OSI-SP and use it with Malaysian athletes. The sample of elite athletes (n = 150; male = 96, female = 52) were taken from various team (e.g., bola sepak, hockey) and individual (e.g., gymnastics, boxing) sports, and asked to complete the OSI-SP (Arnold et al., 2013) and measures of individual differences (e.g., personality, mental

toughness, athletic identity) that, theoretically, should be related to the OSI-SP (cf. Fletcher et al., 2006; McAdams, 1996; McAdams & Pals, 2006). Results indicated that four OSI-SP subscales had acceptable internal consistency (α = .72 to .93), with the selection subscale displaying almost acceptable values. Bivariate correlations between the five types of organizational stressors offered support for their discriminant validity. Furthermore, the OSI-SP demonstrated convergent validity by, as theoretically predicted, showing significant correlations with agreeableness, neuroticism, and mental toughness. Overall, this study provides initial support for the reliability, discriminant, and convergent validity of the OSI-SP with a Malaysian sample. The results are discussed in terms of theoretical and empirical contributions as well as, importantly, the practical implications for individuals wanting to understand more about organizational stressors in different cultures.

- **The validation and use of the Chinese version of the Organizational Stressor Indicator for Sport-Performers (OSI-SP)**

Frank Lu[1], Shin-Liang Lo[1], Shi-Wei Chan[2], Erica Wang[2], Wei-Ping Lee[2]
[1]Chinese Culture University, Taiwan, [2]National Taiwan Sport University, Taiwan

The Organizational Stressor Indicator for Sport Performers (OSI-SP; Arnold et al., 2013) was developed and initially validated in English. Since organizational demands have been found to be prevalent across the world, there is a need to further validate and use the OSI-SP in different languages so that organizational stressors can be better understood across populations and cultures. The aim of this study was to validate and use a Chinese Version of the OSI-SP. We recruited 325 participants from Taiwan (males = 208; females = 117; Mage = 20.15 years, SD = 1.61), and administered them the OSI-SP (developed Chinese version), Athlete Burnout Questionnaire (ABQ; Raedeke, & Smith, 2001), and Perceived Stress Scale (PSS, Cohen, Karmark, & Mermelstein, 1983). Following item and factor analyses, we found a good fit for the five-factor Chinese Version of the OSI-SP and acceptable reliability. Furthermore, a Pearson correlation analysis found that the OSI-SP correlated with the PSS and some factors of the ABQ; thus providing support for the convergent validity of the Chinese Version of the OSI-SP. The theoretical and empirical implications of these findings and the practical applications for sport psychology practitioners are discussed in terms of cultural perspectives.

Demographic differences in sport performers' experiences of organizational stressors

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Organizational stressors are particularly prevalent across sport performers' experiences and can influence their performance, health, and well-being. Research has been conducted to identify which organizational stressors are encountered by sport performers but little is known about how these experiences vary from athlete to athlete. The purpose of this study was to examine if the frequency, intensity, and duration of the organizational stressors that sport performers encounter vary as a function of gender, sport type, and performance level. By examining if demographic differences in performers' characteristics influence the genesis and dimensions of organizational stressors that athletes encounter, theoretical proposals presented in the meta-model of stress, emotions, and performance (Fletcher, Hanton, & Mellalieu, 2006) can be tested. Participants in this study (n = 1277) completed the Organizational Stressor Indicator for Sport Performers (OSI-SP; Arnold et al., 2013) and the resultant data was analyzed using multivariate analyses of covariance (MANCOVAs). The findings show that demographic differences are apparent in the dimensions of the goals and development, logistics and operations, team and culture, coaching, and selection organizational stressors that sport performers encounter. More specifically, significant differences were found between males and females, between team and individual based performers, and between performers competing at national or international, regional or university, and county or club levels. These findings have important implications for theory, research, and practice on organizational stress which will be discussed. To briefly elaborate,

the findings further theory by illustrating the demographic variables that affect the dimensions of organizational stressors, as well as providing an impetus for future research examining additional moderating variables. There are also important implications for practitioners, since the study can help more appropriate interventions be designed so that, ultimately, the negative consequences of stress can be reduced and an individual's well-being and sporting performances enhanced.

- **A framework and recommendations for developing organizational stress management interventions for sport performers**

James Rumbold[1], Rachel Arnold[2]
[1]*Sheffield Hallam University, UK,* [2]*University of Bath, UK*

The successful management of organizational stressors is likely to be paramount in optimizing an individual's well-being and sporting performances. Despite the wide prevalence of organizational stressors in sport (Arnold & Fletcher, 2012), little is known on how to develop organizational stress management interventions, which may aim to modify the presence of stressors or minimize their negative consequences (Richardson & Rothstein, 2008). Drawing on the contribution of organizational (Briner & Reynolds, 1999) and sport psychology (e.g., Rumbold et al., 2012), this presentation will provide a framework with which psychologists can design bespoke interventions to combat performers' organizational stress. Central to the design of an individualized stress management intervention is assessment and, in line with a transactional conceptualization (Lazarus, 1999), this includes assessing the environmental demands being encountered. It is suggested that scholars use validated psychometric assessment tools, such as the Organizational Stressor Indicator for Sport Performers (OSI-SP; Arnold et al., 2013), to identify the presence of these demands and use the resultant measurements to inform the design of stress management interventions. Furthermore, tools such as the OSI-SP can be used within longitudinal designs to track how stressor dimensions vary over time within and between sport performers, which can ensure that interventions are more appropriately designed and can be modified according to fluctuations in the frequency, intensity, and duration with which demands are encountered. For instance, it may be prudent to deliver interventions that are responsive in modifying the specific organizational demands that are encountered during the most stressful periods of an athlete's season. Such efforts will be fundamental in optimizing athletes' affective well-being and performance aspirations. Overall, this presentation will provide researchers, practitioners, and coaches who wish to develop organizational stress management interventions for sport performers with a series of methodological and applied recommendations to assist them in this quest.

S8.05: Symposium - Winning the mental game: An exploration of mental skills training based on diverse and international experiences

Chair(s): Zuzanna Gazdowska (University of Social Sciences and Humanities, Poland), Dariusz Parzelski (University of Social Sciences and Humanities, Poland)
Discussant(s): Jürgen Beckmann (Technische Universität München, Germany)

In contemporary sport, mental functioning is equally important as technical, and physical preparation (Williams, 2009). Mental training (MT) is a set of techniques, targeted at improving athletes' mental skills, psychological well-being, and sport performance (Vealey, 2007). The aim of this symposium is to provide a description of MT programs and interventions utilized in different countries. An evidence-based approach towards MT is presented through research in applied work with athletes from different sports, cultural backgrounds, and ability levels. The first presentation will describe a model of MT that can guide sport psychology professionals working with youth figure skaters. The model presented will be illustrated with experiences from a 7-week program working as a consultant for a training camp. In the second presentation a research study conducted on a group of 18 young golfers (nine in experimental group – EG, and nine in control group – CG) is described. Significant increase of tested skills (motivation, self-confidence, concentration,

self-efficacy, coping with stress), and improvement of sport results was reported in the EG. In the next presentation, the subjects are 18 fencers in the EG, and 19 in the CG. Significant improvements in hope, ego-resiliency, seven psychological skills, and in the fencers' competitive performance were registered in the EG as a result of MT. The purpose of the fourth presentation is to describe a six-step MT program designed for a disabled Danish goalball national team. The program included group sessions, action plans, and on-court training. The evaluation showed that group functioning and the team's ability to cope with adversity were improved. The final presentation will discuss an application of a new technique for MT - dynamic handgrip. Research has shown that applying this technique results in decreased rumination and likelihood of choking, for example when shooting a penalty in football (Beckmann, Groepel, & Ehrlenspiel, 2013).

- **Achieving "inner excellence": The delivery of a mental skills training program for youth figure skaters**

Taryn Brandt
Springfield College, USA

While figure skating shares psychological similarities with other sports it also differs in many unique ways. One of these ways is the tendency for athletes to early specialize in order to acquire skills in a critical window of development, prior to the onset of puberty. This suggests that youth figure skaters may benefit from exposure to mental skills at an early age. This is reflected in the literature (McCarthy, Jones, Harwood, & Oliver, 2010), where it has been suggested that training in psychological skills for youth athletes can be beneficial in enhancing sport performance as well as offering transferrable life skills. Garza and Feltz (1998) reported that incorporation of the practice of mental skills resulted in significant improvement in competition confidence and self-efficacy. The purpose of this presentation is to describe a model of MT that can guide sport psychology professionals working with youth figure skaters, or other similar athletes. Conceptually, the model is based in a cognitive behavioral approach and is inspired by the knowledge that factors of mental practice should be analogous to optimal physical performance (Palmer, 1992). An important component of the model is the integration of self-talk, imagery, and focusing techniques. Evidence shows that planning and memorization of key words, walking through skills off ice using key words, and practicing key words while skating can be effective in improving performance of young figure skaters (Ming & Martin, 1996). The model, or series of interventions presented will be illustrated with experiences from a 7-week program working as a consultant for a training camp in the United States, which involved the delivery of a mental skills psychoeducational program to a group of youth figure skaters. The presenter will emphasis strategies for working with a diverse group of same sport athletes representing different ages, genders, and skill levels.

- **Mental skills training for youth golfers in Poland: Application, effectiveness and influence on sport level**

Zuzanna Gazdowska, Dariusz Parzelski
University of Social Sciences and Humanities, Poland

Mental preparation is equally essential for sport success as physical preparation. Therefore, mental training is a commonly used technique consisting of expanding and improving athlete's mental abilities, which are essential in order to succeed. Frequently discussed skills are concentration, self-confidence, self-efficacy, motivation, and coping with stress. An intervention was conducted on a group of 18 golfers, 5 females and 13 males, aged 13-19 (average age=17), in order to establish the effectiveness of this method in training sportsmen. Subjects were divided into an experimental group (EG) and a control group (CG). In order to determine the output level of individual abilities, participants were tested with five tests including the Sport motivation scale (SMS-6) (Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995), Sources of Sport-Confidence Questionnaire (SSCQ) (Vealey, 1986),

d2 test (Brickenkamp, 1998), CISS Scale (Endler & Parker, 1990), and KompOs Questionnaire (Juczyński, 1998). Participants were also asked to state their handicaps. Next, the EG participated in four mental training (MT) workshops covering the topics of examined skills. After the MT, both groups were tested for the second time. Three months later, subjects were examined once again. The researcher hypothesized that participating in MT workshops would have an influence on the increase of skills among young athletes. The results show improvement of each skill for the EG, but not in the CG. More importantly, the analysis of the EG participants revealed a decrease in handicaps. This study confirms the hypothesis that application of MT influences sport results, as well as the level of abilities that are essential for reaching a high level of performance in sport. Golf is a developing discipline in Poland due to historical and political reasons, therefore applying this type of intervention can be considered as innovative in such cultural circumstances.

- **Mental training for fencers: Influence on psychological skills, personality characteristics and sport performance**

Evelina Savcheva, Zshivka Todorova Zsheliaskova-Koynova
National Sports Academy, Bulgaria

Mental training in sport is a purposeful, systematic training of the athletes' mental skills. These skills mediate the transfer between sport practice and competitive performance. The aim of the presented study was to investigate the influence of mental training (MT) on psychological skills, personality characteristics, and sport performance of fencers. The subjects included 37 fencers (17 males and 20 females, average age =18.2). Athletes were divided into an experimental group (EG) and a control group (CG). The four month long MT program consisted of 7 modules (workshops): goal setting, visualization, relaxation, emotional control, positive self-talk and positive thinking, concentration, focusing and refocusing, and self-confidence. Psychological tests utilized in the study were the Bulgarian adaptations of the following scales: Trait Sport-Confidence Inventory (Vealey, 1986), Trait Hope Scale (Snyder, Harris, Anderson, Holleran, Irving, Sigmon, Yoshinobu, Gibb, Langelle, & Harney, 1991), Rosenberg's Self-Esteem Scale (Rosenberg, 1965), ER89 – a scale for measuring ego-resiliency (Block & Kremen, 1996), Test of Performance Strategies (Thomas, Murphy, & Hardy, 1999), and The Ottawa Mental Skills Assessment Tool (OMSAT-3* - Durand-Bush, Salmela, & Green-Demers, 2001). A special indicator of competitive fencing performance based on the performance measuring system of the Bulgarian Fencing Federation was used in the study. After the MT, the fencers in the EG (but not in the CG) showed significantly increased competitive performance, hope (both agency and pathway subscales), and ego-resiliency. The level of psychological skills competition planning, activation (competition), relaxation (competition), relaxation (practice), self-talk (competition), self-talk (practice), emotional control (practice) significantly increased in the EG (but not in the CG) after the MT. In conclusion, the MT contributed to fencers' improvement of self-regulation, development of psychological skills, and sport performance. The results provide evidence for MT as an indispensable tool for psychological preparation of fencers, especially in cultures of salient negative thinking as Bulgarian culture.

- **Going for the gold: A six step mental skills training program in disability sport**

Carsten Hvid Larsen
University of Southern Denmark

In order to keep up and stay competitive on national and international levels, there is a need to recognize athletes' psychological skills in performance, in able-bodied as well as in disability sports (Dieffenbach & Statler, 2012). Both coaches and athletes in high performance disability sports indicate the high value of the use of mental skills (Martin, 2012; Martin & Malone, 2013), as well as the benefit of working with a sport psychology consultant (SPC) in preparation for the Paralympic Games (Dieffenbach & Statler, 2012; Dieffenbach, Statler, & Moffett, 2009). The purpose of this presentation is to provide applied perspectives

and a detailed description of a six-step MST program with the Danish national team in goalball for women (high performance athletes with visual impairment) in their preparation for the European Championships and qualification for the Paralympics. The presentation highlights the special concerns that practitioners need to reflect upon when working with professional athletes in disability sport and presents relevant processes when working with Danish professional athletes with visual impairment. Specifically, working with athletes with visual impairment transcends interventions in able-bodied sports (impossible to use non-verbal gestures or coaching cues during the match). The author will provide a detailed description of six steps from initiation of the program, examples of group sessions, overview of action plans, provide on-court training of mental skills, an evaluation of the program across six months, and finishes with reviewing coach and player reflections on the application of the mental skills training program.

- **Optimising and stabilising performance in football through the application of the dynamic handgrip technique**

Jürgen Beckmann
Technische Universität München, Germany

In sports, suboptimal performance of individual players is related to ruminations about a failure experience and/or which decision alternative to select. The personality disposition of state orientation is defined as a tendency to ruminate about past and future states of the individual (Kuhl & Beckmann, 1994). State orientation is assessed through the Action Control Scale (ACS). Several studies have shown that this personality disposition affects performance in sports. State orientation is not generally associated with negative performance. While it interferes with performance in sports requiring a high degree of self-regulation (e.g., endurance sports), it was found to be advantageous for the position of the playmaker on sport teams presumably because of state-oriented players' higher creativity (Beckmann & Kazen, 1994). A coach could be recommended to select players with dispositional state orientation for the position of the playmaker. State-oriented playmakers will be especially in need of coaching and support through mental training to stabilise their performance under pressure. Because of their tendency to ruminate state-orientated athletes are susceptible to an increased conscious attention on the execution of highly automated skills. Conscious control of an automated skill is found to impede performance. A pressure situation like a competition can trigger a focus on the conscious control of an automated skill. Based on neurophysiological reasoning, a new mental training technique – dynamic handgrip, was introduced to eliminate conscious control in pressure situations. The technique consists of clenching the left fist. A clenching of the left fist should prime activation in the right brain hemisphere and eliminate ruminative thoughts. This assumption was tested in several experiments and one field study. Dynamic handgrip was shown to eliminate choking, for example when shooting a penalty in football (Beckmann, Groepel, & Ehrlenspiel, 2013). The technique is currently successfully applied in different elite sports in Germany.

S8.06: Symposium - Decision-making behaviour in association football

Chair(s): Erkut Konter (Dokuz Eylül University, Turkey)

Association football or soccer is the most popular sport worldwide attracting millions of people with different jobs including sport psychology consultants, coaches, players, officials etc. Football also implies different types of preparation related to physical, technical, tactical, psychological and various arrangements in social life for a healthy development, satisfaction, success and performance. Quality of decision-making behaviour in football has a major impact for the achievement of the intended goals. Therefore, the purpose of this symposium is to discuss different aspects of the decision-making processes in football including decision-making at risk (courage), decision making of players, coaches and referees. Data were collected and analyzed using a number of different approaches including surveys, quantitative, quasi-experimental and experimental methods, parametric and non-parametric statistics. The first study is on courage in football measured by the Sport Courage Scale-31

with data of N = 473 male football players. Courage is examined in relation to multiple relevant variables such as risk taking, adventure, achievement of the first three standing, perception of success and performance against negative referee decisions. The second study is on decision-making in football including players, coaches and referees using formal structure analysis of players, coaches and referees' decisions, behaviour patterns and transitions, in a direct assessment of the mechanisms of decisional behaviours. The third study also focus on the referee's decision making processes and psychological affect, by means of a survey made with referees in Croatia. The final presentation is on decision-making of football coaches, considering their expectations, goals and tactical decisions in home and away games. In this study, football coaches (N = 297) with different expertise levels participated in an online management games paradigm.

- **Courage of association football players: Decision-making at risk**

Erkut Konter
Dokuz Eylül University, Turkey

The exact nature of the relationship between courage and decision-making in association football is quite unclear. More research is needed regarding how football courage is involved in performance and decision making at risk. Therefore, purpose of this study was to research courage of male professional and amateur association football players according to their perception of risk taking, adventure, injury, achievement of the first three standing, perception of success and received punishment. Data were collected from 473 male association football players aged 14 to 44 (M=18.40 ± 4.08 yrs; 310 amateur, 146 professional) with an average playing experience of 8.36 ± 3.73 years. Association football players administered the Sport Courage Scale-31 and the information form. Sport Courage Scale-31 was built measuring five factors of courage consisting of Mastery, Determination, Assertiveness, Venturesome, and Self-Sacrifice Behaviour (Konter & Ng, 2012) and this scale was recently applied in association football and children (Konter & Toros, 2013; Konter, Ng & Bayansalduz, 2013). Collected data was analyzed by various parametric and non-parametric tests. Results revealed a number of significant and non-significant differences ($p<.05$) between courage score of football players and their risk taking (higher risk takers have higher points of Mastery, Assertiveness and Total score), adventure (higher adventurous players have higher points of Mastery), achievement of the first three standing (First three achievers have higher points of Determination, Assertiveness, Venturesome, Self-Sacrifice Behaviour and Total score than non-first three achievers), perception of success (players with higher perception of success have higher Determination, Assertiveness, Venturesome, Self-Sacrifice Behaviour and Total scores than players with lower perception of success) and negative referee decision (players perceiving "makes no difference" related to their performance after negative referee decision have higher points of Mastery than "positively affected" players). More research is needed to have more conclusive results in association football.

- **An ecological dynamics perspective on players, coaches and referees' decision-making**

Duarte Araujo
University of Lisbon, Portugal

Most of us would probably agree that for important decisions, we should follow certain guidelines—gather as much information as possible, compare the options, set the goals before getting started. But in practice we make some of our best decisions by adapting to circumstances rather than strictly following procedures. In sports this fundamental aspect of human behaviour is even more evident. Behavioural decisions, such as the ones of expert footballers, coaches or referees, go beyond predictions. Indeed, the vast majority of research in sports, study decision-making as a rational process, where each decision should be calculated. There are two reasons for this. First, usually only outcome measures have been

used in research (e.g., reaction time, measures of errors). Second, a major problem for studies that focus on the perceptual-cognitive side of a perceptual-motor task is that they allow for 'an analytical stance'. This stance is unrepresentative of the functioning of perceptual-motor mechanisms underlying the selection and control of a given action in performance environments. Given this state of affairs, we will provide a formal analysis of the structure of players' decisions, including behaviour patterns and transitions, in a direct assessment of mechanisms of decisional behaviour. These are demonstrated by adaptations and transitions in performers' actions. We will illustrate this approach also at the level of coaches and referees' decision-making behaviour, and discuss methods for their improvement.

- **Does football officials need psychological preparation?**

Renata Baric
Faculty of Kinesiology, Croatia

Sport officiating is exciting and very stressful occupation, especially in football. Referees must continuously maintain a high level of physical but also psychological preparation to endure various pressures. Officials must develop mental skills, which enable them to make right decisions, manage the game efficiently, deal adequately with players, and to avoid mistakes that might undermine the game, their credibility and consistency. Despite many high-level football officials recognize the importance of mental skills; their preparation usually covers only physical part. Recently, Croatian football association (CFA) had recognized that, and we investigated the need for psychological preparation in 50 Croatian highest-level football referees. The results showed that 98% officials consider psychological preparation as one of crucial areas, but 88% had no experience with it. Also, 48 referees reported that they would like to collaborate with sport psychologist and attend psychological education. Referees specified the main psychological problems in officiating. Primarily it was coping with stress and external pressures (29%), decline of concentration (16%), fear of mistake/failure (16%), pressure (13%), anger (6%), anxiety (5%) and arousal (4%). They also indicated areas to be covered within their psychological preparation: coping with stress (29%), concentration/attention problems (24%), mental preparation before the match (13%), relaxation (11%), emotion and arousal control (11%). The short test of concentration skills for officials was administered (Deshaies, 2003). The results confirmed the mentioned problems (M=60,32, SD=5,974) indicating the need for target practice in concentration skills. The younger football referees (<35 yrs.) are significantly more often distracted with bad decisions of their assistants [F(1,46)=3,746, p=0.05] than older colleagues. Based on these results, CFA organized periodical psychological workshops for elite referees within their obligate biannual licensing procedure.

- **Decision-making of football coaches: Expectations, goals and tactical decisions in home and away games**

Kathrin Staufenbiel[1], Till Utesch[1], Babett Lobinger[2], Bernd Strauss[1]
[1]University of Münster, Germany, [2]German Sport University Cologne, Germany

Across sports, home teams win about 60 % of decided games (Jamieson, 2010). The causes of this home advantage remain unresolved. There is a shortcoming of research on the psychological states of actors, especially of coaches (Allen & Jones, 2014; Carron, Loughhead, & Bray, 2005). Despite of the important role coaches have for the success of their team very little is known about their approach to home and away games (Dennis & Carron, 1999). In this study we examined football coaches' expectations, goal setting and tactical decisions in relation to game location. Football coaches (N = 297) with different expertise levels participated in an experimental, online management game and were randomly assigned to one of two groups, "home game" or "away game". Participants received information on the game (home or away game against an equally strong opponent) for which they were asked to make decisions in multiple points. The only differing information

between groups was game location. As expected, coaches in the “home game”-condition had higher expectations to win ($F(1,292) = 15.54$, $p < .001$, $\eta p2 = .05$), set more challenging goals ($F(1,292) = 37.66$, $p < .001$, $\eta p2 = .11$) and decided for more offensive and courageous playing tactics (e.g. more offensive substitution $F(1,297) = 7.35$, $p < .01$, $\eta p2 = .02$) regardless of expertise. Possible consequences of these findings concerning home advantage are discussed.

S8.07: Symposium - Personal and contextual factors as determinants of basic need satisfaction: New research avenues and practical implications

Chair(s): Eleanor Quested (Curtin University, Australia)

Numerous studies support the theory-based hypothesis that basic psychological need satisfaction (BPNS) is fundamental for adaptive and sustained engagement in Physical Education (PE), sport and physical activity. However, to date, the majority of evidence draws from questionnaire-based studies undertaken in a single country or context. Moreover, design and delivery of effective, theory-based interventions that target BPNS remains a task in its infancy across the spectrum of physical activity settings. With the construct of BPNS as a unifying theme, this symposium brings together five innovative studies that highlight the personal and contextual factors relevant to BPNS. In each case, findings are discussed with a view towards stimulating new avenues for research and considerations that may inform interventions in a range of physical activity contexts. Study one adopted a multi-method approach to identify whether British children may be at risk of decline in BPNS on account of body composition and extrinsic thinness goals. Findings are discussed in terms of implications for the climate created by significant others, such as PE teachers. In the context of PE in Greece, study two illustrates the importance of the motivational climate created by the teacher for children’s BPNS and emotional experiences in PE. With a view toward informing interventions that can be shared across countries and learning contexts, study three examined invariance in the role of BPNS across countries (England, Turkey) and learning context (PE, Maths and English classes). In study four, a qualitative methodology was used to explore Swedish athletes’ ‘real-world’ experiences of BPNS. Findings highlight the importance of considering multiple theoretical perspectives and context-specific factors when attempting to promote BPNS. Finally, study five presents an intervention study that supports the potential utility of technology (i.e., text messages) as a means to support BPNS and behavior change among novice British exercisers.

- **Do children with high body fat decline in psychological need satisfaction because of an extrinsic goal focus?**

Ian M. Taylor, Katy Garnham-Lee
Loughborough University, UK

Satisfaction of children’s psychological needs for autonomy, competence, and relatedness has been shown to have important implications for children’s motivation, well-being and behavior. Despite these positive ramifications, no research has attempted to identify children who might be at risk of declining psychological need satisfaction (or those likely to increase in need satisfaction) over time. Grounded in basic psychological needs and goal content theories, we proposed a longitudinal mediation process in which children with high body fat would report a greater desire to be thinner, compared to children with low body fat. In turn, this desire would be associated with declines in psychological need satisfaction over an approximate three month period. Six hundred and seventy children (M age = 12.36, 55 percent female) participated in the study. At time 1, skin fold thickness at the triceps (measured using calipers) was used as an indicator of body fat and self-reports of body image and psychological need satisfaction were completed. Three months later, children repeated the measurement of psychological needs satisfaction to allow change over time to be calculated. Multiple regression models revealed that tricep skin thickness was directly associated with declining psychological need satisfaction over the study period ($\beta = -.06$, $p = .05$). In tests of mediation a) tricep skin thickness positively predicted children’s desire to be

thinner (β = .40, p < .001) and b) desire to be thinner was associated with declining psychological need satisfaction, after controlling for tricep skin thickness (β = -.07, p = .04). Children with high body fat are at risk of declining psychological need satisfaction because of a focus on the extrinsic goal to be thinner. Influential others, including physical education teachers and parents, should aim to interrupt this process through inclusive teaching and parenting, and promotion of intrinsic goals.

- **The relationships between motivational climate, basic needs, and psychological outcomes in physical education settings**

Athanasios Papaioannou, Nikos Zourbanos, Katerina Dikarou, Krommydas Charalambos, Nikos Digelidis
University of Thessaly, Greece

Physical Education (PE) provides an ideal setting in which to promote students' positive experiences of sport and exercise. Yet research shows many young people do not enjoy PE. Basic Need Theory (Deci & Ryan, 2000) provides a framework within which to examine the social-environmental and motivational processes that may be relevant to optimizing experiences in PE. Thus, grounded in this theory, the aim of the present study was to explore the relationships between basic psychological need satisfaction (i.e. autonomy, competence and relatedness), perceived motivational climate (task involvement, ego protection, and social approval) and students' enjoyment, self-esteem and worry in the PE setting. The sample consisted of 370 girls and 341 boys aged 13.03 ± .76 years (N=713). Participants were selected from schools in Greece and completed scales tapping the perceived motivational climate, basic need satisfaction, worry, enjoyment and general self-esteem before their PE lesson. Hierarchical regression analyses showed that motivational climate had a positive contribution in the explanation of the total variance of enjoyment and esteem. When basic psychological needs were entered in the second step, the total explained variance in enjoyment and self-esteem significantly increased. More specifically, autonomy, competence, and relatedness contributed significantly in the prediction of enjoyment, whereas for self-esteem and worry only competence and relatedness had a significant contribution in their explanation. Finally, motivational climate had a unique contribution in predicting anxiety. In general the results support the importance of the motivational climate and the applicability of the basic needs theory model as a framework to understand the determinants of enjoyment, self-esteem and worry in the PE settings in Greece. Findings have implications for the content of interventions targeting the motivational climate in PE.

- **Testing the universality of basic psychological needs theory in PE, maths and english classes in England and Turkey**

Eleanor Quested[1], Gokce Erturan-Ilker[2], Paul Appleton[3], Joan L. Duda[3]
[1]Curtin University, Australia, [2]Pamukkale University, Turkey, [3]University of Birmingham, UK

Basic Psychological Need Theory (BPNT; Ryan & Deci, 2000) predicts relationships between basic needs and engagement as invariant across school subjects, regardless of country. BPNT studies typically examine one school subject independently and cross-country invariance testing is rare. This limits potential to develop guidelines for intervention strategies to effectively apply BPNT in education contexts beyond national borders. Grounded in BPNT, this study examined whether students' need satisfaction in English, Maths and PE lessons predicted engagement (i.e., enjoyment, concentration, boredom) experienced within that subject. We also tested invariance across countries. 793 students [375 boys, 408 girls, 10 unspecified; 318 from England (age M = 14.74, SD = 1.42), 475 from Turkey (age M = 15.08, SD = 2.75)] completed three versions of a questionnaire tapping the targeted variables in English, Maths and PE lessons. Analysis utilised multilevel modelling with data structured with pupil at level two and their responses regarding their experiences in each subject nested at level one. Lesson types (Maths, English, PE) and country (England, Turkey) were dummy coded and interaction terms were calculated between the predictor variables and lesson

context and country. BPNS in classes significantly predicted enjoyment (b=.498, p<.001), concentration (β=.39, p<.001), and boredom (b=-.371, p <.001). There were no between-lesson differences in strength of the BPNS and boredom association. Cross-subject differences were identified when examining enjoyment and concentration. Cross-country analysis revealed pupils in Turkeys' experience of enjoyment and concentration in lessons was more sensitive to the degree of BPNS experienced. Findings suggest personal and/or situational factors may influence the 'salience' of BPNS at a particular time or in a specific setting. Findings point to characteristics of PE that may influence the role of BPNS in this context. This may have relevance for content (e.g., examples used) in interventions to promote BPNS in PE and other subjects.

- **When the joy of movement wanes, competence perceptions take over: Elite gymnasts' and divers' views on competence and motivation**

Sophia Kuylser, Jacob Melin, Sanna M. Nordin-Bates
Swedish School of Sport and Health Sciences, Sweden

The aim of this study was to create a deeper understanding of how elite gymnasts and divers perceived their competence, and the implications for quality of motivation. Although numerous studies have confirmed the importance of basic needs for quality of athlete motivation, few have done so using qualitative methods. Yet, qualitative evidence can help clarify the applicability of theory as well as provide real-life insights and examples which may be used to further practice. To this end, in-depth semi-structured interviews were performed with seven elite athletes from team gymnastics and diving. All had competed internationally. The interview guide was based in self-determination theory, but questions were open-ended. Interview data were content analysed using primarily inductive, interpretative methods in a first phase, with deductive theory-derived labels used in the final analysis stage when appropriate. Athletes reported both intrinsic and extrinsic forms of motivation, but the former was more prominent. Autonomy, competence and relatedness were all reported sources of intrinsic motivation, though competence appeared to be the most prominent. Indeed, it appeared that striving for competence maintained the athletes' intrinsic motivation when the simple joy of movement declined. Perceived competence was affected by goal orientations and goal involvement (task vs. ego) and the availability of confirmation of competence from others. The athletes used several strategies to boost perceived competence including psychological skills, seeking confirmation from others, and demonstrating competence publicly. Overall, competence perceptions appeared crucial to the motivation of elite gymnasts and divers, both in the short term (e.g., during a training session) and long term (over years of dedicated training). Moreover, social (e.g., coaches, peers) and contextual (e.g., competition structures) aspects greatly influenced competence perceptions. As such, these findings may have relevance for interventions aimed at increasing perceived competence and intrinsic motivation in sport.

- **The effect of need supportive text messages on motivation, psychological well-being and physical activity behaviour**

Florence-Emilie Kinnafick[1], Cecilie Thogersen-Ntoumani[2], Joan L. Duda[3]
[1]University of Northampton, UK, [2]Curtin University, Australia, [3]University of Birmingham, UK

Few SMS (short messaging service) studies to support behaviour change have used a theoretical underpinning. Using self-determination theory (Deci & Ryan, 1985), this study explored the effects of need supportive (NS) SMS on physical activity (PA) and psychological well-being in adults starting an exercise programme. Sixty-five novice exercisers participated in the 10-week intervention (BMI M=24.06 kg/m2, SD=5.49; Age range=18-66 years, M=25.7, SD=10.23). Participants were randomised to an intervention (NS) or control (neutral) group and were sent text messages twice weekly via an online service. All main outcomes were measured using questionnaires: Perceived autonomy support (from 1) text messages and 2) the exercise instructor), and psychological needs satisfaction (PNS) were measured

mid- and post-intervention; motivation to exercise, affect, quality of life, and self report PA were measured pre- and post-intervention; self report PA was measured again at a four month follow-up. Sobel's (1982) mediation test examined whether autonomy need satisfaction mediated the effects of autonomy support (via the SMS) on autonomous motivation. The mediation was significant ($z=2.29$, $p<.05$), although there was no direct effect of autonomy support via the SMS on autonomous motivation ($\beta=0.22$, $p=.08$). Mixed design ANCOVA and MANCOVA analyses revealed increased levels of AS and PNS ($p<.01$) only in the intervention group post intervention. Moderate intensity PA was greater in the experimental than the control group at 4 month follow-up ($p<.05$). Increases in levels of vigorous intensity PA, quality of life and decreases in negative affect were evident in both groups ($p<.01$) post intervention. Findings provide preliminary causal evidence to support the use of NS SMS to optimise PA behaviour change in novice exercisers.

W8.1: Workshop - Effect of breathing exercise and Yogaasana on motor learning of simple basketball shooting skills

Ashish Prem Singh Nama
University of Delhi, India

Motor learning is simply performing some motor tasks in response to a given event. It is the process of improving the smoothness and accuracy of movements. It is not only important for complex skills of physical education but also important for calibrating simple movements like reflexes. Although motor learning is capable of achieving Olympic feats of skill, much has been learned from studies of simple behaviors. Many similar researches in the past have been conducted on this subject. Here too the investigator has attempted to find out the ways and means to improve and enhance motor learning skills among novice basketball players. It is generally observed that as the player is given basketball the first thing they attempt to do is throw the ball in the ring. Throwing the ball in the ring is one of the most important offensive skills as the ultimate aim of the player is to make a goal. The shooting skill in basketball requires lot of concentration and accuracy of movements. It is reviewed that some simple breathing exercises can improve the internal learning environment without changing the external learning environment, teaching materials or teaching techniques. Based on various researches it is found that yoga improves the internal learning environment by improving physiological and psychological functioning which results in improved physical and academic performance. This in turn leads to greater confidence and increased motivation to learn. Thus the investigator designed few breathing exercises that could be performed easily by the subjects keeping in mind the age and suitability of the yogic practices.

W8.2: Workshop - Film: Practice of applied sport psychology – possibilities and limitations concerning a public reputation improvement

Jürgen Walter
Jürgen Walter Beratungsgesellschaft mbH, Germany

In German-speaking countries sport psychology still does not have the local value it has in English-speaking areas. In Germany for example, psychology in general often encounters stigmatization and misjudgements. Whereas in the Unites States it is common for athletes to consult an applied sport psychologist if they want to get to a certain performance level. As a means to counteract these prejudices the film project "Praxis der angewandten Sportpsychologie" (Practice of applied sport psychology) was created, whose trailer already received widespread positive feedback. The film has a duration of about 35 minutes and describes concise fields of activity like diagnostics, awareness-training, mental strength, team-training and the acceptance of responsibility. In order to provide a concrete image for interested persons, the co-operation between applied sport psychologists and famous athletes like Matts Hummels (soccer), Frank Busemann (decathlon), Patrick Kühnen (tennis) and Christian Keller (swimming) is shown. Until now no similar film existed in the German-speaking areas. The film will be presented in schools, universities, and trainer academies in order to establish a realistic portrait of the ways Psychologists can support and improve

athletes on their way to achieve their goals. Workshop attendees will get the chance to try out some of the shown training methods and exercises. There will be a podium discussion after the presentation of the film, in which participants are encouraged to share their opinions and ideas about the possibilities and limitations concerning a public image improvement of applied sport psychology in general.

W8.3: Workshop - Riding the third wave: Mindfulness and ACT based interventions in elite sports

Daniel Birrer, Philipp Röthlin
Swiss Federal Institute of Sports Magglingen, Switzerland

During the last 30 years the predominantly used psychological techniques to enhance athletic performance have stemmed mainly from cognitive-behavioral therapies. Some of them are summarized under the umbrella term psychological skills training (PST). This approach implicates the development of self-control of internal states (e.g., thoughts, emotions, and physical experience) to promote performance. However, the efficacy of PST has been questioned (Gardner & Moore, 2006). Similarly, reviews regarding the effects of behavioural therapy raise doubts that modification of internal states (e.g., conscious cognitions) is the main mechanism of change (Longmore & Worrell, 2007). The so-called third wave of behavioural therapy was an answer to these limited effects by taking a different perspective on the link between cognitions, emotions, and behaviours (Hayes, Strosahl, & Wilson, 1999). It emphasises that the avoidance of cognitions, emotions, and bodily sensations (experiential avoidance) may be the source of a wide array of problematic and dysfunctional behaviours. Examples of third wave therapies are Mindfulness Based Cognitive Therapy (Segal, Williams, & Teasdale, 2002), Mindfulness Based Stress Reduction (Kabat-Zinn, 1990), Acceptance and Commitment Therapy (ACT) (Hayes, Srohsahl, & Wilson, 1999), and Mindfulness-Acceptance Commitment Approach (Gardner & Moor, 2007). A key concept of the third wave of psychotherapy is mindfulness (i.e., intentionally focusing attention on one's present-moment experience, accepting these experiences, without judging, elaborating on them, or reacting to them). The purpose of this workshop for sport psychology practitioners is to (1) gain understanding of what third wave therapy methods are and how they differ from traditional interventions; (2) learn how to implement mindfulness and ACT in the work with elite athletes and (3) gain insights into mindfulness and ACT based interventions with elite athletes. Participants will experience several mindfulness and ACT based methods and receive the exercise material, which they can use in their work with athletes.

W8.4: Workshop - Somatic awareness through free and focused movement

Ineke Vergeer[1], Mattias Johansson[2]
[1]Victoria University, Melbourne, Australia; [2]Örebro University, Sweden

Holistic movement practices that direct attention to somatic awareness have become increasingly available in western culture in the last several decades (e.g., Ding & Stamatakis, 2014), and studies show psychological benefits associated with these practices (e.g., Yin & Dishman, 2014). In this workshop we intend to give participants an opportunity to personally experience two of these movement practices, one that uses focused movement, qigong, and one that uses free movement, free dance. The objective of the workshop is to increase knowledge, skills, and experiential awareness of the potential psychological effects that holistic movement practices can offer through somatic-oriented experiencing. The workshop is targeted at participants with limited or no experience with qigong or free dance forms who want to explore these forms as a work-related or personal resource. Teaching methods include brief guided engagement in qigong and free dance, with personal and shared reflection on what is experienced during the movements. Discussion will focus on the differences between these movement forms in terms of what they bring to somatic awareness, potential psychological benefits, and possible psychological risks. Attention will

also be paid to possible usage of these forms in applied practice in the fields of sport, exercise, and health psychology.

Session 9 - Saturday, 18 July, 2:00pm-3:30am

SS-ME9.1: Special Session - Meet the Expert: Dr. Nancy Cooke

Nancy Cooke
Arizona State University, United States of America

Questions & discussions

S9.01: Symposium - Disability, participation, and identity: Opportunities and limits of physical activity

Chair(s): Manfred Wegner (Christian-Albrechts-University Kiel, Germany)

- **Disability, sport participation, and identity: Asking questions, seeking answers**

Britton W. Brewer[1], Jeffrey J. Martin[2], Tomasz Tasiemski[3]
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As a psychological theme central to both sport participation and disability, it is not surprising that identity has emerged as topic of relevance to the sport participation of persons with disabilities. Interrelationships among sport participation, identity, and disability are complex, and research on the topic has raised as many questions as it has answered. Among the issues that contribute to the complexity of this area of inquiry are: (a) variations in the type, cause, and onset (e.g., congenital versus acquired) of disability and, where relevant, pre-disability sport participation and identity; (b) the structure (i.e., multidimensional) and dynamics (i.e., malleable and potentially variable over time) of identity; and (c) heterogeneity in the values and meanings ascribed to sport participation. The primary purpose of this presentation is to identify key questions grounded in the empirical literature pertaining to disability, sport participation, and identity. Identifying a meaningful set of questions has the potential to help refine a research agenda and inform practice with respect to the sport involvement of persons with disabilities.

- **Disability, sport and athletic identity: From a Paralympic athlete to retirement and a disabled person**

Brett Smith
Loughborough University, UK

Over the last 5 years there has been a sharp increase in disabled athletes turning professional and investing more in being an athlete. Media and public interest in disability sport has also increased. At the same time, disability identity politics and various disability rights movements/user groups have pushed for the use of identity first language (e.g. disabled people). Against this psycho-social context, the purpose of this presentation is to examine Paralympic athlete's narratives of athletic identity over time. Life story interviews, mobile interviews, participant observations, and autophotography tasks were conducted with 20 Paralympians over a three year period. Naturalistic data (i.e. small stories via blogs, twitter, radio) were also gathered. Qualitative data were analyzed using a narrative analysis. The results revealed that whilst athletes competed in sport they developed strong athletic identities through a performance and supercrip narrative. These narratives acted on and for participants by positioning them as simply 'athletes' who in most contexts rejected the identity of 'disabled'. When athletes retired the stories told shifted to a more politicized narrative in which 'disability' was inserted into their narrative identity. Drawing on critical disability studies, the presentation concludes with implications for sport and exercise psychology of these findings in terms of identity construction, disablism, disability sport, combat veterans, and sedentary behavior. The argument is also presented that the American Psychological Association (APA) fails to adequately understand disability. It is argued that

psychologists', as well as athletes, need to develop a better cultural competence regarding disability issues in personal, media, and scientific communications.

- **Analysis of motivational factors and physical activity and sport of people with visual impairments in vocational promotion centers**

Rainer Schliermann, Patrick Heydenreich, Tanja Bungter, Volker Anneken
FIBS Forschungsinstitut für Inklusion durch Bewegung und Sport,

Motivational factors are important prerequisites both for psychological well-being and job-related participation (Fuchs & Schwarzer, 1994). Also, physical activity and sport is associated with positive physiological and psychological benefits (Dickhuth et al., 2010; Graf, 2012). However, for people of working age with visual impairments (WVI), such studies are not found. Therefore, the purpose of this exploratory study is to analyse the relations between selected motivational factors and physical activity and sport for people WVI participating in occupational rehabilitation. The study includes adults WVI between 16 and 56 years (N=233, Mage=30.11 ± 11.20, 35.6% female) who take part in a rehabilitation programme of a vocational promotion centre in Germany. The subjects answered questions about biographical details, visual impairments, physical activities, sporting activities, general self-efficacy (Jerusalem & Schwarzer, 1986), self-efficacy towards physical exercise (Fuchs & Schwarzer, 1994), and assertiveness. The data is analysed with ANOVAs. A comparison with normative data of the general population shows no meaningful differences concerning general self-efficacy [$F(1,2678)=22.45$; $p=.000$; $\eta^2=.008$]. Furthermore, the results display significant effects of physical activity on general self-efficacy [$F(1,202)=28.04$; $p=.000$; $\eta^2=.122$] and assertiveness [$F(1,223)=9.83$; $p=.002$; $\eta^2=.042$], and significant effects of sporting activity on general self-efficacy [$F(1,179)=6.50$; $p=.012$; $\eta^2=.035$] and self-efficacy towards physical exercise [$F(1,197)=16.17$; $p=.000$; $\eta^2=.076$]. For all comparisons the more active persons show better values. As people with visual impairments in occupational rehabilitation seem to have a positively developed self-efficacy and assertiveness, they appear to be able to fully and effectively participate in working life. The effects of physical and sporting activity on the motivational factors show that people WVI in occupational rehabilitation centres should be motivated to spend their leisure time in an active manner.

- **Physical activity in the rehabilitation process for para- and tetraplegics: Building up resources**

Manfred Wegner
Christian-Albrechts-University Kiel, Germany

In the rehabilitation process people with a disability profit in doing exercises. According to activation and resource theory physical activity can lead to an increase in fitness but also lead to a better life balance, well-being, and even participation. Resource theory (Hobfoll, 1999) states that the investment in physical training can evoke benefit in internal and external resources. Indicators for external resources are social support by family or friends, training conditions or financial support. Psychological variables like self-confidence, perceived control, body image, quality of life or social participation serve as internal resources. In studies with para- and tetraplegics the activity factor is related to duration of neurologic impairment (actual vs. long lasting) and physical activity (no physical activity vs. expertise in sports). Data are sampled by quantitative measures for paraplegics. The study on tetraplegics does have an additional qualitative approach. Sport expertise for paraplegics were scuba diving, skiing and wheelchair sport, for tetraplegics fitness, rugby, biking or swimming. The paraplegic group show a gain of resources concerning experience. Those individuals that participate in highly valued activities (e.g. scuba diving) score higher in most psychological variables. The measures in the tetraplegic group indicate that those who are active in sports can much better cope with their daily lives. They score higher in self-concept, social participation and quality of life. The studies indicate that people with a disability benefit

from physical activity. Characteristics of para- and tetraplegics as well as benefits of physical activity are discussed.

- **The dilemmas of promoting sport and exercise for spinal cord injured people: From knowledge mobilisation to false hope**

Toni Louise Williams, Brett Smith, Anthony Papathomas
Loughborough University, UK

Following a spinal cord injury (SCI) people are faced with an immediate loss of neurological function, reduced mobility, and an often dramatic reduction in sport and exercise participation (Martin Ginis et al., 2012). Despite the potential benefits of physical activity (PA) to prevent secondary health conditions, improve health, well-being and overall quality of life, people with SCI are amongst the most inactive members of society (Letts et al., 2011). Therefore PA and healthcare promotion is a significant and timely issue for the SCI community (Tomasone et al., 2014). Before any improvements to PA promotions can be instigated, the factors that prevent and facilitate PA need to be understood, as well as the people (i.e. who) that are deemed credible to convey PA messages and the contexts (i.e. where) in which this might effectively occur. Based on this need, we have conducted a series of studies into the barriers, benefits and facilitators of PA participation in people with SCI (Williams et al., 2014) and explored how PA is promoted within SCI rehabilitation and in the community. The combined results of these studies identified two main dilemmas of effectively promoting PA. These were: 1) lack of knowledge mobilisation practices; and 2) managing false hope of recovery from SCI. The results make a contribution to the literature by revealing a deeper understanding of the complexities within the factors that impact PA promotion practices for people with SCI. To help improve the promotion of PA for people with SCI in rehabilitation and in the community, systematic knowledge mobilisation strategies need implementing through PA guidelines and training. Equally, a more critical approach to PA promotion is called for in terms of managing the false hope of recovery from SCI through PA participation.

S9.02: Symposium - Adaptation processes in closed and open sport environments

Chair(s): Ronnie Lidor (The Zinman College, Israel)

Adaptation in elite sport is viewed as an athlete's capacity to act and react competently to stressors perceived as significant in a sport context, by restoring an internal sense of emotional and psychological balance. The adaptation process pertains to short episodes where the performer must rapidly process external and/or internal information and then make a decision, as well as to career transitions and challenges within or across career stages. In this symposium, we focus on adaptation processes that athletes are involved in while performing in closed and open sport environments, especially settings where these processes occur in short episodes. The symposium is composed of four presentations. In Presentation 1, a two-perception probabilistic model of the adaptation phenomenon that can encompass both short and long episodes is discussed. Examples demonstrating the adequacy of the model to account for short- and long-term adaptation processes are used. In Presentation 2, the relationships between closed self-paced tasks, adaptation processes, and the use of pre-performance routines are examined. The decisions associated with the selection of routines prior to the execution of closed, self-paced tasks are discussed. In Presentation 3, data on cognitive representations of participants performing sporting tasks in closed and open environments are presented. The data provide support for the assumption that cognitive representations of complex actions differ, depending on whether the sport environments are closed or open. In Presentation 4, the accuracy and gaze behavior of a closed, self-paced task performed under varied conditions are examined. It was found that presence of noise led to reduced accuracy and reduced quiet eye (QE) duration, and that QE durations were shorter under noisy conditions compared to quiet conditions during transfer of learning.

- **Short and long adaptation processes: a unified conceptual framework**

Gershon Tenenbaum[1], Andrew Lane[2], Selen Razon[3], Ronnie Lidor[4], Robert Schinke[5]
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Adaptation is an ongoing process that reflects the athlete's evolving capacities to act and react effectively to environmental and inner stressors perceived as significant, over the course of a short competitive time phase or a long athletic career. To conceptualize the adaptation process, we introduce a simple two-perception probabilistic concept of the adaptation phenomenon that can encompass both slow and fast processes. According to this newly-developed concept, we operationalize the degree of adaptation (A) as a function of the difference between how one perceives the environment/task (e.g., challenging, threatening, etc.), δi, and how one perceives his or her own ability/capacity (i.e., self-efficacy) to interact and cope with the environmental/task demands, βv, to achieve a given goal. Formula (1): Adaptation (A) = f (βv – δi). Accordingly, when one considers his or her ability to adequately cope with the task's demands, βv – δi > 0, or βv > δi, the adaptation process has a higher probability of resulting in a desirable adaptation state, at least until the athlete perceives the task's demands otherwise. Similarly, when one considers the task as being too difficult for his or her own capacity, βv – δi < 0, or, βv < δi, the probability of investing effort and energy to accomplish the task is reduced, and the state of adaptation declines. When βv – δi = 0, or βv = δi, one feels that the task is as difficult as one is capable of, and the task may be perceived as a challenge, which also may result in a positive adaptation. Several examples demonstrating the adequacy of the model to account for short-term adaptation processes (perception-cognition-action coupling, performance routines, choking, reversal state of mind, flow experience) and long adaptation processes (state of burnout, career aspirations) are used to illustrate the concept.

- **Closed self-paced tasks, adaptation processes, and pre-performance routines**

Ronnie Lidor
The Zinman College, Israel

Closed, self-paced tasks are those taking place in a relatively stable and predicable environment, where the athlete can activate a pre-performance routine. A pre-performance routine has been defined as a systematic sequence of physical and psychological behaviors that are demonstrated prior to the execution of a sporting self-paced task. Although closed, self-paced tasks are executed in relatively stable settings, performers are required to adjust themselves to certain environmental conditions in order to optimally achieve. Among these conditions are the competitive situations, the internal influences, and the actions of opponents. These environmental conditions have the potential to affect performance, and therefore a number of decisions associated with the selection of pre-performance routines should be made by the performer with these conditions in mind. For example, basketball players may perform a free-throw shot in a situation where their team is leading the game by a large margin, and therefore they will feel comfortable in performing the task knowing that the outcome of their performed act will not dramatically influence the score of the game. However, players must sometimes perform the shooting task when the game is tied and only a short time remains until the end of the game. In this situation, the players may feel that the task is too challenging, and that they will not have the ability to score successfully. They may feel uncomfortable, anxious, and/or tense. Therefore, selecting a given pre-performance routine can assist the players in regulating their emotions and thoughts, and in being positively tuned to shooting the ball. In this presentation I will elaborate upon the decisions associated with the selection of routines prior to the execution of closed, self-paced tasks, when the performer is required to consider some of the environmental conditions that exist at the time of the task.

- **Cognitive representation and motor performance in closed and open sport environments**

Ludwig Vogel, Heiko Lex, Thomas Schack
Bielefeld University, Germany

Closed sport environments create a task-stable situation with specific performance requirements, whereas in open sport environments athletes operate in a more adaptive manner in flexible task-conditions. It was our aim to compare the cognitive representation in closed and open sport environments for supporting training processes and developing diagnostic tools. We used the structural dimensional analysis of mental representation (SDA-M) to measure the cognitive representations of the participants. In a more closed environment, we investigated two specific techniques (i.e., golf pitch and full swing) in an expert-novice paradigm. We found that experts' representations were functionally organized for the biomechanical demands of the task, whereas novices' cognitive representations were organized in a less functional manner. In a more open sport environment we investigated the dependence of mental representation in the attack hit in volleyball according to the player's position, e.g., the quick-spiker and the ace-spiker. The demands of the positions differ regarding the time and number of takeoffs. The analysis revealed significant differences between the player-position structures. The structures showed task-specific characteristics that were adapted to the open environment. In a more closed environment we investigated the use of regulatory routines in the overhand service in volleyball and their effect on performance and cognitive structures. Results showed that performance was significantly correlated to the athlete's cognitive representation of the movement routines, indicating a close relationship between representation of routines and performance. In open sport environments (e.g., soccer games), athletes also show an appropriate technical performance and possess regulatory routines. However, tactical decisions enhance their overall performance. In summary, cognitive representations of complex actions differ, depending on whether the sport environments are closed or open. However, there seem to be parallels for overarching cognitive representation structures of routines and tactics. Despite this, cognitive representations deliver valuable information about goal-oriented movement feedback.

- **Accuracy and gaze behavior of a closed self-paced task performed under varied conditions**

Gal Ziv, Ronnie Lidor
The Zinman College, Israel

Over the past two decades empirical data on the usefulness of gaze control during the performance of closed, self-paced tasks have been accumulated. Specifically, a stable gaze prior to the initiation of a closed, self-paced task has been found to improve performance. This stable gaze has been termed quiet eye (QE), and has been defined as the final fixation on a specific location or object in a visuomotor workspace within 3° of a visual angle for a minimum of 100 milliseconds (msec), with an onset that begins before the final movement of the performed task. The current two-phase study examined gaze behavior and accuracy of a golf-putting task under quiet and distracted conditions in 24 male physical education students. Accuracy of performance and gaze behavior were measured in three stages: acquisition, retention, and transfer, under both quiet and distracting conditions. Data analyses revealed that: (a) longer QE durations were related to improved putting performances, (b) the presence of noise led to reduced accuracy and reduced QE duration, (c) QE durations were lower under noisy conditions compared to quiet conditions during transfer of learning, and (d) putting performances improved more in the transfer stage than in the acquisition and retention stages. Based on these findings it is argued that longer QE durations can enhance adapation processes in the performance of self-paced tasks. Future studies should examine whether maintaining QE durations or training for longer QE durations can prevent deterioration in performance under distracted conditions.

S9.03: Symposium - Life skills: International perspectives

Chair(s): Fernanda Serra de Queiroz (University of Queensland, Australia)
Discussant(s): Mark Bille Andersen (Halmstad University)

The World Health Organization (WHO) considers the education of life skills an important tool for mental health promotion (WHO, 1999). Life skills are psychosocial skills that enable individuals to deal effectively with the demands and challenges of daily life (WHO, 1999, 2003). Due to these presented benefits the study of life skills has gained considerable attention in recent years. This symposium purpose is to present an international perspective on life skills research and applied practice. It will be presented an overview of the different contexts where life skills can be developed (sports, physical education, and marginalized youth) and addressed relevant issues on the life skills literature such as transfer of skills, measurement of intervention efficacy, and concept definition. The first presentation investigates which skills Brazilian youth and adults who work regularly with youth consider important for success in life and performance activities. The results should provide guidance as to which skills should be included in life skills interventions in the future. The second presentation will discuss the North American research examining the sport participation life skills development link. Factors such as coach – athlete relationship, motivational climate, and sporting context will be discussed. The third paper will present a strengths-based mental skills training (MST) program developed in the UK with homeless young people. The program was successful in helping young people increase their coping skills and confidence reinforcing MST as a way to enhance life skills. The final paper will present a life skills program through physical education classes developed for high school students in Greece. This presentation will evaluate two strategies for transfer of the skills learned in the program to participants' daily lives. Through the above mentioned presentations this symposium aims to address contemporary issues of the life skills literature and provide an opportunity to discuss future research directions.

- **Current status and future directions in North American life skills research**

Daniel Gould
Michigan State University, USA

North American research examining the sport participation life skills development link is reviewed and future research directions identified. Results revealed that: (1) there is clear link between sport participation and life skills development (e.g., Weiss et al., 2013); (2) key life skills needed by young athletes have been identified (e.g., responsibility, motivation/goal setting, communication) (e.g., Gould et al., 2006); (3) coaches who appear to be more effective at teaching life skills have philosophies that place prime importance on the objective of life skills development (e.g., Collins et al., 2009); (4) while some life skills may be acquired from simply participating in sport, more consistent findings result when life skills are intentionally fostered (e.g., Camire et al., 2012); (5) coaches' ability to develop trusting relationships with athletes is critical for developing life skills (e.g., Gould et al., 2007); (6) creating caring climates for athletes, focusing on task oriented environments and utilizing direct and indirect teaching strategies are correlated to the development of life skills in young athletes (e.g., Fry & Gano-Overway, 2010); and, (7) the sport context not only provides opportunities to directly teach life skills but allows young people to test and demonstrate already developing life skills (e.g., Holt et al, 2009). More intervention and evaluation studies are needed. Future studies should also use better measures of life skills, adopt longitudinal designs, and employ placebo control conditions. Hodge, Danish, and Martin (2014) also indicate that more emphasis should also be placed on assessing intervention fidelity and testing theoretical explanations for life skills development. This review suggests, then, that while life skills can be developed through sport participation future research is needed to better understand this process.

- **Investigation of perceived importance of skills for Brazilian youth success in life and in performance activities**

Fernanda Serra de Queiroz, Stephanie Hanrahan, John Mclean
University of Queensland, Australia

The experiences and skills learned during childhood and adolescence are essential for wellbeing in adulthood (Gilbert & Orlick, 2002). Thus, it is important to promote positive youth development and teaching life skills may help achieve this objective. Life skills education programs are related to positive outcomes such as increased life satisfaction (Hanrahan, 2012), increases in healthy behaviors (WHO, 1999), stress control (Taylor & Orlick, 2004), and pro social values (Brunelle, Danish, & Forneris, 2007). Even though intervention programs have produced these positive results, the definition of what should be considered life skills is still imprecise, and literature on the topic has yet to agree on a definition. The aim of this study was to investigate which skills youth and adults who work regularly with youth (e.g., coaches, school teachers, social workers) consider important for success in sport and performance activities. Participants were asked to complete a questionnaire and rate according to their opinion the importance of various skills regarding their role in youth success in life and performance. The skills included in the questionnaire were skills taught in life skills interventions mentioned within the sport psychology literature. Skill importance was measured in a 7 point Likert scale (where 1 is extremely unimportant and 7 extremely important). Data collection is still on-going. Preliminary results show that adults consider problem solving and refusal skills (i.e., refusal of illicit drugs) the most important skills for success in life. For success in performance activities the highest scored skill was concentration followed by refusal skills. Youth participants rate self-efficacy and positive thinking the most important skills for performance. Positive thinking was again rated as very important for life, together with goal setting. Results from the present study can help to define the content of future life skills interventions.

- **"It brought my confidence back": Exploring the feasibility of a mental skills training programme for UK homeless young people**

Jennifer Cumming[1], Sam J. Cooley[1], Mark J. G. Holland[2], Mary L. Quinton[1], Victoria E. Burns[1]
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Mental skills training (MST) is used to enhance performance and well-being of athletes with techniques such as goal-setting and planning. These techniques are also relevant for success in academic and employment settings, suggesting that MST can also be conceptualised as a form of life skills training (Holland, 2012). The present research aimed to examine the feasibility of engaging homeless young people in a MST programme to improve social inclusion, self-regulation, coping, and interpersonal skills. The programme adopted a strengths-based approach informed by Bandura's (1987) social cognitive theory and principles of experiential learning (e.g., Kolb, 1984). 15 homeless young people (Mage = 20 years, 54% male) from the West Midlands (UK) took part in 8 weekly MST sessions and/or a 4 day outdoor adventure residential course. Evaluation was conducted using participants' attendance records, performance profile, video diary room entries, focus group discussions, and a reflective diary kept by the MST trainer. Attendance averaged 75% for the 8-week MST. Pre- to post- comparisons showed significant improvements in how favourably young people rated themselves. In the qualitative data , young people and their key workers reporting that they were better able to self-regulate thoughts and emotions and were more aware their strengths. They noted improvements in organisational skills, aspirations to achieve, interpersonal skills, and accessing support networks. Several young people felt ready to move on from the supported accommodation as a direct result of participating in the programme. The findings indicate that it is feasible to engage hard-to-reach young people with a fun and interactive MST aimed at developing their personal assets and resources. Reinforcing MST as a way to enhance life skills, the programme was

successful in helping young people cope with the pressures and challenges associated with accessing education and work, and bolstered their confidence to lead more independent lives.

- **Strategies for enhancing the transfer of life-skills learned in physical education and youth sport**

Marios Goudas
University of Thessaly, Greece

Life skills are those skills which help us to succeed in the environment we live (Danish & Nellen, 1997). Gould and Carson, 2008 asserted that for a skill to qualify as life skill it needs to be transferable to other situations and the teaching process should provide for this transfer. Unfortunately, existing research on the topic on transferability is limited. This presentation focuses on the evaluation of 2 transfer strategies that were employed in a life skills teaching program in physical education. Participants in the program were 86 grades 6 and 8 students from Greece. The content of the program was basketball and volleyball and the life skills components were: goal setting, positive thinking, and problem solving. Data were collected from students' interviews, field notes of participant observation and students' notebooks. Two strategies for transfer were employed: a) students were asked to teach their parents what they had learned regarding life skills and b) to help someone at home with either a problem solving or a positive thinking strategy. Results showed a positive reception of the program by the majority of the students as well as knowledge and transfer of life skills. Students considered the life skills as applicable in several areas of their lives and reported use of the skills learned in other settings. Students were enthusiastic about teaching life skills to their parents and siblings. Skills taught within sport settings need to generalize in other settings in order to be effective in relation to the overall positive development of young athletes. The transfer of life skills can only be realized by employing specific strategies. Asking students to teach their parents the skills they have learned can be an effective strategy for life skills transfer.

S9.04: Symposium - Exploring the centrality of coaching leadership and relationships in sport performance

Chair(s): Aleksandra Krukowska (Loughborough University, UK), Sophia Jowett (Loughborough University, UK)

This symposium encompasses presentations that investigate key aspects of sport performance as these unfold within the context of coach leadership and relationships. The aim of the symposium is to draw attention to the importance of leadership and relationships in such processes as motivation, task orientation, and elite performance, as well as current developments in leadership theory and measurement. The symposium begins with a presentation focused on motivational processes and trickle-down effects in Swedish grass-root-level leaders, as well as the short-term effects of an intervention that is aimed at increasing needs-support from the organizational level. The second study touches on the topic of how the perceptions of coaches' behaviours affect athletes' goal orientation and physical self-concept. This study further tested the association between coach-athlete relationship and both athletes' and coaches' satisfaction. The subsequent two studies are guided by leadership theory and theoretical postulates that have not been explored within the sport context. One of these studies examines a model that views the coaching environment within the lenses of both transformational leadership and coach-athlete relationship and purports that such an integral environment has the capacity to affect athlete's harmonious passion and sport engagement via the satisfaction of basic needs. The other study examines whether the vision, support and challenge model of transformational leadership predicts performance of professional cricketers. Lastly, the symposium concludes with a study that tests a revised and shortened version of Leadership Scale for Sport (LSS). This study focusses on applying changes that would make the psychometric properties of LSS more desirable, and also on incorporating more recent approaches to athletic leadership.

- **Motivational processes and trickle-down effects in Swedish sport clubs**

Andreas Stenling, Susanne Tafvelin
Umeå University, Sweden

Numerous studies have displayed the usefulness of self-determination theory (SDT) for explaining motivational processes. Few studies, however, have used SDT to understand motivational processes at the organizational level in sport clubs. In this presentation we will provide results from two studies examining motivational processes in organizational-level and grassroot-level leaders in Swedish sport clubs. In study 1, we investigate the trickle-down effects of motivational processes in sport clubs (N = 32). We examine organizational-level leaders perceived autonomy support from the club, need satisfaction, and motivation, and how these motivational factors among organizational-level leaders are related to grassroot-level leaders perceived autonomy support from the club, need satisfaction, motivation, turnover intention, and job satisfaction. Multilevel modeling was employed to examine these relations and trickle-down effects. In study 2, we examine the short-term effects of an intervention aimed at increasing need support from the organizational level in Swedish sport clubs. Leaders (N = 152) at the organizational level in 38 Swedish sport clubs participated in a one-week education programme that focused on how these sport clubs could incorporate need supportive strategies for human resource management, goal-setting, and organization. Longitudinal multilevel modeling employed to separate effects at the between- and within-person level. We will present results from the pre- and post-measure of the short-term learning effects (1 week) and various predictors of these short-term effects, such as perceived autonomy support from the club, need satisfaction, and readiness for change. From a theoretical perspective these studies can highlight the usefulness of integrating SDT with the transfer of training literature. The results can also show the utility of SDT-based organizational-level interventions in sport clubs.

- **Perceived coach behaviors and its correlations with athletes' motivation and physical self-concept**

Franziska Preis, Dorothee Alfermann
University of Leipzig, Germany

Coach behavior can have potentially important influences on athletes' motivation and self-concept. We conducted two studies to test the relationship of coach behaviors with athlete variables. In the first study, we tested associations between motivational climate and athletes' goal orientation. A total of 154 athletes (71 females) with a mean age of 14.31 years (SD = 1.41) participated in the study and filled in German versions of the TEOSQ (Duda, 1989) and the PMCSQ (Seifriz et al., 1992). Data were analysed using linear regression analysis. Regression analysis on task orientation revealed mastery climate ($\beta = .23$) as a significant predictor [$R2 = .05$, $F(1,95) = 5.58$, $p < .05$]. Results showed that mastery climate and task orientation are associated. In the second study, we examined correlations between coach-athlete relationship quality, athlete-coach satisfaction as well as athletes' physical self-concept. Participants were 175 athletes (79 females) with a mean age of 20.8 (SD = 4.3) and weekly training hours of M = 8.1 (SD = 5.8). They filled in a German version of the CART-Q (Jowett & Ntoumanis, 2004) and a German version of the EASDQ (Marsh et al., 1997). The subscales of the CART-Q showed satisfactory item-total correlations and internal consistencies ($.74 < \alpha < .83$). Regression analysis on satisfaction revealed closeness ($\beta = .54$) and amount of training ($\beta = -.18$) as significant predictors for both athlete and coach satisfaction. Positive correlations emerged between the commitment scale of CART-Q and all subscales of EASDQ; commitment was found to be the only significant predictor on physical self-concept ($.04 < R^2 < .08$). Coach behaviors showed consistent relationships with athletes' goal orientation and self-concept.

- **The mediating role of basic needs satisfaction between transformational-relational coaching environment and positive outcomes**

Aleksandra Krukowska, Sophia Jowett
Loughborough University, UK

Recently transformational leadership (TL) framework has gained importance and traction in sport environments (e.g. Callow et al., 2009; Price & Weiss, 2013); however, there is still little known about the mechanisms underlying its effectiveness in the context of various outcomes. One of the most important characteristics of TL is the ability to relate to each of the followers, what can be understood as a capacity to build effective coach-athlete relationship (C-A-R). Transformational coaching environments based on caring relationships have a potential to satisfy athletes' basic psychological needs for autonomy, competence and relatedness which in turn can support their motivation and well-being indicators (Deci & Ryan, 2000). In the present study we tested a model in which the effect of coaches' transformational behaviours (Burns & Riggio, 2006) combined with C-A-R quality (Jowett, 2009) on engagement in and passion for sport was transferred by satisfaction of the three needs. Following the guidelines of Baron and Kenny (1986), three structural models were tested: (1) a model of direct effects where the independent variable (C-A-R and TL combined) predicted dependent variables (engagement and harmonious passion); (2) a model with a mediator; and (3) a combined model that contained both direct and mediation effects. The mediation model showed the best fit to the data: CFI=.92; NNFI=.91; RMSEA=.08; SRMR=.08. These results expand the understanding of the processes underlying transformational leadership influence by linking this type of leadership with self-determination theory. Moreover, the results highlight that the integration of transformational leadership and relationship models can result in higher levels of positive outcomes.

- **Vision, spport and challenge model of transformational leadership and performance in professional cricket**

Calum A. Arthur[1], Matthew J. Smith[2], David Young[3]
[1]University of Stirling, UK, [2]University of Chichester, UK, [3]Winning Mind Performance Consultancy, UK

Transformational leadership has been shown to predict a number of different outcomes in sport, including cohesion (Callow et al., 2009), sacrifice behaviours (Cronin et al., in press), communication (Smith et al., 2012), motivation (Arthur et al., 2011), collective efficacy (Price & Weiss, 2013), performance (Charbonneau et al., 2001), well-being and need satisfaction (Stenling & Tafvelin, 2013), and satisfaction with coach (Rowold, 2006). However, the effectiveness of transformational leadership theory is yet to be tested in an elite professional sport context. Furthermore, the vision, support and challenge model (VSC) of transformational leadership (Arthur et al., 2012) is yet to be tested in a sport context. To this end the current study examined the impact of VSC in a professional cricket sample (n = 82). VSC was assessed using the DTLI and was conceptualised using Arthur et al.'s VSC model of transformational leadership. Controlling for group membership, full model regression analysis revealed that VSC accounted for significant variance in twenty-20 match performance ($R2 = .143$, $p < .01$). However, inspection of the beta coefficients revealed that only the challenge component of the VSC model significantly contributed to the prediction ($B = .386$, $p < 01$). This result is not consistent with the transformational leadership literature in sport where usually vision and support behaviours contribute to prediction equations. Given that this is the first study to examine transformational leadership in a professional sport context, it is too early to draw firm conclusions. However, the results of the current study suggest that performance level maybe a key moderator in the transformational leadership and performance relationship.

- **Measurement of leadership: A proposed revision of the Leadership Scale for Sports**

Sebastian Harenberg[1], Harold Riemer[1], Kyle Paradis[2], Erwin Karreman[1]
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A prominent conceptual approach to leadership in sport is the Multidimensional Model of Leadership (Chelladurai, 1978, 1990). Its accompanying scale, the Leadership Scale for Sport (LSS; Chelladurai & Saleh, 1980), is a widely utilized and accepted measurement tool for sport leadership behaviours. The original scale includes five dimensions, which are measured across 40 items. Despite its popularity, the scale is not free of criticism. Conceptually, Chelladurai (2007) noted that the scale is missing items on more recent approaches to athletic leadership (e.g., transformational leadership). From a psychometric perspective, the dimension of autocratic behaviour has yielded repeated insufficient internal consistency (Dwyer & Fisher, 1988). Further, some individual items might present a gender bias (Riemer & Toon, 2001). The revision of the scale to address some of these criticisms is needed. Thus, the intention of this project is the initial identification for a revised and shortened version of the LSS, which will function as the base for future modifications of the scale. The data for the current study was gained from 1163 university athletes. The revisions of the scale included three steps: First, items that presented prior conceptual or psychometric problems were deleted from the scale (seven items). Next, item distributions and inter-item correlation were examined leading to the elimination of another item. Lastly, an item-to-total correlation analysis was conducted and each dimension was reduced to four or five items respectively. This resulted in a four-dimension, 19-item version of the LSS. Correlations between the new dimension structure and the original dimensions revealed only a minor loss in variance (r=.95-.99; r2=90-98%). Confirmatory factor analyses showed an excellent fit of the factor structure. The presented shortened version of the LSS is psychometrically sound. Yet, future research needs to consider the addition of items representative of other leadership behaviours and its administration to relevant samples.

S9.05: Symposium - New trends in career transition research and practice

Chair(s): Natalia B. Stambulova (Halmstad University, Sweden)
Discussant(s): Tatiana Ryba (KIHU – Research Institute for Olympic Sports Jyväskylä, Finland)

Changes in the global sport context (e.g., increased transnationalism, cultural diversity, commercialization, and professionalization) require corresponding changes in career researchers' and practitioners' thinking and approaches. Recent analyses of the modern sport context and existing lines and traditions in career research in sport psychology resulted in a new paradigm termed cultural praxis of athletes' careers (Stambulova & Ryba, 2013; 2014). In this paradigm well established and proven approaches in career research (e.g., the holistic developmental perspective) were accumulated and further integrated with approaches developed in cultural sport psychology (e.g., cultural positioning of research projects) with the idea to enrich both relevant research/applied areas. This symposium involving senior and young researchers is aimed at reviewing and critically discussing some new trends in career transition research focusing on studying normative, non-normative transitions, and also introducing quasi-normative transitions (i.e., predictable only for certain groups of athletes). The first speaker will make an overview of the current status in the transition research, the cultural praxis of athletes' careers paradigm, and the new research trends with some of them being illustrated more in detail by the following speakers. The second speaker will share an original approach and results of a longitudinal qualitative study of the junior-to-senior transition in English professional football emphasizing different transition trajectories depending on the coping strategies used by the players. The third speaker will focus on dual career transitions of Swedish athletes and share ideas for developing an innovative digital dual career support services for university student-athletes. The forth speaker will present a pioneering narrative exploration of an injury as a career transition based on experiences of a Swedish elite handball player. The fifth speaker will

introduce quasi-normative cultural transitions (i.e., predictable for transnational athletes) emphasizing both empirical data from the Nordic project and novel theoretical insights.

- **Reducing "chaos in the brickyard": From traditional to emerging trends in career transition research and practice**

Natalia Stambulova
Halmstad University, Sweden

In this introductory presentation to the symposium the author is going to apply building metaphors borrowed from Forscher's "Chaos in the brickyard" (1963) to briefly summarize a current status of the career topic in sport psychology and then to consider several emerging research/applied trends to further positioning them in the existing system of athlete career knowledge. Special attention will be paid to the cultural praxis of athletes' careers paradigm (Stambulova & Ryba, 2013; 2014) and it's a potential to connect different "floors" and "blocks" in the existing "edifice" of career knowledge in sport psychology. The new research trends will be considered as "bricks" contributing to building new knowledge about athletes' normative, non-normative, and quasi-normative transitions. In terms of normative transitions, the recent studies on the junior-to-senior transition trajectories/pathways (e.g., Franck & Stambulova, 2014), phases in junior-to-senior (Lundell Olsson & Pehrson, 2013) and athletic retirement (Reints, 2011) transitions as well dual career transitions (e.g., Stambulova, Engström, Franck, Linnér, & Lindahl, 2014) will be considered. Among new non-normative transition research an injury will be introduced as a career transition process with a sequence of phases and also with short-term and long-term career impacts (Ivarsson, Stambulova & Johnson, 2015). Among quasi-normative transitions, cultural transitions (e.g., Agergaard & Ryba, 2014; Ryba, Stambulova, Ronkainen, Bundgaard, & Selänne, 2014) and transitions to elite residential training centers (e.g., Poczwardowski, Diehl, O'Neil, Cote, & Haberl, 2013) will be considered, and also Olympic Games or other important competitions will be articulated as quasi-normative career transitions (e.g., Schinke, Stambulova, Trepanier, & Oghene, 2014; Wylleman, Reints, & Van Aken, 2012). In conclusion, new directions in applied work with transitional athletes (e.g., dual career support services, psychological support in the injury transition) that are (or might be) encouraged by the new research trends will be outlined.

- **Longitudinal examination of the junior-to-senior professional football transition in the English Premier League**

Robert Morris[1], David Tod[2], Emily Oliver[3]
[1]Nottingham Trent University, UK, [2]Liverpool John Moores University, UK, [3]Durham University, UK

Current knowledge of the junior-to-senior transition in English professional football is lacking. Our purpose was to examine longitudinally English Premier League football players' experiences of the junior-to-senior transition. We interviewed 11 male players (aged 18 – 20 years) and 4 male coaches (aged 46 – 60 years) 8 times over a two-year period before and after athletes were, or were not, offered a senior contract. Interviews were based upon Stambulova's (2003) career transition model, and were recorded, transcribed, and thematically analyzed. Three groups of players emerged who coped differently with the transition. The avoidance group did not seek social support, the reactive coping group actively sought support but only when experiencing the effects of stressors, and the proactive group actively sought help and support whenever they felt it would be useful, often in advance of stressors. Themes emerging across the groups included: (a) unstable emotional reactions during the transition (e.g., transition factors are constantly in flux, which may lead to periods when athletes are panicking about moving up, followed by periods when athletes are calm about the process), and (b) culmination of experiences (e.g., moving up to senior sport was considered a culmination of a continual increase in competence throughout one's career; transition may be conceptualized as recycling loops, where from an early age

athletes are building up required competencies for senior team success). Coaches were asked to comment on how prepared they believed athletes were for the transition. Coaches' data indicated that there may be occasions they were unable to accurately assess how well players were managing the transition process. Based upon the results of the study, programs may be put in place to support athletes moving from junior to senior sport. For example, the avoidance group may benefit from earlier intervention to help them prepare more effectively for the transition.

- **From the Swedish dual career model to a national digital system of dual career support services**

Lukas Linnér, Natalia Stambulova
Halmstad University, Sweden

The sport and educational systems in Sweden have a long history (since the 1970s) of cooperating on a high school level. Recently steps have been taken by the Swedish Sport Confederation to initiate cooperation in higher education (i.e., university level). Swedish research on athletes' dual careers has mainly focused on the high school level (e.g., Stambulova, Engström, Franck, Linnér, & Lindahl, 2014; Uebel, 2006), with Fryklund (2012) as the only one who targeted the university level. Stambulova et al. (2014) presented the Swedish dual career model to set up an agenda for future dual career research in Sweden. The model aligns the stages in the Swedish educational system with related age markers and stages in athletic as well as vocational development illustrating possible dual career pathways and related transitions. Outlined by the Swedish dual career model a new project has been initiated. Demands and challenges as well as the relevant needs in psychological support of Swedish university student-athletes are investigated through mixed-method qualitative and quantitative explorations. Based upon findings and in collaboration with researchers in health innovation and embedded intelligent systems a national digital system of dual career support services is going to be developed and tested. The digital service can be explained as an online national career assistance program including dual career education, networking and training from a preventive-supportive perspective. That is, helping university student-athletes to develop knowledge, competencies and skills to become more competent and (with time) autonomous in managing their own careers. In a broader sense, the system is seen as facilitating implementations of the Swedish dual career philosophies of "winning in the short-run"(i.e., obtaining an optimal dual career balance) and "winning in the long-run", that is, proactively preparing student-athletes for athletic career termination (Stambulova et al., 2014).

- **Injury as a career transition: Experiences of a Swedish elite handball player**

Andreas Ivarsson, Natalia Stambulova, Urban Johnson
Halmstad University, Sweden

In the career literature, an injury is termed as a non-normative transition (e.g., Stambulova & Wylleman, 2014), and therefore, it is implied that there is a process behind it. But the injury transition process has never been in focus of the career researchers in sport psychology, and therefore this study is a pioneering exploration unpacking this process. The study was designed as a single subject case study based on a constructivist narrative approach with the objectives (1) to explore the athlete's career development, injuries within the career and their impact, and (2) to explore in detail the athlete's injury experiences. The participant was a 26 years old former handball player who had experienced two major ACL-injuries during his career. To guide the research process from formulation of the research objectives and to interpretation of narratives, the narrative oriented inquiry framework or NOI (Hiles & Čermak, 2008) was followed. Following combination of the holistic-content and the categorical content analyses allowed conceptualizing injuries as career transition processes embedded into the athlete's career development. Moreover, the participant's narratives made possible to identify four phases in the injury transition (i.e., pre-injury, injury and first reactions, diagnosis and

treatment, rehabilitation and consequences) with distinct psychological content (e.g., demands, resources, barriers, and coping strategies) relevant to each phase. Based on the results of the study it is possible to anticipate that athletes, sport psychology consultants, coaches, and members of the sport medicine teams might benefit from being aware about specific demands and barriers relevant to the different phases of the injury transition process. This knowledge can be further used to facilitate development of adequate resources and coping strategies to help injured athletes with rehabilitation process and successful comeback to active sport involvement.

- **Cultural transitions and adaptation in a transnational athletic career**

Tatiana V. Ryba[1], Natalia Stambulova[2], Noora J. Ronkainen[3], Jens Bundgaard[4], Harri Selänne[5]
[1]KIHU – Research Institute for Olympic Sports Jyväskylä, Finland, [2]Halmstad University, Sweden, [3]Shanghai Jiao Tong University, China, [4]Aarhus University, Denmark, [5]LIKES - Center for Sport and Health Sciences Jyväskylä, Finland

With the rising globalization of the sports economy, athletic careers have become increasingly transnational. In comparison with an international career, a transnational athletic career is more open-ended regarding the countries of one's origin, settlement, and retirement. The production of mobility and adaptation to a cultural transition are critical phases for initiating and maintaining the transnational career. In this paper, we conceptualize cultural transition as a quasi-normative career transition, typically coinciding with other within-career transitions and career termination. In other words, cultural transitions are normative or predictable in the course of transnational athletic careers. The paper is based on data gathered for the research of transnational athletes' career development and transitions in Nordic countries—that is, participants had at least one migration to or from Finland, Sweden, Norway, or Denmark during the duration of their career. The participants were both male and female, either professional or amateur in various sports, and their ages varied from 18 to 37. Narrative inquiry from the life story perspective (Atkinson, 1998) was used to elicit and analyze 15 athletes' narrations of the ways in which their careers were negotiated in a complex sociocultural space spanning physical and discursive borders (i.e., geographic, linguistic and socio-political). Through narrative analysis, we discerned several interconnected storylines related to elite sporting (sub)cultures, gender and ethnicity discourses embedded in a particular sociocultural context, and transformative life transitions in and through which personal meanings were reconstructed. We suggest that (1) meaning reconstruction and (2) repositioning in social networks constitute the key psychological processes associated with the cultural transition. The results moreover empirically substantiated the concepts of cultural transition and adaptation, which are the focus of this presentation. The present research also contributes to clarifying the emerging concepts and establishing a common language in career transitions literature.

S9.06: Symposium - Multi-disciplinary approaches to performance excellence: Multi-national perspectives

Chair(s): Elizabeth L. Shoenfelt (Western Kentucky University, USA)
Discussant(s): Göran Kenttä (Swedish School of Sport and Health Sciences, Sweden)

Our symposium centers on applied psychologists working with elite performers for performance excellence. Symposium members are experienced professionals from France, Germany, England, and the United States. The panel is multi-national and represents multiple perspectives and approaches to achieving performance excellence. Presenter 1 will present the multi-disciplinary approach used to help a swimmer develop the mental skills needed to make the 2012 US Olympic Team and to perform well at the Olympics, winning a gold medal. The swimmer has matured and work continues to prepare for the 2016 Olympics, developing and applying more sophisticated techniques as her swimming improves. Presenter 2 will present a holistic approach to developing performance excellence working with the German Badminton National Team (athletes and coaches). Kuhl's (2000)

PSI theory serves as the theoretical framework. The science-practitioner approach using Kuhl's diagnostic tools will be described, providing practitioners / performance consultants with opportunities to discern the potential of these diagnostic and coaching tools. Presenter 3 will present two team case studies in sport and performance psychology, British (Para) Triathlon and WorldSkills UK, drawing on Kleinert et al.'s (2012) framework for working with teams specifically embedded within the performance enhancement approach to team consultation. Suggestions for developing and implementing team building programs will be discussed; recommendations for practice will be outlined. Presenter 4 will address the difficulty of interpreting demands presented when consulting with high level athletes. He will present assessment, orientation, and follow up processes used to ensure a balanced approach, and the need of sport psychologists for constant adaptation to help the athlete with the desire to enhance performance while still demonstrating concern and carefully regarding the athlete's wellbeing and mental health. Finally, the discussant will integrate themes across presentations to illustrate how each independently and all together contribute to performance excellence at the elite level.

- **A multi-disciplinary approach to mental skills preparation for an Olympic swimmer**

Elizabeth L. Shoenfelt
Western Kentucky University, USA

This presenter will address work with a swimmer in preparation for the Olympics. The swimmer made the 2012 US Olympic Swim Team and earned an Olympic gold medal. Work continues to prepare for the 2016 Olympics. The swimmer has matured and we have developed and applied more sophisticated techniques as her swimming improves. The consultation, which draws on the science and practice of both sport psychology and industrial-organizational ((I-O) psychology, focuses on three areas. First is helping the swimmer remain motivated during the demanding practices required for Olympic training. Goal setting and feedback (e.g., Locke & Latham, 1990; Locke & Latham, 2006) for important components of the swim (e.g., stroke maintenance, turns, underwaters) are used to maintain motivation, to focus attention, and to provide feedback in relation to the goals to enable the swimmer to track progress over time. Progress is gradual, but by tracking performance relative to each goal, the great progress achieved over months of practice may be seen. The second focus is on performance components of the swim; this focus draws heavily on the I-O literature on training (e.g., Noe, & Colquitt, 2003). For example, the role of automaticity (Salas & Rosen, 2010; performance that is completed without attention, and is more efficient and faster than performance that is consciously monitored) is especially important for preparing for stressful conditions such as the Olympic Trials and games. The third focus, mental skills training, includes positive self-talk, focus/concentration skills, visualization, and problem solving skills. Many of the mental skills are components I-O psychologists identify as comprising the sources of self-efficacy (e.g., Gist, 1987; Gist & Mitchell, 1992). The presenter will discuss in detail how these training components were integrated to lead to Olympic success and how they continue to be applied in preparation for the 2016 Olympics.

- **Working with elite performers for performance excellence: A holistic consulting approach with Germany's badminton national team**

Sebastian Brueckner
Saarbruecken Olympic Training Center, Germany

Following the London 2012 Olympics, the German Badminton Association restructured their coaching staff at respective national training centers (DBV, 2013). In addition to changes in personnel and organizational structure, implementing a holistic approach to performance consulting became a focus area for the Badminton National team for the upcoming Olympiad. Oehlenschlaeger's (2013) model of career transition described the DBV approach for developing performance excellence. Using Kuhl's Volitional Components Inventory (VCI)

and Evolvement-Oriented Scanning (EOS) as diagnostic tools (Kuhl et al., 2006), a systematic coaching and consulting system was implemented, addressing athletes' self-regulation skills as a key factor for successful development of performance excellence. For younger athletes, results from Kuhl's VCI were the basis for initial basic mental skills consulting along with weekly mental training on-court as well as a session on sport psychology theory. For senior athletes, many (aspiring) Olympians, EOS was used to aid the coaching process and sport psychology interventions. Group workshops with coaches and players were implemented. In 2014, an elite-coaching education program was implemented that included sport psychology topics as well as self-regulation applications. The same approach was adopted successfully in working with DBV coaches in a "coach the coach" setting. Kuhl's Personality Systems Interaction (PSI) theory, which served as the theoretical framework for this work, will be presented along with practical applications, exercises, and tools. Practitioners will learn the unique advantages the performance model underlying PSI theory (i.e., the circular model of action) offers for athletic settings (Kuhl & Beckmann, 1994). At the elite Olympic level and for coaches, addressing motivational issues comparing the conscious vs. unconscious score for motive strengths on the dimensions power, achievement, and relationship holds much potential for holistic performance development of elite performers. Examples of implementing these ideas into coaching education programs and workshops will be discussed, as well.

- **Reflections on working with teams in sport and performance psychology: The case of British (para) triathlon and WorldSkills UK**

Mustafa Sarkar
University of Gloucestershire, UK

Working with teams is a common and major challenge for sport and performance psychologists. Recently, Kleinert et al. (2012) articulated three main components that determine the procedure, approach, and trust building in working with teams: the sport psychologist himself or herself, the given tasks and demands, and the social and organizational structure. Drawing on this framework, this presentation will outline two case studies, namely British (Para) Triathlon and WorldSkills UK, embedded within the performance enhancement (medium term) approach to team consultation. With British Triathlon coaches, four main areas were addressed: optimizing motivation, strengthening self-belief, maintaining focus, and stress management. Three main areas also were discussed with the National Performance Director, coaches, and athletes of British Paratriathlon. These were: being a professional athlete, competition/race preparation, and team cohesion. With WorldSkills UK, as part of their preparation camp, the aim was to mentally prepare WorldSkills Team UK competitors (UK's most talented young people) and training managers for the International WorldSkills Competition in Leipzig, Germany (July 2013). The content of the program consisted of three main areas: "Understanding the Mind," "Understanding the Self," and "Understanding how to Perform." For practitioners working with teams, suggestions for developing and implementing team building programs are discussed (Paradis & Martin, 2012). Moreover, four main recommendations for practice are outlined including having a clear overview of the situation, being aware of your target group, using diagnostics with care, and sharing your experience (Kleinert et al., 2012).

- **Evaluation, orientation, & follow up working with high level athletes: A need for constant adaptation in clinical sport psychology**

Cédric Quignon-Fleuret
INSEP, France

It can be considered that a notion of balance in the investment can be beneficial for the athlete's wellbeing and, concomitantly, for his/her performance (Quignon-Fleuret, 2011). Therefore, it is essential to precisely evaluate the athlete's demands when he/she solicits the help of a professional such as a sport psychologist. An accurate evaluation and interpretation

of the athlete's demands will frequently prevent the professional from taking an inappropriate orientation to his/her work and to avoid simply fulfilling the desire of the High Level Athlete (HLA) to increase, at any cost, his/her performance. First, this presentation will consider the difficulty of interpreting the demands from the HLA and will describe some of the methods that can be used to properly evaluate personality in a high-level sport environment (Descamp, 2011) and for assessments in sport psychology (Garner & Moore, 2006). To illustrate, I will present how this process has been used in work in the "Sport Psychology Unit" at the French National Institute of Sport, Expertise and Performance (Insep), where about 500 mandatory psychological interviews per year are done with HLAs. Second, I will discuss the idea that behind the first, obvious demand there may be some psychoanalytic issues that will impact the work with the HLA and require the clinician to constantly adapt his/her approach (Larrar, 2014). Between the clinician's concern for well-being and mental health and the natural, but sometimes obsessive, desire from the HLA to excel, I will discuss how the sport psychologist is frequently challenged in his/her work by the reality of the athlete psyche and the reality of his environment. This presentation is based on an analysis of the scientific literature associated with experiences gathered during nine years of clinical practice in a French sports medical center.

- **Discussant for multi-disciplinary approaches to performance excellence: Multi-national perspectives**

Göran Kenttä
Swedish School of Sport and Health Sciences, Sweden

The discussant will address how presenters from different disciplines demonstrate equifinality in performance excellence. That is, the common outcome of high-level elite performance was achieved through different approaches. Using approaches based on the science and practice of different disciplines, (i.e., industrial-organizational psychology and sport psychology in the first presentation; sport and performance psychology in the second presentation; performance psychology with a base in resilience, cognitive psychology, and personality psychology in the third presentation; and, finally, clinical psychology in the fourth presentation), each presenter used methods and techniques specific to his/her discipline to facilitate elite performance. The discussant will reflect on the strengths and limitations of each approach, and will integrate themes across presentations to illustrate how each approach contributes to performance excellence at the elite level.

S9.07: Symposium - Recent developments in stress research in sports

Chair(s): Marie Ottilie Frenkel (University of Heidelberg, Germany), Henning Plessner (University of Heidelberg, Germany)

Since stress and stress-related health impairments are critical in human life, the study of stress responses to various acute stressors and the underlying factors are of major importance (Campbell & Ehlert, 2012; Bibbey et al., 2013). Therefore, it is necessary to conduct differentiated studies with distinct subpopulations (Campbell & Ehlert, 2012). Sport psychology research provides a valuable opportunity to examine the stress-reactivity of athletes, as sport performance is closely related to high pressure and stress (Filaire et al., 2014; Crewther, 2009; Salvador et al., 2003). This symposium consists of five studies on the psycho-physiological effects of stress in sports and introduces various technologies and assessment methods. Thomas Finkenzeller assesses athletes' responses of the heart rate variability during a cognitive stress test in a laboratory setting and discusses the role of the vagal activity on performance. Robin-Bastian Heck proposes a new tool, namely the "Heidelberg Sport Stress Test" (HSST), to induce sport-specific stress and documents changes in the endocrine system hormone cortisol. This test could help to investigate the stress-buffering role of personality or sport psychological interventions. Marie Ottilie Frenkel uses the HSST to present evidence, that high sensation seekers have a performance advantage due to their adaptive stress regulation abilities. Peter Wilhelm compares stress responses of top-rope climbers with those of lead climbers in a field study with an ambulant

psycho-physiological assessment. Felix Ehrlenspiel focuses on self-reported stress in relation to motivational orientation and self-regulation skills in a longitudinal study with young elite athletes. Practical implications for athletes and coaches for improving performance in stressful sport specific situations were derived from this study. The symposium will close with a discussion of further research possibilities. Summing up, the symposium presents innovative and creative studies with promising results, which could pave new avenues in studying the stress-performance link in sports.

- **Heart rate variability as an indicator of cognitive stress in the sport psychological assessment of athletes**

Thomas Finkenzeller, Günter Amesberger
University of Salzburg, Austria

The ability to cope with stressful events is a core competence of athletes in different sport situations (Hardy, Jones, & Gould, 1996). Different cognitive tasks and affective stimuli are often used as mental stressors in diagnostics (Steptoe & Vögele, 1991). Heart rate variability (HRV) as an indicator of the autonomic nervous system function may be a sensitive psychophysiological value of an athlete's coping ability. The aims of this study were i) to gain knowledge about the stability and ii) sensitivity of HRV in a cognitive stress test as well as iii) to analyze activation patterns that are associated with high cognitive performance. A sample of 14 athletes (age M = 31.43 years; SD = 6.68) performed a mental stress testing twice within two weeks (time interval M = 11.71, days; SD = 3.81) in the laboratory. An ECG was recorded during a five minutes resting condition, a 2-back task and in a final resting condition (5min). Most of the HRV parameters in the time and frequency domain demonstrate an acceptable stability ($r > .70$) in the resting condition and in the 2-back task. All parameters of HRV reveal a significant change provoked by the cognitive stressor. A significant improvement in the 2-back task is associated with an decreased reduction of the parameter RMSSD (indicator of vagal activity) between pre-resting condition and 2-back task from the first to the second test ($r(12) = .60$, $p < .05$). This indicates that athletes perform better if they are able to stay relaxed under cognitive stress conditions. Future studies should clarify which activation patterns go along with high performance.

- **The "Heidelberg Sport Stress Test" - a tool for investigating sport specific stress responses in a laboratory setting**

Robin-Bastian Heck, Marie Ottilie Frenkel, Henning Plessner
University of Heidelberg, Germany

The investigation of stress is of growing interest within sport scientific research. Most current studies have medical or psychological background and use the well-established "Trier Social Stress Test" (Kirschbaum & Hellhammer, 1993), which focuses on an acute psycho-social stressor. Stress in general induces reliable HPA-responses, which are mainly assessed by the stress hormone cortisol. For a better understanding of physiological and psychological effects of stress in sports we need valid, standardized methods for inducing sport-specific stress. In sports athletes frequently perceive unexpected, threatening and risky stimuli as stressful. Hence the aim of this study is to evaluate a new sport-specific stress test characterized by such a stimulus. Thirty male students participated in the experimental study. Within the paradigm participants had to climb top-rope a 12m-high wall, then stress was induced by telling them to jump into the climbing rope and to go with their face turned back, to protect it from possible injuries. We advised them not to touch the rope and to land with both feet simultaneously on the wall. A fall of ca. 3m ensued, which was secured by the rope. Salivary cortisol was analyzed prior and after stress induction. The "Heidelberg Sport Stress Test" resulted in significant increases [$t(29) = -2.17$; $p = .04$] in salivary cortisol. From this data we conclude that the climbing task with subsequent jump into the rope represents an externally valid method to induce stress in a sport specific way. Given that an appropriate facility is available, it is relatively easy to conduct and with low cost. Future studies could use

this tool to investigate potential advantages of personality characteristics as sensation seeking in stressful situations or to evaluate the stress-buffering effects of sport psychological interventions.

- **Sensation seeking and sport-specific stress**

Marie Ottilie Frenkel, Robin-Bastian Heck, Henning Plessner
University of Heidelberg, Germany

The stress-buffering role of personality traits in general, and in sports, is a highly debated topic. However, the effect of sensation seeking is still a poorly characterized phenomenon (Breivik, 1999). Within the psychobiological theory (Zuckerman, 1996) this trait is explained by the concept of the optimal level of catecholamine system activity. Up to now studies with athletes have mainly focused on psycho-social stress. We have examined whether high sensation seekers (HSS) compared to low sensation seekers (LSS) experience lower levels of stress, and if this has an impact on their performance. Therefore we developed a new sport-specific experimental paradigm using a top-rope climbing task. Stress was induced through an intentional jump (and fall of 4 meters) into the rope. Two extreme groups (HSS vs. LSS, n = 30) were formed by the using the SSS-V. Level of sports activity and experience in top-rope climbing did not differ between the conditions. Physiological arousal (salivary cortisol) and emotional outcome (state anxiety, WAI-S) were repeatedly measured. Duration of the climbing task served as a performance outcome. In response to the stressor, HSS compared to LSS released a significantly lower amount of cortisol (time: $F [1, 27] = 11.22$, $p = .002$; interaction: $F [1, 27] = 6.27$, $p = .02$), reported significantly less state anxiety for the jump ($F [1, 28] = 4.75$, $p = .04$), and climbed faster by trend ($F [1, 28] = 3.04$, $p = .09$). The results show that individuals react physiologically and psychologically differently to a sport-specific stressor, depending on their level of sensation seeking. HSS seem to be less strained through the intensive stimulation, and seem to perform better. Due to their physiological and psychological preconditions, they should show better performance in unexpected and extremely risky extreme sports scenarios. This should be investigated in future research.

- **Psychological stress elicited by lead rope climbing affects subjective experience, physiological arousal, and climbing behavior**

Peter Wilhelm, Pirmin Bertle, Jonas Hoffmann
University of Fribourg, Switzerland

Climbers voluntarily expose themselves to situations that would elicit intensive fear reactions in many people, such as a risky fall from height. However, although climbers have learned to cope with such situations, difficult or dangerous circumstances during climbing can still provoke intense stress reactions. A relevant aspect, that might induce psychological stress, is the falling distance in the case of an involuntary drop. This distance is usually larger in lead rope climbing (climber fixes the security rope during climbing at regular intervals) than in top rope climbing (rope is already fixed). Therefore, lead rope ascents should be more stressful. Draper et al. (2010) indeed found that lead rope ascents caused more intense subjective and physiological stress responses than top rope ascents. However, conclusions based on this and other studies are limited because the climbing routes were brief and sample size was small. The aim of the current study was to investigate effects of top rope vs. lead rope climbing under naturalistic conditions. Fifty-two climbers with different levels of experience climbed a route up to 30 meters length at the limit of their capability, once with top rope and once with lead rope (order was random). We assessed ECG, skin conductance, and physical activity. In addition, participants rated their appraisal of the situation (pleasantness, controllability) and their current affect before and after climbing. Preliminary results confirm our expectations: Compared to top rope climbing, lead rope climbing was perceived as being less controllable, less pleasant, more stressful, and was associated with lower positive affect. Climbing took more time, and movements per time unit were slower and less intense.

Nevertheless, heart rate was higher. In summary, results show that lead rope climbing is psychologically more stressful than top rope climbing and elicits higher physiological arousal that cannot be explained by physical activity.

- **Takin' it easy? Young elite athletes report low levels of stress**

Felix Ehrlenspiel, Christoph Kreinbucher, Eva Zier
Technische Universität München, Germany

Young elite athletes are subject to various strains (e.g. practice, school, Richartz & Brettschneider, 1996), but less is known about their stress experience. In line with a transactional perspective on stress, previous studies have shown that the environment (e.g. coaching style, Morris & Kavussanu, 2009) affects the level of stress in youth athletes. In a longitudinal study, we investigated the level of self-reported stress in young elite athletes, and the role of person variables in stress development. Across four years, the study comprised four times of measurements of trait variables of motivation and self-regulation and 10 periods of measurement of acute stress. We report the data of the first two years. Data of N=273 young athletes (age at first examination M = 14.05 ± 1.61) was analyzed. Participants practiced for M = 6.37 ± 2.61 times per week for a total of M = 12.95 ± 6.67 hours. For examining motivation, the SOQ (Elbe, 2004) was applied, for measurement of self-regulation skills the VCQ-sports (Wenhold, Elbe, & Beckmann, 2009), for acute stress, the REST-Q Sport (Kellmann & Kallus, 2000) was applied 4 times over 14 days for each of the 10 measurement periods. In order to examine the influence of person variables on stress perception we defined "critical cases" (n=30) reporting high levels of stress and screened these for differences to the other participants regarding motivation and self-regulation skills. Participants reported low levels of general stress and high levels of general recovery. Critical cases, i.e. more stressed athletes reported lower scores of competitiveness and win orientation, less self-regulation skills and more volitional deficits (all $p < .01$). The results indicate that young elite athletes, although heavily involved in sports, do not report concerning levels of stress or inadequate recovery. The results also show that motivational orientation and self-regulation skills play a critical role in the development of stress – lending themselves as targets for sport psychology interventions.

W9.1: Workshop - Using grounded theory in sport and exercise psychology research

Nicholas Locke Holt
University of Alberta, Canada

Grounded theory is a qualitative methodology that has become increasingly prevalent in sport and exercise psychology research. The purpose of this workshop is to provide an overview of key concepts in grounded theory methodology. The workshop will be targeted at senior graduate students who are using grounded theory for the first time and more experienced researchers who wish to gain a stronger understanding of the methodology. It will be informed by recent debates on grounded theory in the sport and exercise psychology literature (Holt & Tamminen, 2010a, b; Weed, 2009, 2010). First, I will give a brief history of the methodology and discuss how grounded theory became an 'umbrella' term for a range of different approaches that share some common characteristics. Second, I will discuss some reasons to use grounded theory. The remainder of the workshop will focus on 'how to do' grounded theory by exploring some core methods/techniques common across most versions of grounded theory. These include theoretical sampling, interaction of data collection and analysis, and the construction of substantive theoretical explanations. The workshop will have a practical focus and include examples and exercises. These will include coding exercises and an 'armchair walkthrough' to design grounded theory studies.

W9.2: Workshop - From science to evidence-based youth sport practice: A "how to" approach for practitioners utilizing the FUN MAPS

Amanda Joy Visek[1], Heather Marie Manning[1], Brandonn Scott Harris[2]
[1]The George Washington University, USA; [2]Georgia Southern University, USA

Many youth sport clubs and organizations around the world purport that fun is the cornerstone, if not the foundation, on which their programs are developed. However, lack of fun is cited as the primary reason children drop out of sport (Eitzen & Sage, 2009). Recent data also suggests attrition in team sports is higher than ever before (SMS USA, 2013), making fun one of the most important factors of sport science inquiry and needed applied practice. From grassroots stakeholders to national organizations, scientific blueprints of the fun integration theory known as the FUN MAPS (Visek, Achrati, Manning, McDonnell, Harris, & DiPietro, 2014) are the latest sport science advancement capturing the attention of youth sport communities worldwide. Like any road map or sophisticated GPS device, the data-driven FUN MAPS display the entire landscape of fun and provide sport psychology practitioners with navigational directions for optimizing fun based on precise metrics. Therefore, the purpose of this workshop is to assist practitioners in translating the exact science of fun to evidence-based youth sport practice. Upon completion of the workshop, practitioners will be able to: (a) navigate the FUN MAPS, and (b) integrate the FUN MAPS as a focal point of applied practice within established frameworks of best-practice service delivery (i.e., the Youth Sport Consulting Model [Visek, Harris, & Blom, 2009] and the Youth Sport Consulting Triangle [Blom, Visek, & Harris, 2013]). This evidence-based practice workshop will use a didactic approach, including picture prompts, think-pair-share interactive techniques, and concept mapping demonstrations. Workshop materials will include the FUN MAPS and service delivery frameworks, along with the published scientific FUN MAPS paper, in addition to resources practitioners can use to facilitate the most fun sport experiences in a way that positively transforms youth sport climates.

W9.3: Workshop - Disabled sports

Daniela Loosli, Hanni Kloimstein, Nikolai Kiselev
PluSport Behindertensport Schweiz, Switzerland

Modern research in sport and psychology focuses mostly on healthy population groups or at least on the people with no noteworthy restrictions in everyday life. At the same time there were about 7.5 million people with severe disabilities in Germany at the end of 2013 – almost 10% of the total population (Statistisches Bundesamt, 2014). The number of people with disabilities in Switzerland is estimated at around 1.2 million. Almost 500,000 of them live with severe disabilities (BFS, various sources). Nowadays, the classical disabilities are accepted in our modern society, but most non-disabled people still cannot imagine what it means to live with a disability. Despite the media coverage of events such as the Paralympic Games, the topic of athleticism of disabled people is rarely present in everyday society, because there are neither points of contact in sports between able-bodied and disabled people nor are there any own experience with disabilities. Participants of this workshop will be given the opportunity to learn classical forms of disabilities in a practical way as well as to learn, through simulated impairments, what difficulties disabled people have, especially in sports. Besides the practical experience the participants will be given a chance to interact with Paralympic athletes personally. Furthermore, it should be noted that a disability or the consequences of it often lead to the development of a psychiatric disorders (Sarimski, 2005). Especially in the case of congenital disabilities the attachment theory and the quality of the non-ordinary parent-child, and child-environment interaction provide possible causal explanations for the higher prevalence of psychiatric disorders among people with disabilities.

W9.4: Workshop - Imaging and imagining: A workshop of mental training and mindfulness practices for performance settings

Jacob Cannon Jensen
California State University, USA

As the field of sport psychology has expanded to other performance settings (e.g. acting, dance, music, combat), these populations of performers can benefit from mental training and mindfulness practices and the services of sport and performance psychology consultants (Kabat-Zinn, 1990; Seyd, 2013). The specific learning objective of this workshop is to provide consultants with insights and information on how to apply key mental training techniques and mindfulness practices to a variety of performance settings. Performers (e.g. actors, musicians, dancers), face their own unique performance situations and challenges, and throughout this workshop attendees will learn how to better help these and related populations (1) mentally prepare for and handle performance anxiety, (2) stay in the moment during performance, and (3) deal with the roller-coaster of rejection, criticism, anxiety, and stress that often accompany these performance settings. The teaching methods incorporated within this workshop will include a presentation and discussion of research and applied work to performance settings, demonstrations of how to tailor mental training and mindfulness practices to these populations, as well as experiential learning where workshop participants will have the opportunity to experience and apply some of these techniques within a mock performance consulting session (Jensen, 2014). Specific techniques covered in the workshop will include imagery work (helping the performer both image and imagine), memory work (helping the performer connect to the performance), performance routines (helping the performer find an anchor or trigger), emotional control (helping the performer use emotion to better the performance), and mindfulness practices (helping the performer become more skilled at staying in the moment and dealing with the stresses of inherent with performance). Workshop participants will be provided with a copy of the presentation slides, as well as a handout with examples of mental training and mindfulness techniques for performers, including a sample imagery script.

Posters

Session 1 – Wednesday 15 July, 10am-11.30am

Vividness and transformation of mental images in karate and ballet

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Systematic reviews have shown that imagery improves performance in motor tasks (Driskell, Copper, & Moran, 1994). The use of mental imagery is not only limited to athletic performance, but its practice has expanded to other activities, such as dance (Overby & Dunn, 2011). In addition to the aforementioned explorations of imagery use, researchers have also investigated the ability of imagery by measuring indirectly both vividness (i.e., the clarity or sensory richness of an image) and controllability (i.e., the ease and accuracy with which an image can be manipulated mentally). To date little research has specifically investigated differences in imagery ability between open- and closed-skill sport activities. The purpose of this study was to investigate whether the type of task, open or closed, affects vividness and controllability differently. Thirty female classic dancers (closed skill), 30 female karate athletes (open skill), and 30 female non-athlete students, between 14 and 20 years of age (M = 17.0, SD = 1.6), participated. For the younger participants, a consent form was signed by their parents. They completed the Vividness of Visual Imagery Questionnaire and the Vividness of Movement Imagery Questionnaire (Italian translation by Antonietti & Crespi, 1995), and the Subtraction of Parts Task (Di Nuovo, Castellano, & Guarnera, 2014). There was no difference in imagery ability between open- and closed skill sport groups. Furthermore, dancers and karatekas had higher mean scores on imagery ability than the non-athlete group. A positive correlation was observed between the two questionnaires, supporting findings on the componential basis of imagery. This study contributed to increase the research in the specific area of open and closed-skill sports and imagery ability. Additionally, these findings also suggested that further research in this area is warranted to develop a more thorough understanding of the effectiveness of imagery skill in sport and dance performance.

DELAROSE: Delivering E-Learning Accreditation to Reduce Occupational Stress in Employment. A physical activity approach

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Work related stress is a considerable societal problem. Health and social care workers in particular suffer considerable work-related stress with associated manifestations (European Commission, 2008). An alternative approach to blaming the work-environment or the sufferers themselves is to build and support resiliency within organisations and amongst individual workers. The EU-project DELAROSE aims to provide an online intervention, thereby avoiding the need for workers to go through a third party for help and preserving their privacy. DELAROSE also provides an opportunity to be accredited by one of three Higher Educational Institutions in Ireland, Austria and Switzerland for such learning. This poster presentation will introduce the DELAROSE online intervention material, presenting the learning units “Physical Activity” (PA) and Stress” as an example. In the pre-EU-project “Reducing Occupational Stress in Employment” (ROSE) a review of scientific literature and a survey of health and social care workers about their needs in terms of policies and support to reduce their stress at work was used to develop a self-help programme for individuals and managers. This programme is the basis for the planned accredited E-course DELAROSE. For each learning unit the following material has been developed: (1) power point presentation; (2) table with the targeted knowledge, skills and competences outcomes for each unit and (3) support material including portfolio activities. In the learning unit “PA and Stress” the participants will learn about and understand the preventive and coping effect of

PA; they will be introduced to the WHO PA guidelines and they will be guided on how to adopt or maintain a regular PA behaviour through exposure to the Transtheoretical Model (TTM) and Self-Determination Theory. DELAROSE approaches work-related stress from different levels. It increases the resilience at an individual level and encourages managers to reduce stress by establishing appropriate policies and environments.

Zumba: A community intervention to promote physical activity in rural midwestern united states

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Physical activity participation is vital for a healthy lifestyle (Lox, Ginis, & Petruzello, 2010). Psychological benefits associated with regular physical activity participation include enhanced executive functioning (Barella, Etnier, & Chang, 2010), greater satisfaction with physical appearance (Opdenacker, Delecluse, & Boen, 2009), improved quality of life (Hirsch et al., 2010), and higher self-esteem (Opdenacker, Delecluse, & Boen, 2009). This said, physical inactivity remains a global public health problem (World Health Organization; WHO, 2014). Additionally, those with a lower socioeconomic status are often less physically active (Marques, et al., 2014). Thus, further inquiry into the effectiveness of interventions for improving physical activity participation in individuals with a lower socioeconomic status has been warranted (Gulliford, Charlton, Bhattarai, & Rudisill, 2014). From a Transtheoritical model standpoint (TTM; Prochaska & DiClemente, 1983), the present study examined the self-reported effects, as well as subsequent participant evaluation, of a physical activity intervention in a community center within the rural Midwestern United States. Twelve females of African American ethnicity (Mage= 45.75) participated in rhythmic aerobics (i.e., Zumba), 2 times per week for 3 months. Qualitative analysis revealed that most participants enjoyed the program due its low cost and associated entertainment qualities. Participants also reported that they found the activity to be beneficial and that they would likely participate again in the future. Alternative types of programs that provide similar physical fitness opportunities, as well as including outlets to encourage youth involvement, were among common suggestions moving forward. These results may suggest that individuals with a lower socioeconomic status can adopt and maintain physical activity in response to specifically tailored community interventions. Implications for further larger scale research into the effectiveness of these interventions, as well as practical implications on how to design evidence-based interventions to promote physical activity in individuals with a lower socioeconomic status, will be discussed.

Contribution to the identification of professional skills among trainers (coaches / teachers of physical education and sports)

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This article contributes to the identification of the skills required as well as its application in the field of physical education and more particular in the sports training. Moreover, it presents the essential features of a collaboration supported by the scientific Ministry of Higher Education and Research, between researchers on one hand, and trainers of the sports sector on the other hand, during the period 2012-2015. Our approach is based on a functional analysis of different institutions of training and education as well as recruitment organizations. When having a closer look at the process of occupational integration three different functions become evident for the institutions of training education and recruitment. First, the exploration and the validation of the skills. Second, the characterization of the closest individuals socially to establish a homogeneous population and maintain a system of stable identification. Third, to constitute a hierarchical organization of the skills. The starting point of our work lies in a simple question: Do the institutions of training (formation) and recruitments have the duty to identify this skills? In addition, this research will attempt to

answer another main question: Which professional skills should be taught to prospective trainers with when considering specialized professions?

Deceptive psychological doping for performance enhancement: Athletes' experiences with- and attitudes toward placebo use in sports

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Placebo effects are favourable (pleasing) responses to an agent (i.e., sugar pill) or intervention (i.e., wearing an energy bracelet) that has no known physiological effect on those responses, but the trust invested in it initiates brain activities that trigger the desired outcome. While a few studies were devoted to the examination of placebo effects in sports, athletes' past experiences with- and attitudes towards the use of placebos for performance enhancement is still unclear. In this study, 79 elite national and international athletes, recruited via their national sport associations, were posed five questions related to placebo use in sports. Our results revealed that nearly half (47%) of the athletes experienced a placebo effect at least once in their athletic career. The majority of them (82%) thought that placebos could affect their sporting performances. A wider adoption of placebos in sport settings was endorsed more by those athletes who have already experienced a placebo effect in the past in contrast to those who did not (P=.005). Regardless of past experience with a placebo agent or intervention, more than half of the athletes (53%) would accept an unknown, but legitimate substance from their coaches, and 67% of them would not mind a placebo-linked deception as long as that was effective in improving athletic performance. These findings confirm that most elite athletes believe in the power of placebos in enhancing their athletic performance and those having a positive experience with it, exhibit slightly more favourable attitudes than those who did not benefit from such interventions earlier. Placebo may be seen as an undetectable means of psychological doping. Ethical issues concern its deceptive aspects. However, since two-thirds of the athletes are open to such deception if it benefits their performance, the increased use of placebo should be anticipated in the near future.

Effect of non-athlete youth psychological characteristics on the request of feedback type and learning of soccer long pass

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In the present study we examined the impact of psychological characteristics of young non-athletic boys on the selection of the type of feedback and its impact on learning of soccer long pass. To achieve this goal, 40 male students with the mean age of 16-18 years were selected and were divided into four experimental groups after completing the questionnaire dealing with separation of subjects based on selecting the type of feedback. The first group, the feedback-seeking group after good trials, that the researcher gives them feedback after good trials. The second group, the feedback-seeking group after good trials, that the researcher gives them feedback after poor trials. The third group is the feedback-seeking group that the researcher gives them feedback after poor trials. The forth group, the feedback-seeking group after poor trials, that the researcher gives them feedback after good trials. The task involves long pass towards the specified goals on the ground. Two groups received feedbacks according to their needs and two other groups contrary to their needs and demands. The participants performed 10 blocks of 6 trials in the acquisition phase and they received feedback on 2 trials in each block in accordance with the goals of the experimenter. After 24 hours of the last training block, the retention test was performed. The results showed that two groups that received feedback according to their needs had a significantly better performance than the other two groups that received feedback contrary to their needs (F=25.388, p=.001).

Impact of seven sessions of Self-talk Intervention Program on Mental Toughness in a group of semi- professional female volleyball

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This study investigated the impact of a self-talk training course on mental toughness on elite female volleyball players. The sample included two female first division- league teams from the Tehran province with 22 athletes in total. Eleven athletes were placed in the control group and 11 were randomly placed in the intervention group. Data about mental toughness was collected via SMTQ questionnaire (Golby & Sheard, 2010). After the questionnaires' analysis and based on the similarity observed in mental toughness level among the participants, athletes were classified equally into control and test groups. The test group received seven self-talk sessions of 5-minutes each on a Sunday. Positive, stimulating self-talk phrases were presented to the athletes. After the seventh session, post-tests were carried out with both groups. The Kolmogorov- Smirnov test was applied for determining normal data distribution. Independent t tests were used to explore possible significant differences between the test and control groups. Paired t-test was applied to study the impact of intervention program. Data analysis was conducted using SPSS. The control group attended no training programs related to psychological skills. After seven sessions, the control group was tested by SMTQ similar to the pre-test. Data analysis was conducted in two descriptive and referential levels via Kolmogorov- Smirnov test and independent t tests. Results showed that volleyball players who had attended the self-talk program gained significantly higher scores compared to the control group on all sub-scales. It can be thus concluded that a self-talk exercise course has a significant impact on mental toughness of elite female volleyball players.

The effect of physical activity on mental health according to self-reported vision status among adolescents – the Young-HUNT Study

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To date, four studies have examined whether the lower levels of physical activity (PA) found among individuals with visual impairment may be related to their mental health status. None of the studies included adolescents or had a prospective study design. Therefore, the underlying goal of this study was to examine the effect of leisure-time PA on mental health among adolescents with and without self-reported visual impairment. The Health Study in Nord-Trøndelag (the HUNT Study) is the largest population-based study in Norway. Data were collected from the first and second survey of the adolescent part of the HUNT study, as these are the only surveys allowing for a prospective study design. Self-reported measurements assessed vision and PA of moderate-high intensity at baseline (1995−1997), and mental health problems and well-being four years later. Overall, 1417 adolescents aged between 12 and 17 years were included, of which 46 had self-reported visual impairment (SRVI). Linear regression models were used in the main statistical analyses. Multiple imputation was conducted to evaluate potential selection bias. The results showed that adolescents reporting no impairment had more days of moderate-high PA at baseline than adolescents with SRVI. Among adolescents reporting no impairment, conducting < 1 day per week of PA was consistently significantly associated with having lower levels of well-being at follow-up compared to those conducting ≥ 1 day of PA. Among those with SRVI, the mental health benefits of conducting weekly PA compared with conducting non-weekly PA was observed only among those that were more emotionally unstable or introvert at baseline. In conclusion, public efforts are needed to improve participation in weekly leisure-time PA among adolescents with and without visual impairment. This was the first study finding vision-specific associations between PA and mental health and the results will be discussed from a biopsychosocial approach to health.

The impact of psychological skills and mindfulness training on the psychological well-being of undergraduate music students

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Extensive research on psychological benefits of PST in sport has been conducted in Sport Psychology, with unambiguous positive results. The primary aim of this research was to determine the impact of Psychological Skills Training (PST) and mindfulness training on the psychological well-being of undergraduate music students. A second aim was to determine if the variables in this study namely, PST, mindfulness, the growth mindset (incremental theory) and performance anxiety per se have also improved relatively to the measurement before the intervention started. Mindfulness training, and specifically the mindfulness-acceptance-commitment (MAC) approach have been applied in sport and as in the case of PST, it has not yet been fully utilised in the context of music. A unique combination of PST (attentional control, arousal control, stress management, goal setting, imagery, pre-music performance routines) and the MAC approach were followed in a seven-week intervention program that consist of one-hour contact time each week. The MAC approach was constantly combined with the PST training in the sense that all psychological skills were trained with a high level of mindfulness and acceptance of all the cognitive, emotional and somatic experiences. A multi-faceted research approach was followed and an experimental design was implemented in the research. Undergraduate music students (n = 36) from the Department of Music at the University of Pretoria, South Africa took part in the intervention program. The experimental group (n = 21) revealed significant improvements in psychological well-being, psychological skills, mindfulness and performance anxiety. According to the results of this study, the interchangeability of knowledge, skills and measurements between performance contexts such as sport, music and other performance evaluative-contexts seem like a viable possibility.

Psychological Skills Training (PST) for the promotion of student engagement in higher education

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On account of the change forces impacting on contemporary universities, it is becoming increasingly important to identify and develop strategies that promote student engagement by helping students to cultivate psychological resilience. The aim of this study is to examine whether the Psychological Skills Training (PST) techniques that have been used with success in the field of sport psychology can be applied to the higher education context as an effective strategy for promoting student engagement and psychological resilience. Twenty-three first year psychology students from the University of Western Sydney were randomly allocated to a treatment group or a wait-list control group. A registered psychologist taught treatment group participants psychological skills (i.e., goal-setting, self-talk, and breath control) in a one-hour psycho-educational workshop. All participants completed both a pre-treatment and, one month later, a post-treatment set of questionnaires assessing psychological skills, student engagement, state anxiety, test anxiety, and academic self-efficacy. It was hypothesized that the treatment group would, relative to the wait-list control group, demonstrate (i) greater increases in student engagement, and academic self-efficacy, and (ii) greater decreases in state anxiety and test anxiety. No statistically significant difference between groups on any of the dependent variables was observed. However, the improvement in psychological skills from pre-treatment assessment to post-treatment assessment - as measured by the Test of Performance Strategies (TOPS) - was substantially greater for the treatment group (M = 22.46) than for the wait-list control group (M = -1.92), a difference that was close to statistical significance (p = .07). While this suggests that PST can be effective in the higher education context, studies involving both a

more extensive training program and a broader range of follow-up assessment are needed if the full impact of PST on student engagement and resilience is to become clear.

The influence of the development of group processes in the preparation period on the effectiveness of teams in the regular season

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The majority of the studies conducted so far confirms the existence of a positive relationship between group cohesion, collective efficacy and effectiveness of sports teams (i.a. Carron, Bray & Eys, 2002; Feltz & Lirgg, 2001). Most of the studies, however, were conducted in the duration of the season, which meant that the cohesion measurement was burdened with the previous history of success and failure of the studied team. The aim of the study was to identify whether group cohesion and collective efficacy (both developed in the preparation period) predict the team success. The study encompassed 12 professional basketball and volleyball teams. The 145 players completed the Group Environment Questionnaire (Polish version: Krawczyński, 1995), and the Sense of Team Efficacy Questionnaire (Wałach-Biśta, 2015) in the period of preparation for the league competitions. During that period, the team played at most 2 practice matches with other teams not participating in the league. Team success was operationally defined as each team's total winning percentage for the games played in their regular competitive schedule. The collected statistical data was subjected to hierarchical multiple-regression analyses. The obtained data indicates that the model taking into account group cohesion and collective efficacy measured at the beginning of the season improves the predicted total team success only by 13%. Significant predictors of team effectiveness are ATG-S (beta = -.219; p< .05), collective efficacy concerning preparation (beta = -.369; p< .05) and collective efficacy concerning fitness (beta = .604; p< .00) (which is both the strongest and the only positive predictor of team success). The results have practical impact on the work of the sport psychologist with teams. Working with a team on their collective efficacy concerning fitness in the preparatory period we increase the likelihood of a greater team effectiveness during the whole season.

Dropping out or keeping up? Automatic evaluations as predictors of exercise adherence

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Dropout is a common problem in exercise courses. Current psychological publications explain non-adherence to exercise programs predominately by social cognitive theories of behavior change that emphasize the role of reflective processes (e.g. self-efficacy; Sheeran, Bargh & Gollwitzer, 2013). But from a social-cognition perspective, using dual-system models as a theoretical framework (e.g. RIM; Strack & Deutsch, 2004), additional automatic processes can be assumed to impact exercise behavior. Recent publications underline this influence of automatic evaluations (AE) for exercising (e.g. Brand & Schweizer, in press). This study aims to (a) identify different patterns of long-term course participation in a longitudinal design and (b) determine differences in AE to exercising at the start of the course between the detected groups. Data on course participation (presence or absence/week; 14 weeks) were collected for 121 study participants (24.61 years ± 6.25; 49.5% female). They all completed a Brief Implicit Association Test (BIAT; Sriram & Greenwald, 2009) prior to the beginning of the course. BIAT stimuli depicted sportive and non-sportive activities that had to be sorted in compatible (sport/good vs. non-sport/bad) and incompatible (sport/bad vs. non-sport/good) blocks. Hierarchical cluster analyses were performed in order to identify adherence patterns. Differences in AE to exercising were analyzed with an ANOVA, using course participation clusters as a factor and AE as the dependent variable. Hierarchical cluster analyses lead to three adherence patterns (63 maintainers, 30 early dropouts, 28 late dropouts). We found significant differences ($\eta 2_{part.}$ = .12) in AE between these adherence clusters in the BIAT's compatible block. Participants of

the early dropout cluster had the slowest reaction times (i.e. rather negative AE to exercising) when they started with the course. These results suggest that differences in AE at the beginning of an exercise course can be influential for later course dropout.

Development of the athletic injury social support scale

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Injuries have been shown to have negative effects on various physiological levels of athletes. These injuries can also be detrimental on a psychosocial level by engendering anxiety concerning the ability to continue in sports or loss of future roles and positions on teams. In order to examine the comprehensive support which improves the psychosocial as well as the physiological effects of injury on athletes, a scale that can assess social support that coincides with players' desires is necessary. The purpose of this study was to develop an "Athletic Injury Social Support Scale (AISS-S)" that can assess the social support needed for injured athletes. Athletes (N = 180) who experienced an orthopedic athletic injury (mean age = 20.27 years, SD = 1.02; mean days required for complete cure = 30.62 days, SD = 22.43 days) participated in this study. A provisional version of the AISS-S was created from question items based on open-ended question and content validity testing by physical therapists. In order to test criterion-related validity of the AISS-S, subjects were asked to complete two scales: psychological damage scale (Tatsumi, 2014) and athletic identity scale (Isogai et al., 2001). Item analysis of the provisional AISS-S was conducted to confirm the discrimination of each item. Then, exploratory factor analysis identified "Listening, sympathy and acceptance (LSA)", "Social respect and acceptance (SRA)" and "Offer of advice about rehabilitation information (OAR)" as three factors of the provisional scale. The Cronbach's alpha coefficients of LSA, SRA, and OAR were .94, .91, and .95, indicating good internal consistency. The reliability of the scale was confirmed. Finally, in correlation analysis, significant positive correlations were found between AISS-S and psychological damage scale ($r = .40$, $p < .01$); AISS-S and athletic identity scale ($r = .35$, $p < .01$), indicating criterion-related validity.

An auto ethnographic account of constructing, deconstructing, and partially reconstructing a coaching identity

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This reflective auto ethnography illuminates the intricate mechanisms that impact identity construction and deconstruction. Set within the context of football coaching, the author draws upon lived experiences to show his struggle to establish and maintain an identity. By taking the unusual step of exposing his self-doubts and fears, it is the author's hope that the article will offer comfort to other coaches (and young people in general) experiencing similar difficulties. Signposts are also offered, which direct the reader to the relevant identity literature. Finally, the narrative is evaluated and the benefits to the coaching and psychology communities are discussed.

Foundations of interventional research in instrumental practice of music

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Extant research reported that music students are scarcely provided with knowledge about how to organize and prepare their instrument practice and performance. A two-month psychological skills intervention was offered to two preforming music students. The general purpose of the study was to gain knowledge about how to adapt psychological skills training to the context of music instrument practice and performance. Specifically, the study evaluated multiple intervention tools including the use of questionnaires, iPads, electronic practice journals, performance profiling, and the usefulness of group and individual work.

Zimmerman's self-regulation theory provided the framework for the construction of the intervention and the use of intervention tools. Data was collected using semi-structured interviews before, during, and after intervention and were transcribed shortly after each interview. Data was additionally generated through observations, participants' journals and research logs. The questionnaire was adapted for the music practice and performance context based on questions from Self-Regulation Scale, Achievement Goal Questionnaire and Athletic Coping Skills Inventory. Data collected using the questionnaires gave both the participants as well the researcher useful information about students' self-regulatory skills, psychological skills and goal orientation. Additionally, the questionnaire proved itself as an effective pre and post-test instrument measuring the interventions' efficacy. The performance profiling turned out to be a substantial source of motivation giving the participants and tutor concrete indications of individual needs, which in turn, aided the process of setting specific self-referenced goals. The practice application turned out to be a valuable tool for planning, keeping track of individual practice, repertoire, and time-management. The iPads´ video camera turned out to be an ideal instrument for tracing progress and self-evaluation. Finally, the study found the combination of group and individual work to be a successful way of both applying and implementing psychological skills.

Relationships between need satisfaction at work and job burnout: The moderating role of physical activity

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The self-determination theory assumes that satisfaction of basic psychological needs (i.e., autonomy, competence, and relatedness) protects well-being of individuals in different domains (Deci & Ryan, 2002). Indeed, it has been shown that needs satisfaction was negatively related to ill-being at work, especially to job burnout (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Burnout has been defined as an exhaustion of indivual resources and consists of three dimensions: physical fatigue, cognitive weariness and emotional exhaustion (Shirom, 2003). Moreover, it has also been suggested that individual habits could have an influence on ill-being at work. Indeed, it has been shown that regular physical activity could reduce the feeling of job burnout (Gerber, Lindwall, Lindegard, Borjesson, & Jonsdottir, 2013). The objective of this study was to examine the influence of needs satisfaction on job burnout, and the moderating effect of physical activity on these relationships. 335 employees (female = 70.15%) aged of 42.84 years old (SD=10.09) and working 38.76 hours per week (SD=11.63) completed questionnaires on job burnout (i.e., Shriom Melamed Job Burnout); needs satisfaction at work (Basic Psychological Needs Scale); and physical activity (International Physical Activity Questionnaire). Structural equation modeling was used to examine the moderating effect of physical activity on the relationships between needs satisfaction at work and job burnout. Results revealed a moderating effect of physical activity between autonomy satisfaction and job burnout (i.e., physical fatigue and cognitive weariness). Precisely, autonomy satisfaction was negatively linked to physical fatigue and cognitive weariness at work (respectively β=-.69*** and -.69***), and even more among employees with highest levels of MVPA (significant effect of the interaction between autonomy and MVPA on physical fatigue [β=.38*] and cognitive weariness at work [β=.72***]). These results suggest that in addition to the satisfaction of needs, physical activity could reduced the risk of ill-being at work.

Does trait mindfulness and burnout affect future burnout among athletes?

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Although athletes' burnout is a risk factor of severe psychological problems（Gustafsson et al., 2011）, effective strategies to counter this condition have not been sufficiently examined. However, a past study showed the effectiveness of mindfulness intervention on nurses' burnout (Cohen-Katz et al., 2006). Therefore, this longitudinal study aims to examine the

relationship among athletes' trait mindfulness, burnout and future burnout. The participants included 110 athletes (male = 69, female = 41, mean age = 19.69, SD = 1.05); they were divided on the basis of 21 and 20 question items of the Athlete Mindfulness Questionnaire (AMQ) (Amemiya et al., 2015) and the Burnout Scale for University Athletes (BOSA) (Amemiya et al., 2013), respectively. The survey was conducted twice at different time periods (time 1 and time 2 (conducted two weeks after time 1)). The path analysis was conducted to examine the relationships among minduflness, burnout and future burnout. The results of path analysis indicated that in time 1 the total score of AMQ negatively correlated with the total score of BOSA (β=-.29, p<.01). Moreover, the total score of AMQ in time 1 negatively affected that of BOSA in time 2 (β=-.15, p<.05). The total score of BOSA in time 2 was positively affected by that of BOSA in time 1 (β=.64, p<.001). Finally this model explained 49% variance of the BOSA in time 2. The study results revealed that the athletes' mindfulness is negatively associated with burnout that occurs in both the present and future. It indicates that athletes with a high mindfulness level can prevent mental health problems; however, athletes with a low mindfulness level and high burnout level are more prone to experiencing burnout than others. Further research will be needed to confirm the efficacy of mindfulness intervention for athletes.

Psychological characteristics of injured athletes satisfied with social support in rehabilitation process

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Previous research mentioned that social support plays an important role in the way athletes cope with and rehabilitate from sport injury (e.g., Rees et al., 2010; Johnston and Carroll, 1998). However, it is not enough to investigate psychological changes of athletes who received social support. Thus, the purpose of this study was to examine psychological characteristics of injured athletes that are satisfied with social support during rehabilitation. We hypothesize that athletes satisfied with social support would be more accepting of sport injuries and have increased awareness of self and others. 387 injury-experienced university athletes (221 males and 166 Females, Mean age=19.62, Mean term of absence due to injury=3 months) who could remember the circumstances of the injury in detail participated in the study. They provided demographic data and information on history of sport injuries, and then completed questionnaires assessing social support (Tsuchiya and Nakagomi, 1994), acceptance of sports injuries, awareness of self and others, and adherence to rehabilitation programs (Suzuki and Nakagomi, 2014). Participants were divided into groups with high (N=191) and low satisfaction with social support (N=196), based on their mean scores on the questionnaire assessing satisfaction with social support. ANOVA was used to compared the scores of high and low social support satisfaction groups on acceptance of sport injury, awareness of self and others, and adherence to rehabilitation. Athletes that were more satisfied with social support were also more accepting of their injury (F (1,385)=12.375, p<. 01), had an enhanced awareness of their body, characteristics, and existence of other people (F (1,385)=81.654, p<. 01), and more adhering of rehabilitation (F (1,385)=22.745, p<. 01). It is suggested that future studies should develop intervention programs using social support to enhance the acceptance of injury and to develop awareness of self and others during the rehabilitation of athletes.

What makes sport more enjoyable? Coaches' perspective

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Feeling of happiness and satisfaction are one of the key elements to ensuring deep engagement of athletes (Petlichkoff, 1992; Bengoechea et al., 2004). Research also shows that the way coaches understand the phenomenon of contentment derived from sport activity determines their approach to the process of training and influences their protegees' attitudes (Martens, 2009). But still there is a need: (1) to know better how coaches understand what

makes sport more enjoyable for athletes, (2) to learn how they perceive their ability to influence it. In order to accomplish this purpose 60 coaches representing 17 sport disciplines were invited to the study. Quantitative questionnaire with a scale consisting of 22 items was built and administered. By using principal component analysis, we distinguished 8 factors connected with players' contentment: coach sympathy, coach recognition, club identity, competence, competition, conditions, co-players and closest one. Reliability of 6 factors is evidenced by a high Cronbach alpha score (from 0,62 to 0,84). We named this tool the 8Cs of Contentment. In the next step we examined the coaches' approach on importance of each factor and the influence on them. This two dimensions let us build a matrix consist of four areas: intensive commitment (high level of importance and influence), helplessness (high level of importance and low level of influence), wasted potential (low level of importance and high level of influence) and lack of attention (low level of importance and influence). Measurement of the 8Cs factors along these two dimensions can be used by scientists for future research about athletes' motivation and by practitioners as a diagnostic test for the preparation of mental training plan for coaches. The work on this tool will be continued and more data will be collected. In the future, research will be extended to groups of young athletes and their parents.

Sleep and performance interactions in elite athletes

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Sleep is considered essential for recovery and skill-learning in athletes (Venter, 2012). Furthermore, there is evidence to suggest that when sleep is restricted, cognitive and physical performance may deteriorate (Fullagar et al., 2014). Still, very few studies have tested these assumptions in an elite athlete population. To this end, the current study aimed to quantify elite athletes' habitual nocturnal sleep and to extent previous findings by also establishing (i) distribution of sleep stages (deep sleep, REM-sleep, light sleep); and (ii) relations between sleep and performance. This abstract concerns data from 38 athletes (aged 18.78 years ± 1.78; 15 female; handball, road cycling, triathlon) who participated in an ongoing study among 100 elite athletes in the Netherlands (individual and team sports). Sleep was measured during 10-consecutive days of training, using actigraphy (sleep-wake pattern), one-channel EEG (sleep-staging) and sleep diaries. Additionally, to establish relations with performance, tests of psychomotor vigilance (PVT) and sport-specific skill execution (gross and fine motor skills) were taken on day 1, 4, 7 and 10. In line with previous research (Leeder et al., 2012), results revealed a large discrepancy between Time in Bed (TIB; 8:03 ± 0:42 hours) and Total Sleep Time (TST; 6:43 ± 0:37 hours), which could mainly be explained by relatively high levels of sleep fragmentation (nocturnal awakenings). Sleep staging, however, did reveal a healthy distribution of 20.56 ± 1.36 % deep-sleep; 22.65 ± 1.36 % REM-sleep; and 47.38 ± 2.48 % light-sleep. Finally, with respect to performance, preliminary analyses (106 nights), suggest that low sleep efficiency (TST:TIB) and frequent awakenings relate to an increase in PVT-lapses (reaction time > 500ms). Findings suggest that habitual fluctuation in elite athletes' sleep may be related to changes in cognitive performance (PVT), thereby highlighting the importance of developing interventions that increase actual sleep time while lowering sleep fragmentation.

Physical activity as a protective factor against stereotype threat in elderly

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According to stereotype threat theory (Steele, 1997), individuals may feel threatened when they suspect they could be judged on the basis of negative stereotypes. Over fifteen years of research have allowed a better understanding of the consequences of stereotype-induced threat. Scientists now strive to identify factors that may tackle these inequality-producing mechanisms. The present research falls within this approach. Based on evidence that physical activity may have anxiolytic effects, we examined whether physical activity may

counteract the negative effects of stereotype threat on cognitive performance. This hypothesis was tested among 20 nursing home residents (16 women and 4 men, Mage = 78.2 years, SD = 6.45) in a 2 (stereotype threat vs. control) x 2 (active vs. inactive) mixed-factorial design. Half of them participated in a 8-week physical activity program (walking, balance, and muscular strength exercises), consisting in a 1-hour session per week. After the program, participants were told that the study investigated differences between younger and older adults (activating social identity and therefore stereotype threat), or individual differences among older adults (control). Then they completed a cognitive task (the Sustained Attention to Response Task, SART, Robertson et al., 1997). An ANOVA showed a significant interaction between stereotype threat and physical activity on performance on the SART: inactive participants were less attentive on the task when stereotype threat was activated, however, performance of active participants was not affected by the stereotype threat induction. These results suggest that physical activity could protect older adults from the negative consequences of stereotype threat.

Therapeutic factors in an outdoor experiential therapy program for truant adolescents

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In Japan, truancy among adolescents has become an important issue. Outdoor experiential therapy (OET) is a therapeutic approach that uses an outdoor setting or natural environment to develop and enhance an individual's physical, social, and psychological well-being through structured activities that involve direct experience. In the OET program we began in 2004 in Japan, outdoor adventure–based activities such as camping, mountaineering, rock climbing, cycling, and canoeing, have been used to support truant adolescents suffering from anxiety, maladjustment, and mild developmental or other disorders. Fifty eight adolescents have participated in the program thus far. Investigations by using quantitative and qualitative research methods have clarified some effects of the program. The purpose of this study was to determine the therapeutic factors in this OET program for truant adolescents. Therapeutic factors were examined in a case study that sampled subjects from among participants of the program, using data collected by observing the participants, interviews on their experience, and their performance on a drawing task (landscape montage technique). Five therapeutic factors were identified: (1) experiencing self-efficacy during the program, (2) quality of the relatedness between adolescent and counselor, (3) boundaries of counseling for an adolescent, (4) experience of outdoor adventure programs, and (5) meaning in an experience. These factors do not function independently but rather synergistically in truant adolescents in an OET setting.

Correlations between flow experience and psychological skills of athletes

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Flow is defined as "the state of consciousness in which people performing an activity are fully immersed in the activity and all other thoughts and feelings disappear." It is characterized by complete concentration and an optimal mental state in which people enjoy the activity itself (Csikszentmihalyi, 1975). This study investigated the correlation between flow experience of athletes and their psychological skills. The results were expected to provide useful data for intervening with athletes through mental training among others to facilitate their flow experience. Participants were university athletes (N =150,men 118 women 32).They were required to recall the latest game in which they displayed their best performances, and respond to the Sport Flow Scale (SFS), as well as the Diagnostic Inventory of Psychological Competitive Abilities of Athletes (DIPCA.3). SFS is a scale for measuring sport flow, consisting of 6 items. DIPCA. 3 is an inventory for measuring psychological skills, consisting of 5 factors and 12 scales. The results indicated significant positive correlation between flow and competition willingness ($r = .42$, $p < .01$), as well as confidence ($r = .31$, $p < .01$), both of which are DIPCA. 3 factors. Competition willingness was related to motivation to do sports

and confidence was an important factor in the flow experience. The above results supported previous studies. In this study, competition willingness and confidence were regarded as psychological skills that can be developed through training. In the future, interventions with athletes by using mental training could be undertaken and it is expected to facilitate the flow experience.

Cognitive styles, attention styles and efficiency of play with football players

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In the last few years the interest towards cognitive aspects of achievements has gained much popularity. Cognitive styles and decision making styles are viewed as basic psychological constructs with possibility for prognosis of the play behavior. Some authors connected to the typical way, in which people explain the reasons for their results (Rettewand Reivich, 1995) and attention styles (Nideffer, 1976). A number of studies confirm significant differences in favor of professional athletes in relation to the way they use their skills for concentration and attention distribution (Mahoney, Gabriel & Perkins, 1987). The aim of the present research is to reveal and analyze the cognitive styles and the attention styles with football players in Bulgaria and to search for their relation to the efficiency of play. To fulfill the aim of the research we used: 1)Test of soccer attentional style (TSAS), Fisher and Taylor (1980), adapted for Bulgarian conditions by Iancheva and Ivanov (2013), 2) Kirton Adaptation Innovation Inventory - KAI, 1976, adapted by Vasileva (2003); 3) Individual differences in decision making style, Franken (1988), adapted for Bulgarian conditions by Bojinova, Vasileva, & Pavlov (2003). The research was done among 120 football players, aged between 17 and 30, with different level of qualification, including national athletes and competitors in the Champion league. The specific characteristics of the cognitive styles and the attention styles with football players were outlined. A comparative analysis along gender, age, and level of qualification was made. The relations and dependences between the researched indexes and the efficiency of play were revealed. On the base of the obtained results some possibilities and recommendations for optimization of both the education-training and the competitive processes were proposed.

Relationship between change in golf performance and psychological factors

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It is crucial to understand how psychological factors relate to the performance of athletes when evaluating the support provided to them, as the psychological state desired differs across sports depending on the type of motor performance required. However, many sports require athletes to complete various motor tasks and so the psychological factors that enhance performance need to be identified. The present study focused on golf, since performance indicators in the sport can be segmented, thereby allowing changes in each performance indicator to be examined as a function of independent psychological factors. The purpose of this study was to examine the relationships between psychological factors and changes in golf performance indicators, such as average scores, average number of putts on one hole, green in regulation, driving accuracy, and par save rate. Participants were 16 male amateur golfers, all of who completed the Diagnostic Inventory of Psychological Competitive Ability for Athletes (DIPCA.3) in July and again in November. Data related to performance indicators were collected for all rounds played during the one-month period prior to each testing date. Participants were divided into two groups based on the changes recorded in their performance during the four-month study period: those whose performance improved and those whose performance declined. Two-way factorial ANOVA was then used to examine the changes in each DIPCA.3 subscale score between the two groups. Results revealed significant interactions between ‘ability to relax’ and average score, and between ‘aggressiveness’ and green in regulation score. Aggressiveness scores were also found to increase over time among the improved group, but decrease over time among the group that

demonstrated decline. In addition, 'volition for self-realisation', 'volition for winning', and 'ability to relax', all significantly interacted with par save rate. Collectively, these results suggest that golfing performance relies on a host of different psychological factors.

Self-controlled learning benefits: Exploring contributions of self-efficacy and intrinsic motivation via path analysis

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While self-controlled practice conditions have shown robust advantages for motor learning, the underlying mechanisms that generate these advantages are still unknown. The present research continued the experimentation of Ste-Marie, Vertes, Law, and Rymal (2013) in order to explore, via path analyses, the possible contributions of self-efficacy and intrinsic motivation toward physical performance benefits obtained from self-controlled learning. We hypothesized that self-efficacy and intrinsic motivation would show stronger predictive power toward one's physical performance under self-controlled as compared to experimenter-imposed (i.e., yoked) conditions. One hundred children (M years of age = 11.1, SD = 1.9) participated in either a Self-control group (n = 50) or a Yoked group (n = 50) and were tasked with learning trampoline skills. A two-day acquisition phase was followed by a 24hr retention test. Self-efficacy and intrinsic motivation were measured through questionnaires. Physical performance was assessed via skill progression levels achieved. The Self-controlled group completed a significantly higher number of progressions (M = 2.04, SD = .98) in retention than their Yoked counterparts (M = 1.3, SD = .65; $p < .001$, $\eta p2 = .81$). Path analyses used maximum likelihood estimation to examine the causal links between the self-reported psychological variables of self-efficacy and intrinsic motivation, and the physical performance measure used during acquisition and retention. The path analysis model was created using relationships based on theoretical and empirical support and was tested separately for the Self-control and the Yoked groups. Overall, similar patterns of significant path coefficients were found for both groups, with each dependent variable being predominantly predicted by its preceding time point. Further research that considers other psychological measures, possibly from within Self-determination Theory, or more information processing based mechanisms are still needed to better understand the learning advantages associated with self-controlled learning.

German version of the Exercise Identity Scale (EIS)

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Self-related variables help understand adherence to health behaviors. Concerning exercise, identity is a self-related variable that has received increased research attention (Strachan & Whiley, 2013). The exercise identity scale (EIS; Anderson & Cychosz, 1994) is a well-established 9-item questionnaire measuring the "salience of an individual's identification with exercise as an integral part of the concept of self" (p. 747). It is reliable and internally consistent (e.g., Anderson & Cychosz, 1994, 1995). Strength of exercise identity as measured with the EIS has been steadily linked to both exercise related-outcomes (e.g., frequency of exercise behavior; Wilson & Muon, 2008) and adherence-related social cognitions (e.g., self-efficacy; Strachan & Brawley, 2008). The aim of the present study was to analyze psychometric properties as well as construct validity of a German translation of the EIS. N = 530 German native-speakers (64.9 % female, Mage = 30.49, SD = 12.09), exercisers and non-exercisers, completed the translated EIS as well as instruments assessing other exercise-related constructs in an online study. The translated items' psychometric properties were good (e.g., $.72 \leq rit \leq .90$) and internal consistency was excellent, Cronbach's $\alpha = .96$. Exploratory factor analysis revealed a unidimensional factor structure (78.31 % explained variance). Regarding construct validity, correlations between the EIS and other scales were in the expected directions, e.g. $r = .42$ ($p < .001$) for self-

reported minutes of weekly exercise, and r = .72 (p < .001) for exercise-related self-efficay. Our results are comparable to those reported for the English version and support the use of the translation in the German population to further expand exercise identity research (e.g., conducting prospective cause-effect hypothesis testing as suggested by Strachan et al., 2015). Still, further studies should replicate results regarding factor structure (Wilson & Muon, 2008), and criterion validity (Cardinal & Cardinal, 1997) for the German version.

Changes in anxiety, screen time, and physical activity: A longitudinal REAL study over four years

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Anxiety is a prevalent psychiatric disorder in adolescents. In a recent examination of reviews Biddle and Asare (2011) noted that physical activity (PA) had a small effect on anxiety but that there was a paucity of research in this domain. The lack of research was especially true when considering the role of screen time (ST) on anxiety. Therefore, the purpose of this investigation was to examine the associations between changes in anxiety and changes in PA and ST over 4 years. Participants were drawn from the Research on Eating and Adolescent Lifestyles (REAL) study and ranged in age from 10 to 16 years old at baseline (Nbaseline = 640;Mage = 13.25, SD = 1.08, 59.7% females). Among a battery of measures, participants were asked to self-report PA, ST, and anxiety once a year for 4 years. Results from latent growth modeling, with robust full information maximum likelihood estimation to account for missing data across time, indicated that each individual had significantly different baseline anxiety levels and that anxiety did not change over time (p>.05). PA decreased over time (linear; p<.05) whereas ST increased over time (linear; p<.05) and that rate of increase in ST slowed down (quadratic; p = .05). In a combined model and controlling for geographic location (i.e., rural, urban etc.), sex, parents' education, and body mass index, greater baseline anxiety was associated with greater baseline ST and with less baseline PA (p's<.05). Baseline anxiety was also associated with less of a slowdown in the increase of ST over time (p<.05). Overall, we found no evidence that anxiety changed over time in this sample of adolescents which indicates that anxiety was quite stable in this population. Future research is needed to determine if increasing PA and reducing ST has a beneficial effect on anxiety.

Organisational aspects of medical and psychological support for Russian national teams sports activity

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On the threshold of the 16th FINA World Championships 2015 in Kazan, the Games of the XXXI Olympiad in 2016 in Rio de Janeiro, the 2018 FIFA World Cup in Russia the national teams are in the spotlight of sports psychologists. High performance sport is the model of activity in which highly skilled athletes show their body systems functioning at the peak of their capabilities. The main characteristics of high performance sport are high personal and collective responsibility for reaching all-high record levels at a sporting event and ongoing activity in extreme situations.The medical and psychological support service for Russian national teams is based on the successive execution of some measures with consecutive solution to the following tasks:1) functioning of mobile groups of psychologists on the basis of joint inquiry from specialists of Russian national teams; 2) making sports psychologists fixed to one certain sport team through the process of interaction with the sports federation and the team; 3) search, development, study of the effectiveness, implementation and application of modern technologies, methods of diagnosis, adaptation, correction and rehabilitation of athletes; 4) organisation of psychological and psychotherapeutic help for national teams at all

stages of the training-competitive process; 5) optimisation of processes of personnel selection, advanced training, new hardware and software development and learning new techniques in the framework of the continuous improvement of scientific, methodological and education activities of services of psychological support for national teams of Russia. Effective medical and psychological support in the Russian national teams is provided by Federal Research and Clinical Center of Sports Medicine and Rehabilitation. It is based on the holistic concept of implementing the system and polyvariant approaches and a modeling method providing the knowledge of development and prediction of the real possibilities of the athlete at all stages of the sports career.

The role of exercise and gender in the quality of life: A study on university students in Egypt

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The purpose of this study was to investigate how scores on the quality of Life (QOL), were related to self-reported exercise frequency, duration, and gender in sample of Egyptian university students. The study approach was descriptive-exploratory method. Participants of the current study were from five universities in Egypt. A total of 308 participants (male=160, mean age 20.34, female=148, mean age 19.95) completed the QOL and a questionnaire focusing on frequency and duration of exercise. Result show that exercising more frequently, and for a longer time on each occasion was associated with higher QOL scores. Women generally displayed lower QOL scores than men.

Psychophysiological responses to sport concussion

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Post-concussion, the body and brain are in a state of “stress” as they attempt to restore metabolic and psychologic equilibrium. Elevated stress can be evaluated by disrupted cortisol cycling, perturbations in Heart Rate Variability (HRV), and reported mood disturbance and perceived stress. Assessing stress in concussed athletes provides information for optimal recovery, safe return-to-play (RTP), and subsequent injury prevention. The purpose of the prospective study was to examine psychological (mood and perceived stress) and physiological (HRV, and cortisol) responses of male (n = 30) and female (n = 22) athletes (aged 17-28 years) to concussion and recovery using minimally invasive markers. A matched control group (on education, age and gender) design included collection of salivary cortisol, HRV, and two self-report measures: the Profile of Mood States (POMS), and the Perceived Stress Scale (PSS). Assessments spanned three phases of recovery (Time 1. Symptomatic; Time 2. Asymptomatic; and Time 3. One-week following RTP). Twenty-six participants diagnosed with concussion and 26 matched-athlete non-injured controls, across eight sports (American Football, Soccer, Rugby, Hockey, Basketball, Volleyball, Lacrosse, and Baseball) volunteered from varsity teams at a Canadian University. A series of 2 (Group) × 3 (Phase) repeated measures ANOVAs revealed significant group by time interactions for Depression, Vigor, Confusion, and Total Mood Disturbance (p=<.001) with concussed athletes exhibiting higher mood disturbance compared to matched controls at the Symptomatic Phase. Concussed athletes displayed significant decreases on the PSS (p=.0002) from Time 1 compared to Time 3. A 2 (Group) by 2 (Sex) ANOVA revealed a significant interaction for specific HRV measures: mean R-R interval (p=.0084), mean Heart Rate (p=.0049, LF power (p=0.0084) and LF/HF Ratio (p=0.0084). This suggests physiological differences in response to concussion between sexes post-injury which need investigating further. These non-invasive markers may be clinically useful in post-concussive recovery assessment and prevention of subsequent injury. This research was supported by a Canadian Institute for

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Reviving study of a hidden relationship: Stage-specific physical activity knowledge and adherence of collegiate students

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Based upon atheoretical research, health and exercise knowledge has been dismissed for decades as a determinant of physical activity (PA). The Transtheoretical Model (TTM), however, suggests that Consciousness Raising, or increasing individuals' knowledge and awareness, should facilitate transitions into the PA maintenance stage. Earlier research also generally assessed the relationship between knowledge and PA volume, but knowledge may be more closely related to adherence to PA guidelines (e.g., U.S. DHHS), rather than volume. The purpose of this study, therefore, was to determine whether analytic strategies involving PA stages and guideline adherence/non-adherence would reveal that knowledge is related to PA. Collegiate students (n = 231) completed an online test of physiology knowledge (PK) related to PA, and knowledge of the benefits of PA (BK). The test was judged to have content validity by a panel of exercise physiology experts. Participants also indicated the degree to which they believed they understood the physiological basis of PA (perceived PK). Data were obtained on PA volume and intensity to evaluate adherence to U.S. DHHS guidelines. Months of regular engagement in PA were used to stage-categorize participants as non-active (i.e., < 1 month), active (i.e., 1 – 5 months) or maintainers (i.e., ≥ 6 months). ANOVA results revealed that participants in the maintenance stage scored significantly higher than those in the non-active stage on PK (d = .59) and BK (d = .55). Guideline adherents also scored significantly higher than non-adherents on PK (d = .77) and BK (d = .50). Males reported significantly higher perceived PK than females (d = .64), but PK and adherence were not significantly different. This study provided evidence that knowledge may be relevant to PA maintenance, based on the TTM, and adherence. Consideration of stages and guideline adherence is urged for future research of health and exercise knowledge.

Working on talented young rugby players: The case study of an Italian under-17 academy

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The debate on the influence of psychosocial factors on the development of sporting talent is still in progress (Mills et al., 2012). Some of the latest models reveal that not only mental abilities but also relational and environmental factors influence the process of grooming talent (Alferman et al., 2013; Cotè et al., 2014). In Italy, the rugby movement is enjoying strong growth and expansion. In recent years, the Italian Rugby Federation has developed many initiatives to promote youth sports, including the establishment of six regional under-17 academies. The case study presented here was carried out in a regional rugby academy. Using a systemic and ecological approach (Henriksen et al., 2014), it aims to highlight the psychosocial elements that lead to a better outcome in the process of developing talent. A qualitative study was carried out. Six focus groups (30 athletes living in the one of the academies) and eleven semi-structured interviews (with the technical staff and with parents) were conducted. All material was transcribed verbatim and the content analysed with an ongoing phenomenological-interpretive approach. A first analysis of the qualitative data highlights that the strong motivation investment of the athletes goes hand in hand with a strong need for listening and dialogue with adult figures. The investment in performance and the growth of the individual technique of the athletes is likely to clash with possible failures in the cases of those fragile athletes who cannot find adequate space for psycho-emotional growth in their environment. These results have strong implications in a psychological point

of view; the relevance of an holistic taking charge of talented athletes is highlighted. Technical and athletic programmes need to be implemented, not only by the development of mental abilities, but also by planning 'places' and 'times' for dialogue with them, and to accompany their development.

Training of attention in sports using HEG-feedback – a recent field of research

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Attentional processes are an important precondition for peak performances in sports. Attention is necessary when action control is required. According to Norman and Shallice (1986) the "supervisory attentional system" controls the non-routine procedure and it is recruited in complex situations. Studies expect that SAS is a higher-level mechanism located in prefrontal cortex (PFC, cf. Schelling et al., 2009, p. 764). Applied Sport Psychology uses a lot of methods to trained attentional processes, often without direct reference to movement. It seems essential to analyze the individual attentional focus during the movement and to developed adequate training programs. We use the Hem-Encephalography (HEG / NIRS of the Company Meditech). It is an indirect optical method measuring the activation in PFC during active movement. The development of the HEG-Feedback-System based on two different issues: (1) Evaluation of reliability/validity of HEG-measurement during training of start movements in sprint (n=5), of trunk strength (n=32) and trapshooting (n=1, high performance athlete). (2) Evaluation of individually HEG feedback programs with sport specific video sequences. We detect individual patterns in the HEG-ratio-plots with a high reproducibility under similar conditions (rtt=.804 - .893). The HEG-ratio-values can systematically be changed by different task. The values correlate with the results of the performance. The individual and task related patterns are fundamental for attentional training program. We developed two individual Neuro-feedback-systems: a system for a young athlete in canoe and another for world class athlete in trapshooting. By means of these special Systems the athletes can train different kinds of attention.

The relationship among time commitment in athletic training, role conflicts, and athletic identity for Taiwanese student-athletes

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Student-athletes are under obligation to fulfill both the duties of a student and an athlete. However, students and athletes are of two different roles and their duties usually conflict against each other. Research has shown that student-athletes tended to spend a significant amount of their time in athletic activities at the expense of academic and social activities. This imbalance in time commitment may be more serious for collegiate student-athletes from Taiwan since that athletic training and achievements are required for graduation. The purpose of this study was to survey Taiwanese collegiate student-athletes' time commitment on various activities and investigate the relationship among their time commitment, role conflicts, and athletic identity. At the first stage of the study, we revised and validated a student-athletes' role conflicts scale developed by Settles, Sellers, and Damas (2002) based on data of 220 Taiwanese student-athletes. The scale measured role interference as well as role separation of student-athletes and was used at the second stage. At the second stage, 304 Taiwanese student-athletes participated. The result of a series of correlational analysis showed that student-athletes' time commitment in athletic training was unrelated to role interference and athletic identity. However, time commitment in athletic training was negatively related to role separation and role separation was negatively related to athletic identity. The findings suggested that the more time the student-athletes spent on athletic training, the more they perceived themselves as athletes; and the more student-athletes viewed themselves as two unique and distinct roles, the less they perceived themselves as athletes.

Organisational stressors, emotional labour, burnout, and turnover intentions in sport

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While a growing body of research has examined the organisational stressors encountered by performers and their allied responses, little is known about how such individuals manage their emotional responses to these stressors. The purpose of this study was to examine the relationship between organisational stressors, emotional labour, burnout, and turnover intentions in sport. Specifically, this study investigated the potential moderating role that emotional labour plays in the relationship between organisational stressors and burnout in sport. Further, a moderated-mediation model was used to test whether the indirect effect of organisational stressors on turnover intention through burnout is moderated by surface acting. Participants (n = 487) completed the Organisational Stressor Indicator for Sport Performers, the Emotional Labour Scale, Athlete Burnout Questionnaire, and a three-item turnover intention measure. Using Hayes's PROCESS macro in SPSS the data showed that surface acting moderated the relationship between organisational stress and burnout in sport performers. In addition, surface acting acted as an important mechanism through which burnout mediated the relationship between organisational stress and turnover intention. For researchers, this study extends the literature on well-established emotional labour constructs by applying emotional labour theory to a sporting context. This serves to highlight the importance of surface acting in understanding how performers respond to organisational stressors encountered in sport. Indeed, these findings will help practitioners aiming to support performers encountering organisational stressors in sport by highlighting potentially deleterious emotion-management behaviours.

The prevention-intervention programme for sports injuries conducted in the Academic Sports Centre in Gdansk. Preliminary review

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The issue of sports injuries constitutes a very important subject both in theory and in practice (Blecharz, 2008). Sports injuries constitute a threat to athletes' careers and their successes. Some injuries may be slight and not have any lasting effects. However, others may finish a career and influence a sportsman's quality of life. Moreover, injuries are linked with the costs of rehabilitation which concern both athletes and their sports clubs or sports organizations. However, not many academic research papers address this issue from the perspective of sport psychology and the holistic intervention models (in Poland e.g. Blecharz, 2008; Łuczyńska, 2011; abroad e.g. King-Chung Chang & Hagger, 2012; Podlog, Dimmock & Miller, 2011; Santi & Pietrantoni, 2013; Wiese-Bjornstal, 2014; Wiese-Bjornstal, Smith, Shaffer & Morrey, 1998). The paper presents a practice review of how the prevention-intervention programme of sports injuries works. The programme enables academic athletes at various performance levels to return to their complete psycho-physical efficiency after an injury. The prevention-intervention programme, conducted in the Central Academic Sports Centre in Gdansk in Gorki Zachodnie, is a holistic programme which combines medical (doctors and physiotherapists`), psychological and social impacts. The review of the effectiveness of rehabilitation requires the evaluation of satisfaction from treatments, quality of life and readiness to return to sport; it also includes the characteristics of injuries, the socio-demographic characteristics of academic athletes, and biological, psychological and socio-cultural factors.

Being an aerobic instructor - is this a protective or a risk factor for eating disorders?

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Health benefits of physical activity have not been found in all samples. A few studies suggest that aerobic instructors may be in risk of eating disorders (ED) due to perceived expectancy to represent an image of normative attractiveness and concerns with self-presentation and appearance to others. However, research has revealed conflicting findings about the prevalence of disordered eating in this professional group. We compared 38 female aerobic instructors (18 – 47 years) with a control group matched on gender, age, and level of education. A demographic questionnaire, Eating Disorders Assessment Scale (Akkermann et al., in prep), Healthy Eating Scale (Promvalds, 2006), Estonian version of the Rosenberg Self-Esteem Scale (Pullmann & Allik, 2000), and Estonian version of the Perceived Sociocultural Pressure Scale (Stice, Agras, 1998) were completed. Aerobic instructors revealed lower (but normal) body mass index (BMI) along with higher restrained eating, more frequent healthy eating, and higher general self-esteem compared with matched controls. Hierarchical multiple regression analysis revealed differential associations between indices of disturbed eating and predictor variables. Bing eating was significantly predicted by perceived pressure to be thin, while preoccupation with body image and body weight was significantly predicted by both perceived pressure to be thin and general self-esteem. We conclude that aerobic instructors are not necessarily a risk group for disordered eating. Aerobic instructors maintain a normal BMI by avoidance of overeating and frequent selection of healthy food. Variables such as perceived pressure to be thin and general self-esteem account for eating attitudes rather than belongingness to the professional group of aerobic instructors. Moreover, relative to Estonian standardization samples of ED patients and general population (Akkermann et al; in prep) aerobic instructors show less disturbed eating than ED patients and higher restriction of food as well as lower preoccupation with appearance and body weight than the general population.

Applying inoculation theory to health attitudes: Creating a framework for health behavior

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The central principle of inoculation theory is that when individuals are presented with a weak form of a persuasive attack against an existing attitude, they become inoculated against future attacks or challenges to that attitude (McGuire, 1961). Research has demonstrated that inoculation messages are effective in creating resistance to counter-attitudinal attacks (Banas & Rains, 2010). The aim of this study was to experimentally test the mechanisms of inoculation in the context of physical activity and health. Initially, participants (N=200) were asked to complete baseline measures, testing potential moderators of inoculation (e.g., prior attitude and personal relevance). Participants were then asked to read an inoculation message about one of two health topics, including an exercise inoculation message, and were then asked to complete a questionnaire including measures of thought processes (i.e., how much they thought about the inoculation messages), their attitudes toward the exercise and health topics in the message, counterarguing measures, and other mechanistic processes. Following a period of time, the participants received an attack message, challenging their exercise and health attitudes, and their response to this attack was measured. Analyses revealed evidence for dual processes to developing resistance from inoculation, and that the pathway taken to resistance was affected by moderators. There were also differences in participants' responses dependent upon the processes that were used following reading the inoculation message. This study advances our understanding of the ways in which inoculation creates resistance, specifically relating to how physical activity and health attitudes can become resistant to challenges. It is the goal of health professionals to promote both positive and unwavering attitudes toward exercise and overall healthy

behavior; this research provides a framework for understanding how such a goal may be achieved.

"Movi Kune – moving together": Exercise and movement therapy with war and torture survivors

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Numerous studies have shown the health benefits of exercise and sport with people with psychosomatic and psychosocial disorders (Hölter, 2011). These benefits are extremely relevant for traumatised refugees, torture and war survivors; however they are currently scarcely applied and studied (Lawrence, De Silva, & Henley, 2010). Since 2013, the sport and exercise psychology department (University of Vienna) and the care centre for torture and war survivors Hemayat work together in the project "Movi Kune – moving together", in order to contribute to the understanding of the therapeutic processes and outcomes of exercise and movement therapy. War and torture survivors with posttraumatic symptoms partook in four groups of five to ten male or female participants. The qualitative data produced through participatory observation, interview and group discussion are coded inductively - deductively with the support of Atlas.ti and analysed according to the processes and outcomes. This poster focuses on the results regarding the self-experiencing processes through the active and bodily participation and the group-experiencing processes as specific aspects of the sport and exercise therapy; it also debates complementary benefits with other therapies, i.e. with art therapy, such as the expression of feelings, perception, participation and resource activation. The results demonstrate the relevance of self-determined and active participation, opportunities for personal expression and positive self-experiences, including feelings of safety, control, success and joy, as well as positive group experiences and relationships. The poster highlights concrete ways to foster the highly needed complementary work among therapies. It calls for a holistic approach and the use of qualitative, creative and arts-based research.

What is "the sharpness" in the baseball exactly?

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In Japanese baseball, pitches are said to possess the quality of "sharpness", or kire. In the case of fastballs, this "sharpness" is seen in balls that maintain not only their speed, but travel in a direct line from pitcher's hand to catcher's glove without dropping, or dropping very little. But, what exactly is this "sharpness"? The orbital quality of pitches has been discussed in previous studies, which have looked in depth into the speed, rotary speed, and angle of the axis of balls. In Japan, the sharpness of a ball is considered to be a powerful weapon in a pitcher's arsenal. It is not uncommon for both baseball players and observers of the game to remark that a pitch had "sharpness" (kire ga aru). The precise characteristic of this sharpness, though, is not easy to define, and whether a pitch has sharpness or not is a subjective evaluation. The purpose of this study was to investigate these characteristics of sharpness. Japanese professional pitchers (n=2) and high-level student pitchers (n=2) participated voluntarily in this study. Pitchers performed normal pitching with a catcher in an indoor gymnasium. Pitching motion was filmed with a video camera (300fps); the orbital of the ball, with a high-speed camera (2,000fps). Ball speed and rotary speed were analyzed. At the same time, pitcher, catcher and observers (coach, researcher, and players) subjectively evaluated each pitch's quality. Ball speed and rotary speed, and subjective evaluation were compared. As a result, a relationship was seen between the recorded data and the subjective evaluations. Findings of the present study suggest that the subjective sharpness of the ball and actual sharpness of the ball may be related. We believe the sharpness of the ball should be taken into consideration in when deciding whether to change a pitcher or the strategy.

Motivations for drinking and the perceived effects on cognition in heavy drinking UK student athletes

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Previous research has identified that alcohol directly affects brain function, leading to deficits in white matter and memory, with student athletes identified as a group who are particularly at risk of alcohol related harm . A recent review on student athlete drinking identified several commonly occurring motivations for alcohol consumption (.The most common motivations were related to social and team-orientated factors. It was suggested that these are directly linked to team cohesion . One criticism of the literature base on student drinking motives is that the majority of the literature is from US institutions and therefore cannot be translated to UK and EU universities. The aim of this investigation was to try and explore the motivations for alcohol consumption in heavy drinking student athletes in a UK university.The sample for this study was comprised of 9 student athletes (5 female, 4 male), all of whom scored hazardous or above on the Alcohol Use Disorders Identification Test (AUDIT: Saunders et al., 1993). Participants were interviewed on their experiences and motivations for drinking and also how they perceived this affected their daily cognition.Results showed that social pressure and expectations were key motives for student athletes to engage in drinking. Other key findings from the data indicate that student athletes were not aware of effects on their daily cognition other than those associated with hangover. It was also clear that student athletes that identified alcohol related social activity was as important to the university experience as overall degree classification.In conclusion these findings agree with US studies on student athletes' motivations for drinking whilst identifying some additional factors. It is important to recognise that this research comes from a focused and specific sample. As such future research should look to gain a wider sample from other UK and EU institutions.

Our tolerance to effort influences the pleasure and the cognitive benefits of physical practice

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Tolerance to effort is defined as a trait that influences one's ability to continue exercising at an imposed level of intensity even when the activity becomes uncomfortable or unpleasant. Tolerance threshold has been shown to be predictive of the feelings experienced during physical practice (Ekkekakis, Hall & Petruzzello, 2005). In the present study, we assess whether the tolerance threshold of an individual can impact the pleasure experienced during physical practice as well as the cognitive benefits that one may gain from a 40-minute training session. 30 healthy participants were randomly assigned to a resting group (watch a documentary, G1), a cycling in silence group (G2), or a cycling in music group (G3). The cycling activity was practiced at self-set intensity defined by a rating of 13 on the Perceived Exertion Scale (RPE). The tolerance threshold of each individual was assessed before the experimental condition using PRETIE-Q. This assessment permitted to allocated subjects in each group in order to have the same number of subjects with low or high tolerance (5 of each) in each group. The executive functions of switching, updating and inhibiting were assessed before and after the physical practice using computerized tests. Feelings were assessed before, during and after physical practice using the Feeling Scale. Cardiac frequency was measured throughout the session. The low tolerance group revealed greater difficulties in regulating physical effort in order to maintain a positive feeling as measures by the Feeling scale both with and without music (G2 or G3). Cognitive benefits were greater for the high tolerance individuals both in G2 and G3. No differences were observed on cognitive benefits in G1. Tolerance threshold needs to be evaluated when considering physical practice as both pleasure and cognitive benefits are predictors of compliance to regular physical practice (Best, Nagamatsu, & Liu-Ambrose, 2014).

Affective responses to exercise: Experience vs. recall of the experience

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A growing body of research shows that affective responses to exercise are an important factor for adherence (Rose & Parfitt, 2010; Williams, et al., 2008). Once exercise is completed, it is commonly presumed that the recall of affective responses mirrors the exercise experience and remains constant over time (Annesi, 2005; Williams, et al., 2008). However, research examining memory processes indicates that the recollection of an experience can substantially differ from the actual experience as it tends to be shaped by only fractions of the experience (Kahneman, 2003). The present study, grounded in Russell's circumplex model of affect (1980) in conjunction with the dual mode model by Ekkekakis (2003), aimed to examine individuals' recall of exercise related affect over a period of two weeks by employing randomised control cross over design. Participants (N = 42) recalled their affective responses associated with two exercise conditions differing in intensity (i.e., low to moderate vs. high) based on their ventilation threshold established from a treadmill VO2max test. The recall of affect was collected using the experience sampling approach for two weeks after each of the exercise conditions. Results showed that exercise related affect fluctuated across post exercise evaluations with a significant drop at the 24 hour recall measurement point; this pattern emerged during both exercise intensity conditions. One plausible explanation for such robust drop in recall of affective responses may imply an interaction of psychological and physiological changes that occurs post exercise (Gauvin, & Rejeski, 1993). For example, previous research showed that exercise attenuate stress at one and three hours after the exercise but the effect does not prolong to 24 hours (Ebbesen, et al., 1992). Findings suggest that training programmes designed to improve exercise adherence and maximise outcomes should consider the temporal fluctuations in recall of exercise related affect.

Links between achievement goals, motivational climate and quality of life variables in a sample of youth soccer players in Greece

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A small number of studies in the field of youth soccer have supported the links between achievement goals and traditional motivational climate perspective with quality of life variables (e.g. Adie et al., 2012). The purpose of this study was to extend this literature through the examination of the links between achievement goals, Empowering and Disempowering motivational climate and youth soccer players' self-report physical activity (PA) levels, life satisfaction, subjective vitality and health. Empowering refers to a more autonomous and mastery-oriented climate, while Disempowering refers to a more controlling and performance-oriented climate (Duda, 2013). Participants were 1507 soccer players, aged 9 to 15 years old (M age: 11.70 ± 1.48 years) from 35 soccer clubs in Greece. Participants completed the following questionnaires before their training session: the Task & Ego Orientation in Sport Questionnaire (Duda & Nicholls, 1982), the Empowering and Disempowering Motivational Climate Questionnaire (Appleton et al., 2011), a single question to capture soccer players' PA frequency of participation in moderate to vigorous PA (Booth et al., 2001), a single question to measure soccer players' health status (Currie et al., 2004), the Cantril Ladder for the measurement of life satisfaction (Cantril, 1965) and a subscale for the measurement of subjective vitality (Ryan & Frederick, 1997). Examination of Structural Equation Models revealed that task and ego orientation positively predicted subjective health, life satisfaction and subjective vitality. Only task orientation predicted positively self-report PA. Empowering climate predicted positively self-report PA, subjective health, life satisfaction and subjective vitality, while Disempowering climate predicted negatively life satisfaction. As a conclusion, the results support the applicability of achievement goal theory

and motivational climate as frameworks to understand the determinants of self-report PA, subjective health, life satisfaction and subjective vitality in the field of youth soccer in Greece.

Gender differences of psychological skills in badminton junior players

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Researches have shown that male and female have different psychological behavior in sports (Hays, Thomas, Maynard & Bawden, 2009). In badminton competition, male and female can play together, as mixed doubles. The evaluation of the psychological skills of athletes is important to identify the requirements of the modality, to guide the better intervention and to optimize the athlete's performance (Holland, Woodcock, Cumming & Duda, 2010).This study aimed to compare male (M) and female (F) psychological skills of the Brazilian Junior National Team of Badminton. The Brazilian National Junior Badminton Team were evaluated (7 males athletes - 16 ± 9 years and 7 females - 16 ± 1,4 years) during pre-competition time before XXIII Panamerican Championship in 2014. The instruments used were: Sport Competition Anxiety Test (SCAT), Rosenberg Self-Esteem Scale (EAE), Resilience Scale (ERES), Trait Sport Confidence Inventory (TSCI) and The World Health Organization Quality of Life (WHOQL-Bref). Statistical analyzes obtained averages of each psychological skill measured and for compared between males and females groups was used the Student t test ($p<0.05$). The results showed significant differences in self-confidence among male and female players: M=82.14, F=69.14 (p=0.02). For the others psychological skills, there is no difference among genders: Anxiety M=21.00, F=22.71 (p=0.32); Self-esteem M=10.43, F=11.57 (p=0.67); Resilience M=117.86, F=127.00 (p=0.40); Quality of Life M=4.00, F=4.00 (p=1.00). This study had shown that male badminton junior athletes have better self-confidence than female. From this evidence, the study suggests that coaches should give more importance to improve self-confidence in female athletes during the practices (Shelangoski, Hambrick, Gross & Weber, 2014). In addition, future research should be conducted in order to continue the discussion among gender concerns in sport, especially in badminton, where men and women work together in partnership (mixed doubles match).

Motive-based types of sportsperson in late adulthood

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Measures for promoting sports and physical activitiy are rarely systematically aimed at sports-related motives and goals, even though they are important for personal well-being and for maintaining this healthy behaviour. Sudeck, Lehnert and Conzelmann (2011) have identified typical patterns of motives and goals in leisure and health sports in intermediate adulthood. These “motive-based types of sportsperson” can be used to segment individuals based on their motives for doing sports, and to adjust promotional measures to fit these. The present paper extends the field of application for such types of sports person to include late adulthood. The sample comprises 524 adults (M Age = 71.6 years, SD Age = 5.7, 57% women). It consists of participants of sports courses for senior citizens, former employees of the college of education, and participants of the University senior citizens. These people were asked about their sports-related motives and goals using the BMZI-HEA (Schmid et al., 2014). A cluster analysis using a Ward procedure and a partitioning cluster analysis with k-means method were carried out on the data. Eight motive-based types of sports person in late adulthood were identified, who distinguish themselves in terms of different levels of the motives and goals Body/Appearance, Contact, Positive Exercise Experiences, Cognitive Function and Mood Regulation. These types of sports person offer a means of tailoring sports counselling and sports offers to the motives of people doing sports.

Specific attitudinal aspects towards persons with various forms of handicaps

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In general, in social psychology the concept of attitudes implies the perception and evaluation of advantages and disadvantages of persons with certain characteristics or traits. Thus the analysis of the attitude also comprises cognitive, emotional and behavioral components in respect of the evaluation of persons with handicaps. In this presentation the results of two studies are incorporated. In the first survey specific aspects of the attitude towards persons with various forms of handicaps were analysed. The inquiry was conducted by means of a questionnaire on the evaluation of contacts, traits and cooperation with persons with bodily, sensory and mental handicaps. 80 nonhandicapped persons (23 males and 57 females) participated in the study. In the second study 75 high-level athletes with handicap were analysed in respect of their perceived self-concept. 58 male and 17 female competitive athletes from various sport disciplines took part in the questionnaire investigation. In the first study the participants admitted that they had been significantly more cautious, reserved and insecure especially at their first contacts with persons with mental retardation in comparison with persons with sensory or physical handicaps. The group evaluated the persons with mental retardation as definitely more dependent, ill, childish, unattractive, passive, auxiliary and lower performing in contrast to the persons with physical handicaps and with sensory disabilities. In the second study the athletes with disabilities felt that they were regarded as more stable, independent, active, emotionally controlled and healthy in their roles as athletes than in their roles as ordinary persons with disabilities.The male athletes with handicaps perceived themselves as even more positive in terms of independence, activity rate and health than the female athletes. A positive change of these attitudes should be evoked by more frequent opportunities of contacts of nonhandicapped and handicapped persons and athletes in several forms of unified sport disciplines.

Burnout and "body time". Revealing implicit time dynamics by movement analysis

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Every biological and psychosocial system has its own relative time and its own rhythms (Ciompi, 1990). These become dysfunctional within burnout syndrome, as biological (sleep-wake rhythm, heart rate, respiratory rate, etc.) and psychosocial (stress, work-life balance, etc.) rhythms are dysregulated. Since time is embodied, not organized cognitively, the implicit time dynamics of the lived body (German: Leib, Phenomenology) promise new findings (Joraschky & Pöhlmann, 2012). Hence, the goal of this study is to gain a deeper understanding of the time-dynamics within the movement behavior of burnout patients, which has not previously been investigated. Hospitalized average burnout patients (n=21; 18–70 years) and a healthy control group (n=21; 18–70 years) were videotaped during a standardized one-hour movement sequence. Simple tasks taken from dance therapy focusing on time were asked, e.g.: “move hectically” or “move in slow motion.” Two certified movement analysts independently rated each participant by the use of Laban Movement Analysis (1960), a diagnostic instrument in dance and movement therapy, and a standardized method for the observation of movement behavior (Lausberg, 2012). Analyzed parameters were effort, body, space, phrasing and relation, which are qualitative and quantitative aspects of movement. The Burnout Inventory Scale (Geuenich & Hagemann, 2014) was additionally used to confirm/eliminate the diagnosis. Inter-rater reliability was measured by Cohen’s weighted kappa and the comparison between the study groups by Mann-Whitney-U-Test. Initial results from our pilot study indicate that burnout patients have deficits in their time-related movement behavior: Low integration of the effort time (sudden/sustained); mainly isolated and simultaneous body segment usage as well as repetitive and continued phrasing; primarily invariable and stable movements, no obvious change processes and impulses. With the final results of the study in May we aim to deepen

the knowledge of burnout syndrome and to provide new starting points for preventive and therapeutic interventions.

Do psychological characteristics have an influence on soccer playing positions?

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It is hypothesized that players playing on different positions might differ not only in terms of their football skills but also -in terms of psychological features. The purpose of this study was to investigate the psychological characteristics such as: temperament, achievement motivation, self-esteem, emotional intelligence and self-efficacy of polish soccer players playing on different positions. The sample consisted of 200 soccer player from different soccer clubs in Poland aged 15-19. General Self-Efficacy Scale, The Formal Characteristics of Behavior; Temperament Inventory FCZ-KT , Achievement Motivation Inventory and Emotional Intelligence PKIE were used. The preliminary results show that the level of self-esteem is significantly higher among forwards and central defenders than among center and wide midfielders. Also, central defenders demonstrated higher level of self-efficacy than other players. Furthermore, the results demonstrate significant relation between specific temperament characteristics and the player's position. The main goal of this study was to determine whether there is interdependence among presented variables such as temperament, achievement motivation, self-esteem, emotional intelligence and self-efficacy of polish soccer players playing on different positions. Additionally, these results will have practical implementation.

Psychological need satisfaction in different life contexts: Development of satisfaction patterns and their relation to well-being

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In everyday life, people are engaged in many different contexts, which differ in regard to need satisfaction and well-being. According to Deci & Ryan's basic psychological needs theory (BPNT; Deci & Ryan, 2000), these intercontextual differences refer to three basic needs: autonomy, competence, and relatedness. Against this backdrop, the study investigates three typical and important contexts of adults' everyday life: Sports, Work, and Family. Specifically, we aim to identify typical need satisfaction patterns (profiles) taking into account different needs in different contexts. Moreover, differences in overall well-being between these profiles are investigated. A total of 106 men and 117 women (aged 20-63) responded to a three-dimensional need satisfaction scale (CBANS) which was separately assessed in regard to all three contexts. Furthermore, a depression screener (PHQ-2), a well-being index (WHO-5), and demographic information were assessed. Different profiles were analyzed by cluster analysis taking into account nine criterion variables (satisfaction of the three needs in each context). Differences between the clusters regarding well-being were analyzed with an ANOVA. The analysis revealed four clusters. The first cluster showed high overall need satisfaction ('The lucky ones'), the second cluster revealed low need satisfaction in the context Work ('Work dissatisfaction'), the third cluster reflected low need satisfaction in the context Family ('Family Dissatisfaction'), and the fourth cluster showed low need satisfaction in the context Sports ('Sport dissatisfaction'). While the first cluster showed the highest amount of well-being, the third cluster reflected the lowest ($F(3, 219)=10,58$, $p < .001$). Results of the present study showed that need satisfaction within the contexts differently contributes to well-being. Interestingly, while dissatisfaction in the contexts Sports and Work does not negatively affect overall well-being, dissatisfaction in the context Family does. Future research should clarify the role of this specific context and focus on strategies to compensate need dissatisfaction.

Sports and personality type

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Is there a relationship between personality type and sport preference? How do athletes know their sports personality? What do athletes in the same sports have in common? The relationship between personality types, sport preferences and performance was examined by assessing and evaluating over five hundred athletes, including NBA players, Olympic athletes and high school athletes. Team and individual athletes' personality profiles were determined using the Myers-Briggs Type Indicator questionnaire (Myers, McCaulley, 1985). The MBTI makes the theory of psychological types understandable and useful in people's lives, and has been applied to such areas as, education, counseling, career guidance, athletics and teamwork. Data analyses establish a correlative relationship between personality and player position. Additional results indicate that teams exhibit a predictable personality profile; by understanding the psyche of the athlete, performance and team productivity are enhanced (Versari, 2010). From the personality profiles that emerged, recommendations were made for selecting a sport, managing similar personalities within sports and teams, as well as implications for life outside of sport. Furthermore, optimal communication and performance can be achieved by identifying the learning and personality styles teammates have in common. Differences in personality between sports may differentiate those who will excel from those who will not. The benefits of understanding team member personalities are (1) Assess fit of the player with team and position (Guttmann, 2006), (2) Predictable personalities within a team can be used to shape training and coaching, (3) Identify sources of conflict due to different personalities, (4) Enhance leadership and team loyalty. The investigation of athletes' personality type and its relationship with individual and team performance is innovative. The more that athletes and coaches understand their personalities and team profile, the more productive they can be. By better understanding their preferences, athletes can maximize their performance in sport and in their second careers.

Self-regulations to diet and exercise, their relations and consequences on healthy lifestyle and arterial pulse wave velocity

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Literature provides good evidence of the effect of self-determined motivations, comparatively to controlled one, on healthy lifestyle (Deci & Ryan, 2008). For example, self-determined motivation involved in eating regulation are associated with healthy eating behaviors (Verstuyf, Patrick Vansteenkiste & Texeira, 2012). In the exercise context, autonomous motivation is also associated with exercise behavior (Texeira, Carraça, Markland, Silva & Ryan, 2012). We also know that arterial stiffness, measured in routine clinical practice, is an established marker of cardiovascular morbidity and mortality (Gasecki, et al., 2012). The aim of this study is to examine, firstly, the relations between self-regulation to exercise and self-regulation to diet (Mata, Silva, Vieira et al. 2009), secondly, their respective effects on quantity of physical activity and quality of diet, and finally arterial pulse wave velocity in adulthood. 220 students (19+1an; 66+9kg; 174+8cm) completed the Food Frequency Questionnaire (Laviolle, et al., 2005), the IPAQ-SF (Lee, Macfarlane, Lam & Stewart, 2011) and the Treatment Self-Regulation Questionnaire (Lesveque, et al., 2007). The arterial pulse wave velocity was measured by a Mobil-o-graph 24 h PWA Monitor (Weiß, Tölle, Zidek & van der Giet, 2010). First results show that autonomous motivations toward exercise and diet are, firstly, positively correlated and, secondly, respectively positively correlated with quantity of physical activity and dietary score. Controlled motivation to diet is highly correlated with controlled motivation to exercise. No relationship is found between on the one hand quantity of physical activity and quality of diet, and on the other hand arterial pulse wave velocity. More statistical treatments are in progress in order to explore causal relations with structural equation methods.

Positive – Negative psychological indices: Examining the relationship to athletes' flow experience and performance

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Flow experience refers to an optimal subjective mental state marked by positive affect, total immersion in performing an activity, and perception of superior functioning (Csikszentmihalyi, 1982). Kimiecik and Stein (1992), and Landhauβer and Keller (2012) have previously mentioned the link between flow experience with positive and negative psychological state and athletes' performance. The purpose was to examine the relationship between flow experience with positive and negative psychological state, as well as, athletes' performance. The state-trait distinction (Spielberger, 1976), the dimensional approach of emotion (Tellegen, Watson, & Clark, 1999) and the flow theory (Jackson, 1999) formed the theoretical basis of the study. One hundred seventy five (175) athletes, from various individual sports, ranging in age from 14 to 34 years old (M=19.31, SD=5.1) volunteered to participate in the study. Athletes' competitive experience ranged from 2 to 23 years (M=7.25, SD=4.23). Based on how they usually felt, the athletes completed the: Sport Competition Anxiety Test, Trait Sport-Confidence Inventory, and Positive and Negative Affect Scale (PANAS). Just before the competition, based on how they felt during that time, the athletes completed the Competitive State Anxiety Inventory-2, and the PANAS. Finally, the Flow State Scale-2 was completed just after with regard to how they felt during the competition. Additionally, the athletes subjectively evaluated their performance upon the end of the competition. There were positive associations between athletes' flow experience and their performance measures, indicating that positive emotional states are related to elevated levels of performance. Multipleregression analysis demonstrated significant prediction of athletes' performance based on flow experience and positive emotions during competition. The findings confirm previous studies developed in sport field, regarding positive emotional state in sport.

Career transition from amateur to professional sport in Swedish women football

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Advocates of the holistic perspective see the athletic career as an integral part of one's life (Stambulova, 2010), which 'occupies up to one third of the lifespan and influences all aspects of an athletes' development' (Stambulova, 1994, p. 221). Moreover, it is known that within their careers athletes experience several transitions that are generally perceived as challenging processes, which an athlete should prepare for and/or have support and help with. Previous research identified that transitions from amateur to professional sports are perceived as one of the most difficult and critical steps for athletes (e.g. Stambulova, 2000; Stambulova, Alfermann, Statler, & Côté, 2009). The purpose of the study was to examine the experience of the transition from amateur to professional sport in women's football, specifically investigating the perceived demands, resources, barriers, and coping strategies of the process. Altogether, seven female professional athletes, aged between 16 - 30 years, were interviewed using a retrospective approach. The semi-structured interview guide was developed based on the theoretical frameworks of Stambulova (2003), and Wylleman and Lavallee (2004). Data analysis included both inductive and deductive methods. The study results identified the main demands being related to the increased requirements towards physical abilities, professional attitude and behavior on and outside the pitch, and lifestyle reorganization around the sport. Corresponding to the demands, the barriers were identified on the levels of physical abilities, mental aspects of performance, social integration, and lifestyle management. Personal characteristics, mental toughness, previous experiences, and social support were reported as the main resources. The major part of identified coping strategies related to mental strategies of changing attitude and supporting motivation.

Several suggestions for improvement of the transition process were also reported by the athletes, with the main being to improve the information exchange with the athletes, and facilitate the newcomers' integration into the team.

The relationship between athletes' gratitude and subjective well-being: The mediating role of perceived social support

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Traditionally, research in psychology has focused on the study and prevention of psychopathology. With the increased popularity of positive psychology, researchers have shifted their attention to examine the development of personal strengths and competencies. A hot research topic within the positive psychology movement was well-being. In recent years, a very large body of evidence has emerged suggesting that gratitude was strongly related to all aspects of well-being. Chen and Kee (2008)directly showed that gratitude was positively related to athlete's team satisfaction and life satisfaction. However, the underlying mechanisms between gratitude and well-being have rarely been examined for athletes. Thus, the current study aimed at investigating the mechanism underlie the relationship between gratitude and athletes 'well-being. We proposed that the perceived social support would be an important mediator. A sample of 483 Chinese elite athletes(47.2% female, mean age=19.24 years, SD=3.99)was recruited to complete athlete gratitude questionnaire(Chen, 2012), athletes' subjective well-being questionnaire(Jiang, 2013), perceived available support in sport questionnaire(Freeman, 2011). Regression analysis indicated that gratitude and perceived social support significantly positively predicted athlete's well-being(β=.24, t=6.12, p<.001; β=.52, t=4.43, p<.001), altogether explaining its 44% variance. Structural equation modeling was used to analyze the mediating effect of perceived social support, indicating that perceived social support partially mediated the relationship between gratitude and well-being. The mediating effect size of perceived social support was 0.23. The ratio of the mediating effect to total effect was 49%. To sum up, we could draw the conclusion that gratitude could help athletes to perceive more social support and thus greater well-being. Lastly, practical implications were discussed in term of gratitude intervention, such as gratitude lists, gratitude contemplation.

Sport engagement by accelerometry in adolescents

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Leisure sport is often intended to promote moderate-to-vigorous physical activity (MVPA), but much sporting time is spent inactive (Fairclough and Stratton, 2005; Sheehan et al, 2014). This fraction is poorly studied. We objectively measured engagement (MVPA minutes / sporting minutes) in common sports and compared team with individual sport. We combined diary data and 7-day accelerometry from 1054 Germans ages 15-17, of whom 626 diaried any sport, to objectively measure engagement during 1373 episodes of over 40 sports. We modeled engagement as a function of team sport, checked for effect modification, and calculated average engagement for each sport that had a reliable sample size. For both team and individual sport, engagement was predicted by gender and city of residence, but not body mass index, age, socioeconomic status, or baseline activity levels. Boys and girls averaged 43 (SD 21) and 37 (SD 24) minutes MVPA per day, and surpassed 60 minutes MVPA (World Health Organization guidelines, 2009) on 25 and 17% of days. They were in MVPA for 48 and 33% of team sport and 21 and 31% of individual sport, with boys more engaged than girls in team sport but less in individual. (p for sex differences <0.0001.) Engagement in different team sports clustered around 40-50%, but individual sports ranged from 6% (weight training) to 74% (jogging), and 17% of episodes of individual sport had no accelerometrically-detectable MVPA. Average engagement correlated well with metabolic

equivalents (Ainsworth et al, 2011) within team sports but not individual sports. We concur that much of sporting time is spent inactive, but add that this fraction is strongly a function of specific sport, more variable for individual than team sports, and only weakly a function of subject characteristics such as baseline activity level.

Relationship of school obesity and motor skills of elementary age students

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The aim of this investigation was to measure the connection among childhood obesity and gross and fine motor skill performance. Participants were 400 elementary students in Makkah origin, consisting of 10 schools and the ages were between 9 and 12 years old. Each child had his body composition indirectly measured by calculating his body mass index (BMI). The Bruininks-Oseretsky (BOT) was used to measure motor skill performance of all the participants. A correlation was used to determine if a relationship exists, with the independent variable being BMI and the dependent variable being BOT scores. An ANOVA was utilized to identify specific significant relationships, with BMI and its three classifications as the independent variable and BOT scores as the dependent variable. In addition, an ANCOVA was performed to determine if the effect of BMI level on motor skills differs by the age for fine and gross motor skills, by using BMI calculations as independent variables and BOT scores as the dependent variable. Mean and standard deviation were used to express the data. For all analyses significance was determined at the .05 level of probability. The major findings in this study were 1) a relationship between BMI and fine motor skills is nonexistent, 2) a relationship between BMI and gross motor skill performance exists, 3) the effect of BMI level on motor skills does differ by age.

Coping strategies of elite athletes from endurance based sports

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Evidence from within the psychologically based corpus reveals that effective coping mechanisms, conducive to elite ultra-endurance athlete's performance, is limited. A mixed methods approach was employed to contextualize the complexities of elite ultra-endurance athletes coping methods. Semi-structured interviews were conducted with an international cohort of elite, information rich specialists, specifically K2 mountaineers (N=10) in Study 1, and elite ultra-distance runners (N=8) in Study 2. In addition, participants completed the Athletic Skills and Coping Inventory for Sport questionnaire (ASCI-28; Smith et al., 1995). A case study (Study 3) was adopted to investigate the effectiveness of specific coping tools and test the accuracy of a coping framework which was developed from the results of studies 1 and 2. Incorporating two groups of elite ultra-endurance athletes, provided the opportunity to explore, and define, specific stressors encountered by these athletes. Furthermore, effective coping mechanisms which these athletes implemented into both training and competition were clarified. These results now provide performers and sports psychologists with a comprehensive framework for managing and guiding the mental training programmes of ultra-endurance based athletes. Results demonstrated that stressors emerged from personal (e.g., fear), organisational (e.g., social support) and competitive (e.g., opponents) sources, supporting past literature (e.g., Fletcher & Sarkar, 2012). Coping emerged from emotion (e.g., self-talk), approach (e.g., imagery), problem (e.g., goal setting) and appraisal (e.g., self-deception) based approaches. Stressors were linked to specific, effective coping mechanisms, and the benefits of contemporary coping mechanisms, such as mindfulness and meditation, were illuminated. The value of the coping framework for endurance athletes was verified. Recommendations for future research include further exploration into mindfulness as an effective coping mechanism for endurance athletes.

Gender moderates the effects of empathy on competitive aggressiveness: The differential mediating role of emotions

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Though the empathy-aggression relationship is relatively well documented in sport, studies have yet to determine the strength of, or the mechanisms that account for, this relationship in males and females. Applying the social roles theory (Eagly, 1987; Wood & Eagly, 2002), empathy could have differing effects in regulating aggressiveness in competitive contexts. To this end, we investigated the moderating role of gender in the empathy-aggressiveness relationship (Study 1), and the mediating roles of guilt and anger (Study 2) in athletes. In Study 1, sport players (n = 390) completed measures of empathy and competitive aggressiveness in sport. Moderation regression analyses revealed that empathy was a negative predictor of aggressiveness, though this effect was moderated by gender. Specifically, though empathy was a significant negative predictor of aggressiveness in both males and females, this effect was stronger in females. In Study 2, sport players (n = 130) completed measures of empathy, guilt-proneness, competitive anger and aggressiveness. Regression analyses revealed that empathy positively predicted guilt-proneness and negatively predicted anger. Interestingly, moderated mediation analyses yielded that guilt mediated the empathy-aggressiveness relationship in males, but not females. In contrast, anger mediated the empathy-aggressiveness relationship in females, but not males. Taken together, these findings indicate that empathy inhibits aggressiveness, however the strength of this relationship, and its affective mechanisms, differ across males and females. Therefore, our findings underscore the importance of emotion in the regulation of aggressiveness and efforts that aim to apply empathy and emotion based strategies to control aggressiveness in sport, may need to be tailored for males and females.

The mediating role of coping skills on effects of a coping training in physical education class on adolescents' stress perception

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The speed and magnitude of changes during adolescence and the transition to a vocational school may exceed the coping abilities of young employees (Collins, 2001; Davis, 2003; Gerber & Pühse, 2008; Narring, Bükülmez, & UNIL, 2004). Therefore, the aim was to implement a physical education (PE) based coping training and to evaluate effects on coping and stress in adolescent vocational students. Moreover, this study applies a mediation model to assess whether stress perception is reduced due to improved adaptive coping skills in the medium-term. Eight classes from a Swiss vocational school (N = 131, Mage=16.22 ±1.12, 35% females) were selected for this cluster randomized controlled trial. Four classes received the coping training; the other classes maintained regular PE. The study examined intervention effects on coping and stress between pre- and-post intervention, and between post intervention and 6-months follow-up. Compared to a control condition (CG), vocational students of the coping training (IG) showed improved coping skills from pre- to post intervention. From post intervention to follow-up stress significantly decreased for the IG. Results of the mediation model indicate that coping post intervention mediates stress at follow-up. The findings support PE-based coping training as a positive contribution to the development of adaptive coping skills among vocational students. The program allows students to experience their stress-responses directly and to experiment with different coping strategies. Adaptive coping skills are key to dealing successfully with stress to prevent stress-related disorders across the work domain and everyday life. In this respect, the findings for the hypothesized mediation between the intervention and medium-term stress through coping are promising. Moreover, the project shows how to translate psychological theory into pedagogical practice.

The dark side of mental toughness: Subcultural imperatives that harm

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The concept of mental toughness (MT) is associated with success and overcoming great difficulties while demonstrating dogged perseverance regardless of adversity (Gucciardi, Gordon, & Dimmock, 2009). Since the seminal MT article by Jones, Hanton, and Connaughton (2002) there have been many articles describing the various positive aspects of MT for athletes' performances and wellbeing. Although there have been suggestions in the literature (Andersen, 2011; Crust, 2007; Gucciardi et al., 2009) regarding potential detriments in being mentally tough, limited research has emerged. The purpose of this study was to gain an in-depth understanding of MT in one sport. Information was gathered through semi-structured in-depth interviews and focussed on eight athletes' (aged 19-29years) and three coaches' (aged 32-52years) stories of developing and demonstrating MT in Australian football. Participants were encouraged to tell their tales of MT, which in each case encompassed both helpful and darker aspects of MT. Key concepts from the published literature served as organising codes for deductive content analysis, and when unique codes emerged from the data, inductive content analysis was used. The narrative story was written using the data from 11 male participants to describe an individual's MT journey participating and finally coaching in elite sport. MT appeared pathogenic for individuals who struggled to fit into the MT mould. The culturally transmitted MT ideals and expectations included "no pain no gain," "suck it up," "don't show vulnerability," silence your emotions," "play while injured." Strategies described in this study to enhance MT differed from existing research (Gucciardi, et al., 2009; Weinberg, Butt, & Culp, 2011) and included conforming, punishment and humiliation. In this study, MT was demonstrated by adopting the subcultural values of the club and sacrificing physical and mental wellbeing. This potential dark side of MT has implications for applied practitioners working to develop athletes' and coaches' MT.

Canadian university coaches' perceptions of preparing for a championship game

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Research has found that athlete performance and satisfaction is influenced by their coaches' knowledge, teaching, and organizational skills (e.g., Greenleaf et al., 2001), elements that are included in the primary components of Côté and colleagues' Coaching Model (CM; Côté, Salmela, Trudel, Baria, & Russell, 1995). In particular, the organization component of the CM encompasses how coaches plan and prepare for practices, regular season, and play-off games. To date, there is a great deal of research on how coaches prepare for practices and regular season contests, however less is known about their preparations for play-off matches and national championship competitions. The purpose of this study was to understand how university coaches prepare for a national championship game. Participants for this study were six highly successful Canadian university coaches who had combined to win more than 30 national titles. Data were collected using semi-structured, open-ended interviews and were inductively analyzed following Braun and Clarke's (2013) guidelines for conducting a thematic content analysis. Results revealed that coaches were unsatisfied with their first experience coaching at a national championship game, which they partly attributed to changing their teams' game-day routines. After much reflection, coaches recognized the importance of maintaining the same regular season practice and game day routines leading up to and including the national championship game. Participants also sought out a more experienced mentor to help them manage the emotional and psychological aspects of coaching a national championship game. In addition to preparing their athletes and themselves, participants felt that articulating roles and expected behaviors to their support staff prior to the national championship game was important for success. Findings from this study offer insights on an understudied yet important topic of coaching science and are of

particular interest to current and aspiring head coaches with limited experience at national championship competitions.

Coach narcissism, athlete perceptions of coach behaviour, psychological need satisfaction and attitudes toward doping

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Autonomy-supportive coach behaviours optimally promote motivation in athletes (Amorose & Anderson-Butcher, 2007), whereas controlling behaviours have the opposite effect (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011). Importantly, coach narcissism positively predicts controlling interpersonal coaching styles (Matosic, Ntoumanis, Boardley, Sedikides, & Stewart, 2015). Integrating elements of personality (Emmons, 1987) and self-determination (Ryan & Deci, 2002) theory, the purpose of our study was to investigate whether coach narcissism is linked with coaches' self-reported controlling and autonomy-supportive behaviours, and whether athletes' perceptions of coach behaviour are linked with athletes' psychological needs satisfaction and attitudes towards doping. To date (data collection ongoing; target 60 coaches), 33 coaches (Mage = 33.82 years; Mexperience = 12.10 years) and 342 team- (n = 13) and individual- (n = 5) sport athletes (Mage = 20.56 years; Mtime with coach = 1.16 years) have participated. Coaches completed measures of narcissism and coach behaviour, whereas athletes completed measures of all study variables with the exception of coach narcissism. Coach narcissism was linked with self-reported controlling behaviour ($r = .47$, $p < .001$), but not with autonomy-supportive coaching ($r = .09$, $p = .65$). Furthermore, athletes that perceived their coaches as more controlling reported lower psychological needs satisfaction ($r = -.30$, $p < .001$), greater thwarting of their psychological needs ($r = .55$, $p < .001$), and more positive attitudes toward doping ($r = .13$, $p = .01$). Further, athletes' perceptions of autonomy-supportive coaching were positively linked with psychological needs satisfaction ($r = .54$, $p < .001$), and negatively associated with need thwarting ($r = -.44$, $p < .001$) and attitudes toward doping ($r = -.13$, $p = .02$). In sum, narcissism may have important implications for coach behaviour, and athletes' perceptions of coach behaviour may impact their psychological needs satisfaction/thwarting and attitudes toward doping.

How do athletes perceive and experience sport injuries?

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This study was aimed at investigating into two questions: how athletes perceived and coped with their injury experiences; and what kind of life events took place before injuries. We based on the stress-injury model (Andersen & Williams, 1998) and coping-behavior approaches (Holmes & Rahe, 1967; Lazarus & Folkman, 1984; Smith et al., 1995; Skinner & Zimmer-Gembeck, 2007). The sample consisted of 124 Russian professional athletes who had experienced injury (Mage=22.1, SD=4, 80 males, 44 females). The questionnaires CSI, PANAS, WEMWBS, ACSI-28 and biographical interview (Vealey & Walter, 1994; Orlick, 2001) were used to investigate into the wellbeing level, current affects, coping skills, and pre-injury life events in the injuried athletes. The correlation, multiregression, and variance analyses were used (STATISTICA 7). We've found following significant results. The harder an injury is, the lower the athlete's wellbeing level ($p<0.05$; the hardest category was "concomitant injuries") is. Both males and females demonstrating high level of wellbeing compared with those who had low level of wellbeing used Problem solving, Concentration, Confidence and Achievement Motivation, Coping With Adversity ($p<0.01$). Females with high level of wellbeing showed high scores of positive affect, and preferred using Goal Setting/Mental Preparation and Coachability. Using multiregression analysis we found that Confidence and Achievement Motivation was a predictor of Wellbeing in males and females ($p<0.05$, beta=0.363, beta=0.448), whereas Peaking Under Pressure was anti-predictor in

males (beta=-0.27). Athletes also declared important life events in areas Sport carrier, Studying, Family relationships before they were injured. In conclusion, the current study provides a comprehensive overview of the relations between the injured athletes' wellbeing and coping behavior; as far as we know, this is one of the first studies combining these measurements to find possible ways of the most efficient coping behavior of an athlete.

Consistency tendency interferes factor correlations in sport and exercise psychology research? A randomised controlled cross-over

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Consistency tendency (Podsakoff, MacKenzie, & Podsakoff, 2012) is a method effect in which participants tend to respond to subsequent items more consistently, and could create an artificial covariance between nearby items. The present study is a randomised controlled cross-over that examined the effects of consistency tendency on the motivational pathways of Self-Determination Theory (Deci & Ryan, 1985) in the context of sport injury prevention. The sample consisted of 341 athletes (46.92% male; mean age = 19.84) recruited in local sport clubs in Sweden. After being randomly assigned into two groups, they were asked to complete a questionnaire for the assessment of perceived autonomy support from coach, and autonomous motivation and intention of sport injury prevention in two time-points, with one week apart. In each occasion, the items of the questionnaire were arranged either in an alternate order (consistency tendency facilitated because of reduced inter-item separation) or in an ensemble order (consistency tendency suppressed because of increased inter-item separation) for each group, so that each group completed both versions of the questionnaire after the two time-points. Multi-group confirmatory factor analysis demonstrated partial invariance of the measurement model between all the alternate order and ensemble order datasets. Single-group structural models also fitted the datasets acceptably well, and the parameter estimates in perceived autonomy support → autonomous motivation → intention were all positive as predicted. More importantly, the strengths of the pathways were stronger in the alternate order datasets than that in the ensemble order datasets. However, multi-group structural equation modeling only revealed significant difference in the between-group comparison at time 1. The present study provided preliminary evidence about consistency tendency in a cross-sectional survey of sport and exercise psychology. Researchers should be aware of the potential method effects of response order that could inflate or deflate the strength of associations between factors.

Sport education model and self-determination theory: A quasi-experimental study

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Motivation in physical education classes is essential to furthering learning outcomes and achieving course objectives. Using the self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2002) as a guide framework, the study analyzed the impact of the sport education model in self-determination motivation, psychological basic need thwarting, enjoy-satisfaction, boredom and intention to be physically active in physical education secondary school students in Spain. Two groups were selected for the study: an experimental group (n=43), which received 19 lessons of volleyball following the sport education model, and a control group (n=43), which received 19 traditional physical education lessons of volleyball. Pre- and post-intervention measures were taken in both groups. Using ANOVA 2x2, the results showed significant improvements in intrinsic motivation in the sport education group. The results were discussed and it was emphasized the suitability of the sport education model to improve self-determined behaviors in physical education.

Pursuit of athletic excellence and personal development

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The pursuits of athletic and personal development within high performance sport appear to exist in tension with one another (Coakley, 2011). More specifically, the prioritization of athletes' athletic performance and subsequent marginalization of athletes' personal development are perceived to be inherent in high performance sport (Banwell, 2013). Miller and Kerr (2002), however, envision high performance sport as a setting where athletic and personal development of athletes may simultaneously occur. The purpose of the current study was, therefore, to explore coaches' perspectives of athletes' personal development within high performance sport. To explore this phenomenon, in-depth, semi-structured interviews were conducted with male (n=4) and female (n=4) coaches of high performance sport programs, including track and field, hockey, field hockey, volleyball, basketball, and swimming. Specifically, coaches were asked how the personal development of their athletes is enabled through sport and, further, how high performance sport in particular may influence athletes' personal development. An inductive thematic analysis of the data reveals the difficulties coaches experience working within a high performance sport setting and resulting implications for athletes' personal development. Included in the results are: coaches' mixed perceptions of what is meant by the term 'high performance', the importance of winning and its effect on perceived job security, and that increased funding afforded through high performance sport delegates the responsibility of athletes' personal development to sport psychologists. These findings further highlight the current bifurcation between athletes' athletic and personal development within high performance sport, as well as suggest that coach education curricula is not doing enough to provide coaches with the knowledge and tools necessary so they themselves can support athletes' personal development. Recommendations are proposed for the joint pursuit of athletic and personal development within high performance sport, including the collaboration between sport psychologists and coaches around athletes' personal development.

Motor learning in older populations: The effect of different instructions

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Analogy instructions benefit motor skill acquisition by inducing more stable performance in cognitively demanding situations, such as psychological stress and multitasking (Liao & Masters, 2001; Poolton, Masters, & Maxwell, 2006). However, it is unknown whether these advantages can be applied to motor learning in older adults, given that older adults generally suffer from declining working memory capacity and different information-processing capabilities (Craik, Morris, & Gick, 1990).The purpose of the present study was to examine the potential application of analogy instructions to motor skill acquisition in an older population. The participants were 32 young adults (mean age: 22.8) and 32 older adults (mean age: 70.2). All participants practiced 180 trials of a table tennis forehand topspin technique. Participants from each age group (young and older adults) were randomly assigned to either an explicit instruction group or an analogy instruction group. Learning was inferred from performance on the practice trials and performance on a transfer test (with the presence of secondary task - counting backward in 3's) and a delayed (24-hour) retention test. Results showed that across practice trials all participants improved accuracy of hitting a desired target area (depicted by increasing scores) ($F(3.68, 229) = 13.86$, $p < 0.01$). During practice, the young adults performed significantly better (i.e., higher scores) than the older adults ($F(1, 62) = 46.38$, $p<0.01$). Both young and older adults who were instructed with analogy instructions performed robustly during transfer and retention tests compared to those who were instructed with explicit instructions. The findings of the present study suggest that the advantageous characteristics of analogy instructions apply to older populations during the motor learning process. However, to optimize the learning process, older adults may require longer periods of practice than younger adults.

The role of coping strategies in the relationship between emotions and commitment

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Sport participation during adolescence has shown to be a very important issue when promoting an active lifestyle. However, little attention has been paid to the role of the coping process in sport participation and enjoyment during this stage and how this might influence sport commitment. Within this context, this study focused on competitive trait anxiety from a Cognitive-Motivational-Relational Theory framework (Lazarus, 1999). The aim of the present study was to evaluate the potential meditational role of coping strategies in the relationship between competitive trait anxiety and sport commitment and enjoyment. A sample of 545 young athletes between 13 and 25 years (M = 16.80; SD = 2.14) completed the Spanish versions of Sport Anxiety Scale-2, Coping Strategies in Sport Competition Inventory and Sport Commitment Questionnaire. Preliminary results through structural equation modeling showed coping strategies mediating the relation between anxiety and enjoyment and commitment. Task-oriented strategies positively predicted sport participation, while emotion- and avoidance-oriented strategies were inversely related sport participation. All anxiety subscales predicted the use of one or another coping strategy. These results highlight the importance of considering emotions and coping strategies when studying motivation in sport participation. Teaching adolescent athletes to cope effectively with state anxiety might help to increase enjoyment and commitment to regular sport participation.

The better, the bigger: Action-specific perception during skill acquisition

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According to the action-specific account of perception, people perceive the environment in terms of their ability to act within in it (Proffitt, 2006). For example, softballs look bigger to players who are hitting better than others (Witt & Proffitt, 2005). In this study we provide the first examination of how motor skill learning enhances perceptions of action capability and perception of target size in a dart throwing task. The task involved throwing darts at a regulation sized dartboard consisting of 10 concentric circles. Participants were asked to aim and hit the centre 'bull's-eye' as often as they could. Twenty-five undergraduate students, who had little experience of playing darts, completed 30 baseline throws, 240 training throws, 30 immediate retention throws and then 30 delayed (> 1 day) retention throws. Measurements of performance score, perceived bulls-eye size, perceived ability and quiet-eye (QE) aiming duration were taken at each phase of the experiment. Repeated measures ANOVAs revealed that the Training trails increased performance ($p = .022$), increased perceived ability ($p < .001$), increased perceptions of target size ($p = .011$) and optimised QE aiming durations ($p = .027$). Furthermore, significant correlations were found for the relationship between performance and perceptions of ability ($p = .002$), performance and perceptions of target size ($p = .004$) and performance and QE aiming duration ($p = .036$). This study highlights how the perception of action capability is related to visual attention and performance in motor skill learning and suggests that perceived target estimates may be used as a proxy measurement of overall learning in skill acquisition.

Interaction resources of sport team efficiency

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There are different types of athletes' interaction in sports teams (Djamharov & Umansky, 1977) which affects the activity's specificity and may determine its efficiency. The interaction in this sense describes the organizational side of actions aimed to provide joint activities. In terms of interaction this influences readiness for activity, potential tasks which the group is able to realize, and important resources to achieve the result. Significant importance for

organization of interdependent actions sharing involves human resources strategy. The nature of sports interaction provides a special level of group processes and states together with unique mechanisms of mutual organizations functioning based on role-thought-out positioning of participants who share a common vision, strategic goals, and tactical schemes. This study's sample included 15 to 38 year-old athletes (n=325; M=22,5; SD=5,5 yrs.), including 260 men (M=22,2; SD=5,3 yrs.) and 65 women (M=23,9; SD=6,1 yrs.). CEQS (Short, Sullivan, & Feltz, 2005) was used to define differences of group efficiency. Eight kinds of sports disciplines with different types of interaction were included in this analysis: co-interconnected (volleyball, football), co-individuated (fencing, wrestling), co-synergized (acrobatic gymnastic, rowing) and co-sequentialled (track and field/relay and swimming/relay). Efficiency rating according to type of teams' interaction was: co-synergized (M=32,9; SD=3,3), co-individuated (M=31,5; SD=4,2), co-interconnected (M=30,7; SD=4,5), co-sequentialled (M=30,5; SD=4,0). The significance of differences between groups confirmed by Kruskal-Wallis ANOVA by ranks was of H=11,4, p<.01. Significant results were obtained on all scales: «ability» (H=16,3; p<.01), «persistence» (H=11,09; p<.05), «preparation» (H=17,7; p<.01), «effort» (H=9,8; p<.05), except on the scale «unity» (H=2,6; p=.45). Deliberate developing skills of interaction and development of its components can lead to the formation of new group characteristics, jointly characterize the level of subjectivity, developing new growth and determining efficiency of completing complex tasks.

The relationship between the assertiveness and fear of favorable and unfavorable evaluation in professional football players

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This study aims to analyze the relationship between assertiveness and fear of favorable and unfavorable evaluation in football players. Three different scales were used in this study. In order to examine the assertiveness, the assertiveness scale developed by Voltan-Acar and Teaching in 2007 was used, while the scales of fear of unfavorable evaluation (Weeks et al., 2008) was used to assess the fear of favourable and unfavorable evaluation respectively. Furthermore, 120 male football players in the 2nd and 3rd Leagues of the Turkish Professional Leagues were interviewed and 117 questionnaires were completed. The reliability of the questions, which were answered on a Likert scale, were scaled tested using reliability analysis of Cronbach Alpha. According to the analysis, the rate of total Cronbach Alpha was 0.898 (assertiveness 0.831, favourable 0.795, unfavourable 0.843). In the light of the data obtained by the football players playing in various clubs in the Turkish Football 2nd and 3rd Leagues, a correlation analysis was performed and a significant relationship between the fear of favorable and unfavorable evaluation and the shyness in the lowest limit of assertiveness was ascertained. Moreover, the Pearson correlation factor between the lowest limit of the shyness and the fear of favorable evaluation was calculated as r= 581 and the factor between the fear of unfavorable evaluation r= 523. A Pearson correlation factor within the 0.50-0.69 parameter can be considered as a moderate correlation.

An investigation of visual memory and perception through vienna test system among various sport groups and gender

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The visual memory test and the visual pursuit test are tool to measure perceptual skills. Whereas the first assess the ability to receive and replay visual information, the latter one gathers visual orientation ability and more complex dimensions of perception (Etzel & Hornke). Recent work by Poliszczuk (2009 & 2013) on basketball and badminton as well as by Gierczuk (2012) in elite wrestlers and taekwon-do applied these test batteries of the Vienna Test System to assess different coordinative visuo-motor skills and linked it to various aspects. The present research extended this research by examining these visuo-motor skills in cricket, badminton and basketball among male and female athletes. In total, in each sport

20 subjects (10 male and 10 female, each) participated. Difference in mean scores among the various sports groups were analyzed by MANOVA was applied and the α-level was set to. Results revealed no significant difference between males and females when considered jointly on the variables visual pursuit and visual memory (Wilks's Λ =.970, F(2,53)= .809, p= .451, partial η² = .030).Furthermore, also There between the sports no significant difference was revealed when considered jointly on the variables visual pursuit and visual memory (Wilks's Λ =.919, F(4,106)= 1.147, p= .338, partial η² = .041). Also the interaction between sex and sports was not significant (Wilks's Λ =.969, F(4,106)= .423, p= .792, partial η² = .016). These result might be explained by the participants' level of expertise and the novelty of the test tasks. This interpretation is confirmed by verbal reports since participants reported that they were tested in this skills for the first time. But they also communicated that would like to have these tests to be included in their regular training.

An intervention study on the impact of square dance on the mental health and social adaptation of Chinese older adults

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Square dance is a current popular activity in China with a great number of older adults participate in square dance. Maintaining mental health and social adaptation is very important for older adults. However, it is yet unknown whether square dance can affect their mental health and/or social adaptation. In this study, 62 older adults with an average age of 60 years were randomly divided into an experimental group and a control group (n = 31 each). The experimental group attended a 12-week square dance intervention. During the intervention phase, the 40-minute sessions took place three to four times per week, with participants reaching a heart rate of 100-110 beats per minute monitored by the polar meter. The two groups completed pre- and post-intervention assessments of mental health and social adaptation using the several mental health questionnaire and the social adaptation questionnaires. T-tests revealed that significant differences between the experiment and control groups on mental health and social adaptation. There were significant differences between pre and post-tests on mental health and social adaptation in the experiment group indicating that square dancing can improve mental health and social adaptation in Chinese older adults.

Preventing sport injuries among young young footballers

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Sports injuries in young football players is a common and serious problem which is also confirmed by personal observations and research done as an experienced football coach in training and games. These injuries are by far the almost common causes of injuries in children and youth treated in emergency departments. Such injuries can be caused by individual factors as medical conditions, inadequate physical exams before participating in trainings or in any games and lacks or pre-season conditioning. Further risks reside in lacks of safety equipment and poorly or improper equipment for example the shin-guards. Furthermore, taming up by age instead of size, unsafe playing fields as well as surfaces and environments but also improper training or coaching and a lack of instruction pose a danger. Moreover, fatigue and over-stress in training and games as well as weather temperature or condition and poor nutrition or hydration may lead to sports injuries. To prevent these risks, functional prevention measures may be achieved with training programmed originating from the field of physical therapy and medicine. In addition, coaches should be trained in first aid courses, and should have a plan for responding to emergencies. Educations in the proper use of equipment as well as the enforcement to establishing rules on equipment use seems to be necessary. Furthermore, it has to be made sure that the young athletes always use proper gears for a particular sport and warm-up exercises are mandatory to make the body's

tissues warmer, flexible and loosen muscles that have tightened. Finally, athletes should be accessible to water or sports drinks during the time of playing to keep them properly hydrated. To conclude, coaches should think about improving the general level of conditioning of the younger players and apply good training habits/techniques, practice and policy as sports-specific skills.

Psychotechnology in sport

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Nowadays, in sport psychology there is still a lack of psychological techniques that strengthen psychological characteristics of athletes that contribute to peak performance in competitions. Mainly, this lack is based on difficulties in selecting respective criteria and validating their efficiency in training activity. Consequently, this work aims at elaborating psychological techniques in Super League teams (volleyball and soccer) that strengthen important psychological characteristics of athletes. In more detail, in addition to their regular training sessions, the focus was laid on improving psychological stability, mental reliability and reaching the peak of mental readiness. Furthermore, specific criteria of these psychological techniques were tested on their efficiency in the applied setting. In the study at hand, performance efficiency is understood as a measure of performance quality, i.e. the percentage of successful task performances in training. Each technology is based on certain psychological principles: The principles of “Limitation” and “Right to risk” contribute to the formation of psychological stability of athletes in competitions, the principle of “One attempt” contributes to the formation of mental reliability and the principle of “Regulation of mental stress in training” contributes to the achievement of the peak of mental readiness. Results showed improvements in psychological stability from 27,3 % to 53,1 % ($P<0,01$) during the trainings and from 21,6 % to 53,1 % ($P <0,05$) in the competitions. In addition, mental reliability was improved from 11,9 % to 57,1% ($P<0,01$) during the trainings and from 8,3% to 39,1 ($P< 0,05$) in the competitions.

Sport career and athletes psychological development

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Sport career formation occurs at a period of intensive personal and intellectual development and may influence normative ontogenetic characteristics in this process. The main purpose of this study was to provide a theoretical explanation of positive and negative effects of young athletes’ involvement in sport activity. It was assumed that sport activity’s influence on personality development depends on the degree in which it supports the normative trend of this process. The tested assumption was based on Elkonin’s theory of psychic development. Elkonin put forward the theory that children are interested in different areas of the environment at different stages of psychological development. There are periods when children are interested in exploring their social environment and others when they prefer to learn physical environment. This interest in physical environment stimulates intellectual development while children’s involvement in social environment investigation supports personal development. Seven to ten year-old children are mainly interested in physical environment and their intellectual development is fostered by this interest. Adolescents are mainly interested in their social environment. Thus, adolescence is favorable for personal development. It may be assumed - on the basis of Elkonin’s theory - that if sport activity provides opportunity for psychological development in the direction that is age-specific for athletes, they may have an advantage over non-athletes. Five hundred and twenty athletes and 480 non-athletes took part in this project. Indicators of motivation, aspiration level, self-esteem, self -regulation, locus of control, self-concept, personal maturity and social adaptation characteristics were assessed. Findings from the data collected supported this study’s theoretical assumption. The results of this study demonstrated the possibility of predicting a sport career’s influence on athletes’ personal development.

Session 2 – Wednesday 15 July, 3.30pm-5pm

The effects of benefit finding on athletes' quality of adjustment to career termination

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Retirement from elite sports requires athletes to cope with adjustments on an occupational, financial, physical, social or emotional level. Research on critical life events (e.g., Filipp & Aymanns, 2010) suggests that benefit finding, defined as "the process of deriving positive growth from adversity" (Cassidy et al., 2014), may have a positive impact on this transition. The present study examined the effects of benefit finding on the quality of adjustment to career termination in the short, middle and long term. Former Swiss elite athletes (N = 290) completed a written survey collecting information on a) their emotional reaction to career termination, b) the amount of adjustment in various respects, c) situational characteristics of their career termination, d) the duration and quality of the transition, and e) their subjective well-being. Using Latent Variable Modelling, finding benefit in career termination was found to have both a direct and an indirect effect on long-term well-being (γ=.18). It predicts favorable emotional reactions to career termination (γ = .53) and less adjustment (γ = -.38) which in turn shortens the transition duration (β = -.15 and β = .55, respectively) and quality (β = -.15), and finally augments well-being (β = .41). The data suggest that a focus on benefit finding in both crisis-prevention and crisis-coping interventions may prove useful to prevent crisis transitions.

Effectiveness of autogenic training, heaviness formula for chronic stress in sthletes assessed by salivary cortisol

Takayuki Sugo, Susumu Kadooka, Fumika Kumagai
Osaka University of Health and Sport Sciences, Japan

Japanese collegiate athletes in general, practice their sport nearly every day of a season, with usually just one resting day per week, which can result in chronic fatigue (Sugo, 2013). Previous studies have suggested that autogenic Training (AT; Schultz, 1950), which is a relaxation technique, inhibits the stress response. The Cortisol Awakening Responses (CARs) are well-known and robust indices for assessing chronic stress (Pruessner et al., 1997). CAR is an acute, 50-60% increase in cortisol within the first 30 minutes after awakening. The relationship between CAR and psychological factors has been investigated in a number of previous studies (Kunz-Ebrecht et al., 2004a; 2004b). The present study was designed to investigate the effects of practicing AT for two consecutive weeks on the chronic fatigue state in collegiate athletes assessed by using CAR. Participants were male collegiate athletes (mean 20.4+-0.5 years). Participants were then requested to practice AT in their homes for two weeks. They were also instructed to collect saliva using the passive drool method at two sampling times: immediately on awakening, and 30 minutes after awakening under three conditions, on mornings after control day with no AT, starting day of AT, and on the last day of practicing AT. The concentration of salivary cortisol was determined by the ELISA method using the EIA-kit (IBL). CAR indicated significant interactions between the conditions and sampling times. On the control day before practicing AT, concentration of the salivary cortisol at 30 minutes after the awakening were significantly higher than immediately after awakening relative to after practicing AT. Therefore, CARs that indicated stress reaction after practicing AT were lower than control. These results indicate that consecutive practice of AT reduces chronic stress in athletes. Moreover, it is suggested that the assessment of endocrinological functions is a useful tool for the diagnosis of psychosomatic states.

Talent identification in youth soccer players aged between 14 and 18 years using a multivariate approach

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[1]Islamic Azad University, Iran; [2]University of Shomal, Iran; [3]university of Tehran, Iran

To determine the applicability of a multivariate test battery in youth soccer players, we made a comparison between 83 elite and 92 sub-elite youth soccer players concerning physiological, psychological, anthropometrical and technical factors. Some researchers (e.g., Reilly et al., 2000) have also proposed similar TI models to be applied on soccer schemes. The players completed the ACSI-28 questionnaire as a psychological test. Also, all players performed the FA soccer star tests in order for their technical characteristics to be determined. The seven measures in anthropometrical cluster analysis include: height, body mass, body fat percentage and four girths (waist, shoulder, mid-thigh, calf). Besides, five tests performed by players to determine their physiological characteristics: Vertical jump, sit-ups, 280 meter shuttle run, 10 and 40 meter sprints. The results of present study demonstrated significant differences between elite and sub-elite players in the four measured clusters. A significant difference was also found in age as a covariate. The most distinguishing factors, accentuating the importance of speed in TI models, were 40-m sprint and shuttle run (among physiological factors), peaking under pressure (among psychological factors) and speed (among technical factors).. There were significant differences between U16 and U17 groups in physiological and technical factors. Besides, the elite U18 players scored better than their sub-elite peers in psychological and technical measurements. The results indicated that a multivariate approach, considering age differences, can successfully distinguish elite soccer players from sub-elite players at young ages.

Exploring the effectiveness of motor-mental pre-performance routine and self-efficacy among novice athletes

Inbal S. Perry, Yaacov J. Katz
Bar-Ilan University, Israel

Motor-Mental Pre-Performance Routine (MMPPR) is designed to enhance athletic performance and psychological well-being of athletes. Effective routines include physical actions and psychological inputs undertaken before an athletic action is performed (Lidor, 2013). In addition, MMPPRs conceivably reduce stress and anxiety thereby enhancing accurate athletic performance (Coelho et al, 2014). This study aimed to define the relationship between MMPPRs, accuracy of athletic performance and self-efficacy of athletes. In the first stage of the study, the effect of motor and mental MMPPRs undertaken by elite athletes was examined. In the second stage of the study, accuracy and self-efficacy of novices, who were made aware of the contribution of MMPPRs to athletic performance and psychological well-being, were compared with accuracy and self-efficacy of novices who were unaware of the relationship between MMPPRs and athletic and psychological outputs. In the first stage, observations of 114 elite golf, tennis, basketball and volleyball players were conducted to analyze their MMPPRs. Following their performances, interviews were conducted to understand the specifics of their mental preparation before performing athletic action. In the second stage, the accuracy of athletic performance and self-efficacy of 240 high school novice athletes, randomly assigned to one of three groups, namely, movement-cognitive preparedness group, movement preparedness group and control group, were examined. All participants were administered a self-efficacy questionnaire before and after the intervention. Research results indicate that participants in the motor-mental pre-performance and motor pre-performance groups were more accurate in athletic performance than members of the control group. In addition, participants in both experimental groups attained significantly higher levels of self-efficacy after the intervention than those in the control group. Implications of the research indicate that MMPPRs can well serve as an integral part of athletic training in order to enhance quality of performance as well as self-efficacy of athletes.

The mediating role of enjoyment during exercise on the effects of an intervention on exercise adherence

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Humboldt University of Berlin, Germany

Regular participation in physical activity is associated with a variety of health benefits and a reduction in diverse chronic diseases. However, empirical studies have shown that about 50% of the participants in exercise programs drop out during the first six months. One strategy to increase regular physical activity would be to promote positive feelings during exercise (Baumeister et al., 2007). The purposes of this experimental study were a) to investigate whether the affective states can be influenced by specific interventions and b) to link these changes in affective states to exercise adherence. The trainers of the experimental group were instructed to promote positive emotions (e.g. pleasure and fun) during exercise according to specific principles (1. positive feedback, 2. social integration, 3. regulating optimal intensity, 4. transparency, 5. codetermination of the training contents, and 6. increasing diversity). The trainers of the control group were instructed to comply with the recommendations of the American College of Sports Medicine. 24 participants in the experimental group and 17 participants in the control group were recruited for this study. The results of the repeated measures analyses of variance provide a significant time by group interaction suggesting that participants of the intervention group increased their affective ratings significantly compared to the control group. The results of the hierarchical regression analyses support the hypothesis that the changes in affective ratings related to exercise mediated the effects of intervention on physical activity adherence. This study provides evidence that affective states during exercise can be systematically influenced to increase physical activity adherence. Principles on how to increase positive affective judgments related to exercising can be drawn from this study and eventually be used in order to promote regular physical activity among a large part of the population.

Violence towards children and youth in sport: Towards a comprehensive understanding of the issue

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Violence in sport received more and more attention from the scientific community. However, types of violence in sport are often studied in an isolated manner and in an unidisciplinary perspective. Moreover, some forms of violence like neglect or self-harm are rarely documented in the sport literature. In addition, current models do not consider other more indirect or invisible forms of violence like cultural and structural violence. Cultural and structural aspects are more considered like risk factors and not really as forms of violence themselves. The aim of the presentation is to give a more comprehensive understanding of violence towards children and youth in sport by creating an integrative and multidisciplinary model called "Model of Violence Towards Children and Youth in Sport". The Peace Theory of Galtung (1969 ; 1990 ; 2013) and the Ecological Model of Bronfenbrenner (1979) served as theoretical basis for the development of the model. The model defines each types of violence against children and youth in sport (cultural, structural, interpersonal and self-inflicted) together with their manifestations, prevalence, risks factors and their consequences on the child and youth welfare, well-being, security and health. Based on a child rights approach, the Model of Violence Towards Children and Youth in Sport supports the idea of reconsidering the way we do and think sport and brings out the necessity to look at violence against children and youth in sport in a more comprehensive way, especially when we talk about more indirect types of violence and their implications on child and youth safety and well-being.

The role of job autonomy in internship satisfaction: A study of college students in sport-major department

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In today's global economy, an organization in sport industry requires rapid responses to a changing external environment. Corporations need employees who can immediately transfer knowledge between classroom learning and actual practice. As a result, the internship has become an important implement both for corporation's human resource management and for students' learning and career development in lifespan perspectives. Whilst internships in sport industry are widespread, few studies use theoretical models to explain students' motivation and their internship satisfaction. In addition, although much research in the past has been carried out on interns' satisfaction with internships, little is known about the work context such as job autonomy involves in the internship effectiveness. This study used the proactive model as the framework to explain the internship satisfaction. The researcher recruited college students majoring in sport and physical education as participants, and gather data from questionnaires, e-survey and telephone interviews with a three time-point design. The results indicated that job autonomy moderated the relationship between role-breadth self-efficacy and internship satisfaction. When job autonomy was high, the relationship between role-breathed self-efficacy and internship satisfaction was strong. The results provide a clear description about how job autonomy influenced the relationship between role-breadth self-efficacy and internship satisfaction. The results of the study may provide practical implications not only for future researches concerning on internship effectiveness, but also for schools and corporations in developing programs of college internships in sport industry.

Strategies to improve sport psychology consultants relationship with sport medicine professionals and access to injured athletes

Monna Arvinen-Barrow[1], Damien Clement[2]
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Multidisciplinary team approach to sport injury rehabilitation involves the use of a variety of individuals with different specialties, all of whom work either together or separately with the aim of getting the injured athlete back to the field of play (Clement & Arvinen-Barrow, 2013; Melvin, 1980). Since gaining entry to the sport medicine domain can be an area sport psychology consultants (SPCs) often struggle with (Ravizza, 1998), the primary purpose of this presentation is to present strategies to help improve SPCs' relationships with sport medicine professionals and access to athletes with injuries through a multidisciplinary approach. The presentation will be grounded in the conceptual framework (Clement & Arvinen-Barrow, 2013) and draws from existing concepts of adopting a sports medicine team /holistic care approach to sport injury derived from both athletic training (Prentice; 1991) and sport psychology (Wiese-Bjornstal & Smith, 1999). In addition, existing research findings (e.g., Arvinen-Barrow & Clement, in press; Clement et al., 2013; Heaney, 2006; Jevon & Johnston, 2003) will be considered when discussing the ways in which SPCs can better facilitate their access to sport medicine domain. With the above findings in mind, this presentation will focus on number of cognitive (e.g., listening/discussion activities) and behavioral (e.g., modeling/role play) strategies that can be used to facilitate the development of (a) comprehensive communication plan and the implementation of training programs to increase knowledge and skills of working in a multidisciplinary team and (b) increased interaction opportunities between different SMPs and SPCs. It is anticipated that with the utilization of the above mentioned strategies that SPCs will develop better working alliances with SMPs and as such, better access to athletes with injuries.

Relationship between psychological skills and batting order in cricket

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It is widely accepted that psychological skills are an important determinant of positional play in team sport (Thelwell et al., 2006; Andrew et al., 2007; Eloff et al., 2011). Pyke and Davis (2010) contended that cricketers should not only possess a fine blend of technical and physical attributes to fulfil specific roles in cricket but also salient psychological qualities. Therefore, the purpose of this study was to assess the relationship between psychological skills and batting order among cricket players competing in the one-day format of cricket. The sample consisted of South African A-side cricket players (N=127) from three distinct levels of competition ranging from amateur to professional. The participants were classified as follows: top order (N=58), middle order (N=40), lower middle order (N=20) and lower order (N=9) batsmen. A cross-sectional survey design was used to assess the players' psychological skills by means of the Athletic Coping Skills Inventory-28 (Smith et al., 1995) and Bull's Mental Skills Questionnaire (Bull et al., 1996). One-way analysis of variance (one-way ANOVA) indicated that lower-order (batting at 10-11) batsmen recorded higher coachability scores ($F=2.723$; $p=0.047$) than other batting-order groups. Motivation ($F=2.500$; $p=0.06$) was the only psychological skill that separated top-order (batting at 1-4) batsmen from lower-order (batting at 10-11) batsmen ($p<0.10$). It was concluded that there is no particular psychological skills profile for classifying batsmen into batting order and that the skill of batting in one-day cricket could largely be dependent on a combination of other perceptual motor, physical, and technical qualities. Future research should explore the exposure and extent of psychological skills training among South African cricket players, as well as determine the psychological skills differences in the batting order of homogenous groups to generate a broader understanding of the relationship between psychological skills and batting performance in one-day cricket.

Mental toughness and competition stress in cricketers

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The present research aimed to investigate relationship between mental toughness and competition stress among cricketers. It was hypothesized (a) there is negative relationship between mental toughness (reboundability, ability to handle pressure, concentration, confidence and motivation) and competition stress (b) There is main effect of playing levels (NCA, National and International) and different playing positions (opener, middle order, all-rounder and bowler) on mental toughness and competition stress among cricketers and (c) There are interaction effects of playing levels (NCA, National and International) and different playing positions (opener, middle order, all-rounder and bowler) for mental toughness and competition stress among cricketers. A correlational research design was used. The sample comprised of (N=60) National Cricket Academy (NCA) cricketers, national and international cricket players. For assessment purposes, mental toughness questionnaire (Goldberg, 2012) and sports competition anxiety test (Martens, 1990) were used. Pearson product moment correlation and two way analysis of variance were performed to analyze the data. Results revealed that there was non-significant relationship between mental toughness and competition stress among cricketers. Results further showed that National players have higher level of re-bound-ability than that of international players. It was also revealed that middle order players and all-rounder's have ability to handle pressure during match than that of openers and bowlers. This research would be helpful for Pakistan Cricket Board and National Cricket Academy to initiate mental toughness training programs for cricketers to enhance their performance by eliminating negativity in their minds and educational courses for academy players to improve players' psychological abilities during field along with physical fitness. Further implications along with limitations and suggestions are being discussed.

Mental FITness: A theoretical model for performance excellence

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At times sport psychology has been criticized for promoting interventions that lack firm theoretical grounding or the "why" behind the intervention (Martindale & Collins, 2010). Recently, efforts have been accumulating in the literature attempting to better ground the practice of sport psychology in scientific concepts and empirical theories (e.g., Aoyagi, 2013; Aoyagi & Poczwardowski, 2011, 2012; Henriksen & Diment, 2011; Keegan, 2010). Building upon these contributions, this poster will present a theoretically derived sport psychology service delivery model for performance excellence. The model has been named "Mental FITness" due to the central components of Focus, Inspiration, and Trust. Within Mental FITness focus has a broad meaning encompassing confidence, poise, composure, present moment awareness, mindfulness, resiliency, flexible thinking, and concentration (McGuire, 2012). It is no coincidence that focus appears in many of the leading practitioners approaches to performance excellence (Aoyagi & Poczwardowski, 2012) and is at the hub of Orlick's Wheel of Excellence (Orlick, 2012). Inspiration addresses the "How?" and the "Why?" of performance (Haberl, 2012). Inspiration unites the core values of a person and the chosen purpose and meaning of his or her life. When this is achieved, "(values) permit actions to be coordinated and directed over long time frames" (Hayes, Strosahl, & Wilson, 1999, p. 206). Connecting the pursuit of excellence to the inspiration for life provides the motivation, energy, and commitment required for performance excellence. Trust is perhaps the most simple and straightforward aspect of Mental FITness, yet in many ways it is the most difficult and elusive to achieve. Central to the teaching and learning of trust is the foundational work of Moore and Stevenson (1991, 1994) and the more recent understandings of implicit motor learning (Button, MacMahon, & Masters, 2011). Handouts and discussion will elaborate the utilization of Mental FITness for performance excellence.

Personal religion, daily exercise, competitive sports: learning from Protestant high school students in the United States

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Studies have demonstrated the importance of personal religion to substance abstinence and mental and physical health (Hill, Spilka, & Hood, 2015; Ji, Perry, & Clarke-Pine, 2011), yet the ways in which it affects adolescent engagement in daily exercise and competitive sports have been overlooked. This study fills this research void by examining the role of religion in personal endorsement of daily exercise and competitive sports. An expectation is that personal religion is a predictor of adolescent engagement in sports and daily exercise. The participants are 10,200 6th-12th grade students who enroll a large Protestant K-12 school system in the United States. For the survey, during the 2011 school year, a sample of about 30% of 1,050 schools affiliated with the church was chosen by a stratified-random method which ensured proportional representation of school type, size, and geographical location. Of the 396 survey items measuring various aspects of family, school, church, and life-style, this study utilized 48 items related to religiosity, exercise, and competitive sports along with demographic attributes. The analyses indicate that those with high conventional religiosity (intrinsic religious orientation, doctrinal orthodoxy, and vertical faith maturity) tend to posit that their bodies are the temple of God, which in turn translates into the elevated endorsement of daily exercise. Personal religion, however, has mixed effects on individual approval of competitive sports: doctrinal orthodoxy and intrinsic religiosity are positively and negatively linked with personal interest in competitive sports, respectively. Further, daily exercise significantly improves individual interest in competitive sports. As a whole, conventional religiosity has significant influence on attitudes toward daily exercise and competitive sports via their ratification of the Christian tenet that human bodies are the temple of God and they are responsible for its care.

The effects of mental imagery on self-efficacy and maximal front squat ability

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The beneficial use of mental imagery in sport is well documented (e.g. Weinberg, 2008), however the application of mental imagery during weight training has not been studied in great depth. Given the prevalence and importance of strength training programs for athletic performance, providing a method of increasing the load lifted during training seems valuable. This study was designed to assess the effectiveness of a mental imagery intervention on front squat self-efficacy and strength (three repetition maximum; 3 RM). Participants (13 male, 7 female) who had at least 6 months of weight lifting experience were assigned to either an experimental (n = 10) or a control (n = 10) group. Participants' 3 RM and self-efficacy for the 3 RM were measured at baseline. Following this, participants in the experimental group followed a structured imagery protocol twice a day for three days. The imagery protocol followed the PETTLEP model (Holmes & Collins, 2001), and incorporated video recordings of both the participant's own 3RM performance and a model lifter with excellent technique. Participants in the control group spent the same amount of time viewing an unrelated (placebo) video. Following three days with no physical training, measurements of front squat 3 RM and self-efficacy for the 3 RM were repeated. Participants in the experimental group showed greater 3RM improvement (Mean difference = 8.5lbs; p = .001) than those in the control group (Mean difference = 2.5lbs, p = .30). A similar pattern was evident for self-efficacy; participants in the experimental group showed an 8% increase in self-efficacy following the intervention (p = .001), while the control group did not (p = .24). These findings point to the importance of mental skills training for the enhancement of front squat performance and self-efficacy.

The influence of perceptual movement effects on the priming of complex actions

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The learned association between a movement and its perceptual consequences is considered vital for the initiation and control of movement. Recent research demonstrates that the anticipation of these perceptual effects can help cue the associated motor response (Elsner & Hommel, 2001). Given that the research to date has largely examined relatively simple motor actions, the purpose of the present study was to determine whether perceptual effects associated with a complex motor action during learning could later be used to cue and facilitate performance of that task. Specifically, 30 participants practiced tossing a ball to a short and long target (n = 360 tosses to each target) while blindfolded. Successful tosses landing within proximity of the target produced a unique audible feedback tone for each target distance (high and low pitch tone). Following the practice phase, participants then performed a test phase in which the auditory tones were used as an imperative stimulus to indicate which target the participant should toss the ball to. Participants performed the test phase under three test conditions. In the corresponding condition, participants were instructed to toss the ball to the target associated with the sound during learning. In the non-corresponding condition, participants were instructed to toss the ball to the opposite target associated with the sound during learning. Finally, in a control condition, participants were verbally instructed to toss the ball to either the near or far target ("Target 1" or "Target 2"). Results indicated that participants were significantly more accurate when primed with the auditory tones associated with the tossing task during learning compared to the verbal instructions of the control condition. Furthermore, performance was not significantly different between the corresponding and non-corresponding priming conditions. This finding suggests that action effects largely prime general motor programs rather than parameter specific qualities of the program.

Improvement in students' effective engagement in physical education lessons via a teacher education training program

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Sixty minutes of moderate to vigorous intensity of physical activity (MVPA) everyday are needed to achieve health benefits (Janssen & LeBlanc, 2010). Physical Education (PE) is an important setting to reach this PA level in youth. However, few primary school teachers feel able to teach this subject and to improve their students' MVPA. Thus, this study investigated whether a teacher education training program (TETP) grounded on Self-Determination Theory (SDT), could help primary school teachers to modify their motivating style and to increase their students' physical activity (PA) in PE. Nineteen teachers (59% female) divided in treatment condition (TC) and control condition (CC) and their 339 students (52.5% girls; Mage= 9.28) from 16 schools participated to this study. During a school year, TC received four sessions (three hours each) of TETP presenting the basic tenets of SDT, including the different types of students' motivation, the different teachers' motivating styles, and their effects on students' engagement. Based on this theoretical presentation teachers had to plan a part of their future PE lesson (e.g., warm-up, learning task), and the experimenter provided help when needed. To test the effects of TETP, all teachers were observed four times, teaching same sports, via an observational rating system and their students wore accelerometers to assess PA during their observed PE class. Results from these objective measures showed (1) no difference between experimental conditions in every motivating style dimensions but one: teachers in TC were less hostile than those in CC, but (2) a significant positive effect on students' PA (e.g., in TC energy expenditure and vigorous PA increased more than in CC). This study is the first one to provide primary school teachers with a PE TETP grounded in SDT. Results about improvement of students' PA seem promising. Further research is needed to refine the TETP.

An experimental study of self-talk using in basketball shooting

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Self-talk is one of mental skills training method, which refers to the individual to speak with their own, sometimes loudly, sometimes silently in the heart. Self-talk is one of the cognitive control skills, it will affect the individual's thoughts and behaviors. Self-talk, depending on the context of sports and sports situation have different categories. This study divided self-talk into instructional self-talk and motivational self-talk, using experimental study to explore the impact of these two different self-talk on basketball shooting rate. This study based on two hypothesis: (1) The instructional self-talk and motivational self-talk both can improve basketball shooting; (2) The instructional self-talk compared with motivated self-talk, can significantly improve the basketball shooting. Subjects in this study were a youth basketball camp participants, with an average age of (10 ± 2.1) years old, male. They were randomly divided into instructional self-talk group, motivational self-talk group and the control group (n = 32 each). The basketball shooting level of the three group students is equal. These three group participants underwent two weeks of basketball programs, and at the same time, instructional self-talk group and motivational self-talk group were treated, respectively, with guiding motivational self-talk and self-talk guidance language courses. Two weeks before the start and after the end of the course, the three group participants had accepted twice measurement of basketball shooting. ANCOVA analyses revealed that there was not a statistical difference between the three groups, but from the basketball shooting scores after the experiment and the coach's technical evaluation, the instructional self-talk group made more progress in basketball shooting than motivated self-talk group and control group after the experiment. Instructional self-talk compared with motivated self-talk, can improve the basketball shooting more.

Persistent deficits in stimulus engagement and response evaluation in collegiate athletes with a history of concussion

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Understanding the neuropathological underpinnings of concussion is critical for aiding the diagnosis, prognosis, and remediation of concussive injuries. Electro-encephalography (EEG), and event-related potentials (ERPs) in particular have emerged as a valuable tool for detecting and understanding the functional significance of concussion-related neurophysiological alterations. Accordingly, this investigation examined the long-term influence of concussion on neurophysiological function in collegiate athletes. Sixty-six collegiate athletes (40 history of concussion; 26 controls) underwent psychophysiological testing. All participants were asymptomatic at the time of testing and those with a concussion history were nine+ months removed from injury (m=18.1 months; ± 5.6). Participants completed a three-stimulus visual discrimination (oddball) task, while behavioral responses and neuroelectric activity was recorded. On the behavioral level, athletes with a history of concussion exhibited an increased number of commission errors during target detection, suggesting that concussion history negatively relates to visual discrimination ($p = .01$). On the neuroelectric level, athletes with a history of concussion exhibited decreased P3b amplitude during target detection ($p < .05$), replicating the robust finding of reduced attentional resource allocation in athletes with a concussion history. Furthermore, athletes with a history of concussion exhibited decreased ERN and Pe amplitude during response evaluation (p's $< .05$), suggesting that concussion may persistently alter the neural resources underlying action monitoring and the conscious awareness of errors. Lastly, the number of prior concussions was inversely correlated with ERP component amplitude ($r2$'s $\geq .4$), indicating that alterations in neurophysiological function systematically vary with number of prior injuries. In sum, collegiate athletes who were nine+ months from their last injury still exhibited persistent deficits during both stimulus engagement (visual discrimination, attention) and response evaluation (action monitoring, error awareness). Thus, even athletes who are asymptomatic and presumed to be healed may present persistent deficits and these deficits appear to be accumulative.

Does defense win championships? A historical study of the National Basketball Association and the National Football League

Mark Philip Otten, Travis James Miller
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Explicitly monitoring one's own actions has been noted as detrimental to the performance of fine motor skills (e.g., shooting a basketball) under duress (Beilock & Carr, 2001). Meanwhile, less has been done to study the impact of pressure on skill execution in basketball. Concurrently, with rare exceptions (e.g., Goldschmied, Nankin & Cafri, 2010), American football performance under pressure has never been studied empirically. Via archival work, Otten and Barrett (2013) found that offensive skills in baseball (hitting) were generally more likely than defensive skills (pitching) to be disrupted under pressure. Thus, for the current study it was hypothesized that defensive skills in both basketball and football would be less susceptible to pressure-induced outcome variability, as represented by stronger correlations across regular season (generally – but not unanimously – thought to be of less pressure; see Otten and Barrett, 2013) and postseason (more pressure) games. An archival design was implemented; 64 years of team- and individual-level data were compiled from the National Basketball Association (NBA), and 49 years of similar records were collected from the National Football League (NFL). For basketball teams ($n = 778$), regular season offensive and defensive statistics correlated with postseason success at approximately equal strength. For individual basketball players with at least 100 minutes played in the postseason ($n = 5132$), three-point shooting percentage was least-correlated from season to postseason, suggesting it to be especially susceptible to pressure-related variability. For professional football teams ($n = 503$), both offensive and defensive success

during the season correlated significantly with postseason winning percentage. The impact on results of changes in NBA and NFL style of play and format over time are discussed within. Meanwhile, the data suggests that a balanced basketball or football team, one that focuses on both offense and defense, may be most successful under pressure.

The role of athletic activity over youth in developing internal resources for developing perceived self-control

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The self-chosen academic activity over youth, when obligatory academic studies are the major life task, creates a unique real–life situation for developing the individual's perceived self-control. The latter is a valuable personality resource, since, as it was demonstrated in the latest studies of the personality psychologists (Baumeister et al.,2007; Sripada, Kessler & Jonides, 2014) and their replications (Hagger & Chatzisarantis,2014), there exists the effect of the so-called ego-depletion (i.e. a decrease of the perceived self-control) when several tasks are performed by the individual either consecutively or simultaneously. The objective of this study was to demonstrate that the perceived self-control can be developed thanks to the simultaneous pursuing of the academic and athletic activities. A sample of 109 students (55 girls and 54 boys), aged 16 to 18 (mean age 16.8), recruited from a secondary college of physical education, was clustered (K-means algorithm) into two opposite groups on the variables of the academic achievements (assessed in terms of the general point average) and the athletic achievements (measured in terms of the best results shown in the similar kinds of sports). The participants of the opposite clusters appeared to differ statistically significantly (by t-test) on the following personality variables: Hardiness (Maddi & Kobasa,1984), represented by the scales of commitment, control and challenge, and Proneness to the Dispositional Self-Evolution, manifested by levels of development of mechanisms, needs and condition for self-growth (Kusikova, 2012). A statistically significant difference was also found on the level of the Mental Health Continuum, denoting the frequency of experiencing subjective, social and psychological well-being (Keyes, 2006). The results of the research demonstrate the importance of stimulating athletic activities in the course of knowledge acquisition over youth as a factor of personality development, moreover, it enhances mental health of the young people.

Reconsidering the process of 'Kotsu' acquisition in athletes through Zen Buddhism`s "Ten Oxherding Pictures"

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An analysis of the Ten Oxherding Pictures of Zen Buddism helped us to examine the validity of and add new meanings to the 'Model of the Kotsu Acquisition Process in Athletes" (Asano & Nakagomi, 2014). The authors have defined the Japanese term 'Kotsu' as applied to sport in the following way: the state of subjectively determined mastery and internalization of the key points, both physical and strategic, which enable an athlete to smoothly perform in his or her sport. The training process leading to the acquisition of 'Kotsu' in each sport involves not only performance enhancement (behavioral change), but also personality development (intra-psychic change). The Oxherding Pictures, which evolved in East Asia as a way of illustrating the developmental process of Zen training, can help shed light in a Jungian sense, on the process of human psychological development (but are not considered here for use as mental training tool). While the developmental processes of 'Kotsu' acquisition in athletes and the attainment of enlightenment in Zen training are different, they share certain elements, especially in terms of the coping styles with which goals are achieved. Semi-structured interview focusing on the 'Kotsu' acquisition process were conducted with three top athletes, and their interview records were analyzed. It can be seen that the psychological changes expressed in the Oxherding pictures Nos.1 through 7 largely correspond to the

process of athlete individuation connected with 'Kotsu' acquisition. These psychological changes: cultivation of autonomy, self-actualization in competitive environments and the building of a foundation for future challenges, have been identified with 'Kotsu' acquisition in our previous research. It is also shown how the Oxherding Pictures provide further clues to an understanding of the psychological meanings of internalization in 'Kotsu' acquisition, and how athletes cope with the task of 'Kotsu' acquisition for performance enhancement.

Comparative study of emotional intelligence among shooters

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Emotional intelligence has gained immense attention in all branches of psychology and researchers have been striving to develop techniques, strategies and interventions that can enhance emotional intelligence in general and in sports. The exposure to sports activities has also been found evident to develop such skills among sportspersons. Sports such as shooting which requires great mental abilities and psychological health might also emerge as an intervention in itself to enhance and develop emotional intelligence among shooters. The present investigation aims to study the comparative differences on emotional intelligence among beginners and established rifle and pistol shooters. The level of exposure to positive and negative emotions among the groups is highly varied. This study shall help to provide insight into the developmental aspects of emotional intelligence among sportspersons ranging from a beginner to an advanced level. The standardised scale of emotional intelligence was used on 10 beginner and 10 established shooters. Results will be discussed in light with the findings.

A study of teenagers' athlete–coach relationship, peer relationship and training satisfaction

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The recent study investigated the peer relationships of teenager's athletes to their coaches. As methods, interviewing technique, test methods, and other like CART-Q and SFQS-C were applied. This study shall give further insights for future implementation of interpersonal communication, conflict resolution studies of psychological interventions in sports teams provide packet filtering indicators and providing an empirical basis for future psychological intervention curriculum. For improving sports team relationships. The results showed that, generally, the young athletes have a good coach - athlete relationship. When further dividing the coach - athlete relationship into the three types of "excellent type", "good type" and "general type", by majority (49%) the "good type" was revealed. The discriminant formula for young athletes' coach - athlete relationship are Y1=2.28A＋2.28B＋1.31C－21.08 and Y2=-0.82A－2.36B＋3.37C－0.65. Also the peer relationships of the young athletes in the mid to upper level were divided into the three types of "excellent type", "good type" and "general type". As for the coach-athlete relationship, in majority (58%) those relationships were classified as the "good type". The discriminant formula for young athletes' peer relationship are Y1=0.310A＋0.81B＋1.05C＋0.967D－0.81E＋0.79F－19.19 and Y2=0.321A－1.49B＋1.48C＋0.18D－0.75E＋0.14F＋0.87. When turning to the athletes satisfaction level, the training satisfaction scores of male adolescent athletes was higher when compared to the female young athletes. Furthermore, significant positive correlations were found between the young people training satisfaction and the coach - athlete relationship as well as with the peer relationships. In sum, the coach - athlete relationship and the peer relationships can effectively predict the young athletes' training satisfaction.

Effect of psychophysiological workshop on physiological coherence, sense of coherence, zone, mood and resilience perceptions

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This study was motivated by research questions as to the effectiveness of training psychophysiological coherence, which refers to a state of synchronisation between positive emotions, cardiovascular, respiratory, immune and nervous systems. Characterised by a heart rhythm, sine wave pattern in low frequency heart rate variability, it is experienced as a state of relaxed alertness and/or "being in the zone" (Edwards, 2014). In view of reported effectiveness (McCraty, Atkinson, Tomasino, & Bradley, 2009), the research hypothesis was advanced that a psychophysiological coherence training workshop would be associated with significant increases on dependent variables of physiological coherence, sense of coherence, zone, mood and resilience perceptions, both within an experimental group and as compared with a matched control group of university student athletes. The quasi-experimental design employed mixed quantitative and qualitative research methods. The two hour workshop involved instruction and techniques for improving psychophysiological coherence. Ten participants practiced a synchronised breathing rate of 6 breaths cycles per minute, before cultivation of various experiences associated with the abovementioned dependent variables. Workshop participants were pre-tested and post-tested on physiological coherence as measured on an emWave2 apparatus as well as standardised psychometric measures of sense of coherence, zone, mood and resilience perceptions. Participants were matched for age and gender with 10 control group persons, who were pre-tested and post-tested before and after their usual two hour psychology lecture on the same standardised psychometric measures as the experimental group. Non-parametric Wilcoxon statistical analysis revealed significant workshop, within group, pre-test to post-test, increases for physiological coherence, sense of coherence, zone and mood, with improvement in resilience perceptions also evident. Workshop and control between group results were significant for sense of coherence, with zone, mood and resilience effects also in the expected direction. Thematic content analysis of participants' experiences supported the quantitative results. Recommendations for future interventions are discussed.

Choices regarding feedback enhance motor learning in older adults

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Providing learners with the opportunity to choose over certain aspects of the practice context, as for example the amount of practice, model observation, and augmented feedback, has been consistently shown to facilitate the acquisition of motor skills in several populations. However, studies investigating the effects of the provision of autonomy support during the learning process of older adults remain scarce. The purpose of the present study was to investigate the effects of self-controlled feedback on motor learning in older adults. Participants were divided into two groups: choice and yoked control. They performed 36 trials of practice in a linear positioning task. Before each block of six trials, participants from the choice group were allowed the choice to control, or not, when to receive feedback in the block. Yoked group participants received feedback following the same schedule as their choice group counterparts, without the chance to choose. Two days later participants of both groups performed retention and transfer tests. The choice group demonstrated higher learning of the task compared with the yoked group. The findings indicate that giving choices on the provision of feedback can support older adults' needs of autonomy. This, in turn, benefited their motor learning process. We suggest that professionals involved in teaching-learning contexts use these kinds of arrangements for older adults, in order to optimize learning.

Contextual interference effects in good or poor trials

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The aim of this study was to investigate the effect of contextual interference and motivational properties of Knowledge of Result (KR) in learning on relative and absolute timing. Participants were randomly assigned to one of four practice groups, which differed in practice structure on contextual interference (blocked, random) and KR on motivational properties (good trial, poor trial). They performed temporal timing tasks in the pre-exercise and acquisition phase and they went through a retention test and 2 transfer tests after approximately 24 hours. Temporal timing tasks were that participants press the J and F keys on the keyboard to produce the goal pattern. The results showed that there were no significant differences of relative timing error or absolute timing error at the pre-exercise phase, but significant differences on blocks at the acquisition phase. Two timing errors were decreased overall at the acquisition phase. A result at retention test indicated that there was a significant learning effect of absolute timing between KR_good group and KR_poor group on blocked practice. Random practice schedule and KR_good condition resulted in an enhanced absolute timing performance in comparison to blocked practice and KR_poor respectively at transfer test 1. Additionally, there was a significant learning effect of absolute timing between KR_good group and KR_poor group on blocked practice at the transfer test. KR_good condition could be a useful learning strategy for relative timing in comparison to KR_poor on a blocked practice schedule in effector transfer (transfer test 2). Also, KR-good condition resulted in learning superiority to KR_poor group on a blocked practice schedule. However, there was no significant difference between the two conditions of random practice. Thus, the results suggest that KR on good trial in the blocked practice produces an added effect on learning of relative and absolute timings, but it does not influence in the random practice.

Effects of different motor learning instructions on motor skill acquisition: A pilot study of rope skipping training for children

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Research in motor learning suggests that provision of analogy instructions can induce stable motor performance in difficult situations, such as those that involve psychological stress or secondary tasks (e.g., Liao & Masters, 2001; Poolton, Masters, & Maxwell, 2006, 2007). Limited research has been conducted to test this proposition in children. The purpose of this pilot study was to explore the use of an analogy-assisted instruction protocol compared to explicit instructions on children's rope skipping training. A group of four experienced physical education teachers were invited for a focus group interview to (a) design explicit and analogy-assisted instruction protocols that best describe the rope skipping skill, and (b) identify key assessment criteria to evaluate performance outcomes. Twelve children (5 boys and 7 girls) 5 to 6 years of age were recruited and were randomly assigned to one of the two instruction protocols for 3 training sessions. Results revealed that children in the analogy-assisted instruction group gained significant improvements earlier than those in the explicit instruction group, indicating analogy-assisted instruction may be more effective for promoting early improvement in performance. Moreover, a transfer test with a concurrent secondary cognitive task (counting backward in 2's) further indicated that children in the analogy-assisted instruction group performed more effectively with a higher number of successful jumps, while those from the explicit instruction group displayed decrements in performance. However, both groups showed no significant difference in movement form. These results suggest that analogy-assisted instructions may be used to aid children when acquiring complex motor skills, with potential benefits related to reduced cognitive processing requirements (effective dual-task performance). The findings provide the basis for further research that will examine the effectiveness of analogy-assisted instruction for complex motor skills in children.

An applied sport psychology programme at an elite sport academy in the state of Qatar

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Many sport academies around the world are providing sport science services in order to enhance the performance of youth athletes. From a purely applied perspective, this paper aims at describing the sport psychology support that is delivered at ASPIRE Academy for Sports Excellence in Qatar. More specifically, we outline the programme designed for the athletics' squad, which is grounded on two major components: a) given that the athletes' ages range between 12 and 18 years, the focus is based on a developmental approach. Hence, two main stages are considered from a developmental sport psychology perspective; the first one is early adolescence (approximately between 12 and 14 years of age), and the second one middle adolescence (approximately between 15 and 18 years of age). This stage breakdown is relevant due its implications in, for example, differences in the athletes' coping strategies, perceptions of competence or motivation; b) the focus of the psychological skills programme is not only to enhance performance but to also develop the necessary skills to achieve excellence in life. The psychological skills training therefore encompasses well-established strategies such as goal setting, self-talk, imagery, relaxation or anxiety management, and also the development of psychological characteristics for achieving excellence (PCDEs). Thus, and beyond the well-known psychological skills, PCDEs foster the development of self-regulatory attitudes, emotions and goal directed behaviour. Altogether, the programme runs from September to July (including training camps twice a year), coinciding with the school and athletics yearly calendar, and takes an educational perspective which is respectful to the socio-cultural and religious practices of the Arabian Peninsula.

The relationships between mood and training effectiveness in the national finswimming team

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Researchers use the interdependence among biochemical and psychological factors for the precise evaluation of the effectiveness of training (Issurin, 2010; Collins & Mac Pherson, 2007; Coffey and Hawley, 2007). The aim of this paper is the attempt to assess the relationship between the profile of mood states (POMS) and the effectiveness of the training in the national finswimming team. The study was conducted on a 7-person group (3 women and 4 men) aged 17–28 years (the whole national team). The study was performed before and after 12 days of training camp. In order to determine the individual swimming speed for the AT (Anaerobic Threshold) training , the 8 x 200 m lactate test was performed. The results of the first test were used to determine the individual swimming speed in the AT. The results of the second lactate test were used to assess the effects of training (i.e. lactate concetration and swimming speed on the tested intensity levels). Before and after the camp the Profile of Mood States (POMS) was administered. First, the correlation among the profile of mood states, swimming speeds and lacate concetration in the first and second measurement was analyzed, then the analysis of the differences between the variables before and after the camp. The higher depression and tension results from the first measurement correlated negatively with the speed from both the first and second measurements and the lactate concentration from the first measurement. Vigor correlated positively with speed from the first and second measurements and also with greater lactate concentration from the first measurement.Two variables increased due to participation in the training camp: speed (t(6)=-5.303; p=.002; d=-2.00) and fatigue (t(6)=-3.163; p=.019; d=-1.20). Subsequently, the results of all swimmers were analyzed separately. Concluding, mood analysis is a useful indicator and its application supports the training process.

Transferability between virtual and real darts – A training study on throwing performance and quiet-eye behaviour with novices

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Wiemeyer and Schneider (2012) showed an improvement in basketball shooting in case of virtual and real training but took no account of the transferability. Aim of this study was to investigate whether virtual and real dart training enables the transfer of quiet-eye duration (QED in ms) and throwing accuracy (TA). TA was measured as the radial distance from the bullseye in both tasks. Participants (N = 38) were divided into three groups (virtual training, real training & control group) and conducted 15 throws on a real and virtual dartboard during pre- and posttest. The training groups performed three training sessions with 50 throws each while the control group had no intervention. Results showed significant differences in TA for group, $F(2,35) = 3.46$, $p = .04$, $f = .44$, the real training group outperformed the control group. Additionally, we revealed significant differences for condition, $F(1,35) = 163.71$, $p < .01$, $f = 2.16$, TA was better in virtual throwing. The interaction of test and group was significant, $F(2,35) = 6.17$, $p < .01$, $f = .59$. The training groups increased TA, whereas the control group performed worse. Results showed a significantly increase between tests for QED, $F(1,26) = 10.63$, $p = .03$, $f = .64$. Significant differences for condition, $F(1,35) = 27.16$, $p < .01$, $f = .92$, and a significant interaction of test and condition, $F(2,35) = 4.17$, $p = .05$, $f = .36$, were revealed. QED was longer and more enhanced in virtual throwing. Our results showed the efficiency of both interventions. A slight difference in training effects between groups was noticed in TA, thus transferability can be concluded. No precise transfer in QED could be explained which a higher QED in virtual throwing and might be related to a presented cross-hair in the virtual game which influenced the QED.

An exploration of cricket batsmen's visual search strategies while batting against spin, medium paced, and fast paced bowling.

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It's well established that a player's ability to use advance cues is particularly important in fast ball sports (Savelsbergh, Williams, Van Der Kamp, & Ward, 2002). Occlusion studies (Müller, Abernethy, & Farrow, 2006) have revealed a clear relationship between anticipation and skill level within cricket batting. This suggests that skilled players are able to pick up and utilise advance (pre-delivery) visual cues more effectively than lesser skilled players. Previous research utilising eye-tracking equipment within cricket has failed to acknowledge the importance of pre-delivery information. The only studies that have utilised eye-tracking technology within cricket have all used ball projection machines. Also, previous research has only focused on slow paced bowling. The current study is the first to utilise specialised eye-tracking equipment to investigate pre-delivery visual search strategies of cricket batsmen when facing bowlers of varying speeds. Participants were 8 amateur cricketers who play both club and varsity 1st XI cricket. Participants were presented with video footage of bowlers of varying speeds and bowling styles. This included conventional off spin bowling (72-88 km/h), medium pace bowling (120-128 km/h) and fast paced bowling (137-145 km/h). The participants' fixations, saccades and saccade sequences were analysed manually frame-by-frame, using the SR Research DataViewer software. The results provided the first insight into what batsmen fixated on in order to gather crucial pre-delivery information, the visual search strategies batsmen used when viewing different bowlers, and the way that batsmen tracked the ball during its flight. Results suggested batsmen (when viewing video clips) use individual visual search strategies to acquire pre-delivery information, ranging from purely fixating on the ball, to watching the bowlers legs, hips, shoulders, head and ball. All batsmen used a predictive saccade in order to predict where the ball will pitch, even when the ball was slow enough to track.

The relationship of self conflict and leadership styles from the interpersonal relations in school athletic club coaches

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The purpose of this study was twofold. First, we identified leadership styles of coaches coming from the relationship between coaches and athletes. Second, we investigated the relationship between self conflict and the leadership styles in school athletic clubs. This study is significant because there is little research examining coaches' self conflict coming from attitudes toward athletes. The participants were 400 coaches in high school athletic clubs, who completed a questionnaire that included scales designed to measure the frequency of distress in conflict situations (Kotani & Nakagomi, 2008), the "individual versus relational" self conflict (Tani, 1997), and the interpersonal relations between coaches and athletes (Takai, 1999). From a cluster analysis, it was identified the following five patterns of the leadership styles of interpersonal relations among the subjects: "a cooperative style," "a defensive-autocratic style," "a democratic style," "a receptive style," and "an autocratic style." Cooperative coaches try to make their favorite atmosphere depending on athletes. Defensive-autocratic coaches respect their one's opinions, in order to protect themselves from distress. Democratic coaches allow and encourage input from athletes at the same they respect their one's opinions. Receptive coaches show a positive attitude toward their true selves, and accept requests of athletes and their own weakness. Autocratic coaches make all the decisions and exert authority over athletes. Additionally, differences between the leadership-styles were analyzed by one-way analysis of variance (ANOVA). The main results are as follows. 1) In regards to the frequency of the distress, "a cooperative style" and "a defensive-autocratic style" show the high value, and "a receptive style" shows the lowest value. 2) In regards to the individual versus relational self conflict, "a defensive-autocratic style" shows the highest value. These results indicated the following implication: in order to reduce self conflict, it is important to coach athletes with a receptive mind.

Walk it off: Walking to regulate negative affect

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The effectiveness of walking as an emotion regulation strategy was explored in the current study. The purpose of the study was to determine the impact of a 10-minute brisk walk on the affective state of young adults following the induction of negative affect. Knowledge from both the emotion regulation and exercise psychology literatures bridges the gap between these two disciplines in examining the impact of physical activity as a strategy to regulate emotions. The emotion regulation literature contributes a strong theoretical base about the conceptualization of affect and a rigorous experimental paradigm to test an emotion regulation strategy. Exercise psychology research provides empirical evidence to elucidate the mode, intensity, and duration for physical activity to have affective benefits. Eighty eight undergraduate students (28 M, 60 F) were randomly assigned to one of three intervention groups: a) a walk group (n=30), b) a cognitive distraction group (n=29), and c) a control group (n=29). Negative affect was induced using the Velten Mood Induction procedure (Velten, 1968) and valence and arousal of affect were measured by the Self Assessment Manikin (SAM; Lang, 1980). A 3 (group) by 3 (time) repeated measures ANCOVA was conducted for each of the primary dependent variables (SAM-V and SAM-A) with the baseline measure for each (SAM-V1 and SAM-A1) as the covariate. The results revealed that the walk group had significantly higher scores on arousal and valence of affect than the other groups (immediately) after the intervention. The findings suggest that if you feel a little upset, a short (10 minute) walk may help you feel better. Findings also have clinical implications when applying walking as an emotion regulation strategy to various populations.

Gender differences on flow states of recreational football players

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Flow is optimal psychological state in which people become completely immersed in an activity and their level of skill matches the challenge at hand (Csikszentmihalyi, 1990). As reported in previous studies, this optimal psychological state is positively or negatively affected by different variables such as gender, demands of sport settings. Thus, the purpose of this study was to examine the flow experiences of female and male recreational football players who compete in a sex-mixed football league and also investigate gender differences in flow state just after football matches. In this league, male and female players play in the same team together. Sixty female (Mage=29.18; Sd=5.04) and 69 male (Mage=29.69; Sd=5.08), totally 129 recreational football players (Mage=29.45; Sd=5.05) voluntarily participated in this study. Flow State Scale-2 (FSS-2) and Personal Information form were administered to the participants after football matches. Multivariate Analysis of Variance was conducted to test sex differences in flow state of recreational football players. MANOVA results revealed significant sex differences in flow state (Pillai's T= 0.32; $F(10, 118) = 5.64$; $p < 0.01$). Follow up univariate analysis indicated a significant difference in action-awareness merging, clear goals, unambiguous feedback, total concentration on the task at hand, sense of control and total flow state between male and female football players ($p < 0.01$). Males scored higher on flow state subscales and also total flow experiences than females. In conclusion, male dominated sport environment has a negative influence on the flow experience of female football players. This could be explained by the societal ideologies about the gender appropriateness of football for male not female.

Judokas and fencers compared for a mediational relation: Psychological characteristics - activity of athletes - effectiveness

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Judo and fencing, both combat sports, differ in many respects (e.g., contact with an opponent, use of a weapon, rules of the game). Hence, we can expect the differences in psychological determinants of activity and effectiveness of athletes. The aim of the study was to compare judokas and foil fencers for a mediational relation: psychological characteristics - activity of athletes - effectiveness of actions. Activity of athletes (i.e. their competition style) was measured in three categories: an offensive style, a varied style, and a planned style. Activity of athletes served to explain the relation between psychological characteristics and effectiveness of actions. The participants were 74 judokas and 69 foil fencers under 20.5 years of age (junior category). To evaluate athletes' activity the author administered his own questionnaire created to examine competition styles. The questionnaire was validated before the study (reliability; factorial, criterion, and discriminant validity). To determine athletes' psychological characteristics, the author employed EAS Temperament Questionnaire (Buss & Plomin, 1984), Big Five Personality Inventory (Costa & McCrae, 1985), Sports Motivation Scale Questionnaire (SMS; Pelletier, 1995), and Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda, 1989). Athletes' effectiveness was evaluated based on the national qualification lists. In judo the most important mediators were an offensive style and a planned style. High levels of these mediators were mainly related to a low level of fear, a high level of achievement motivation, a high level of intrinsic motivation. In foil fencing the most important mediators were a varied style and a planned style. Their high levels were mainly associated with a low level of neuroticism, a high level of intrinsic motivation. The results from the study may be useful in determining to what extent the activity of an athlete (related to their effectiveness) corresponds to their psychological characteristics.

Effect of exercise self-schema on reactions to fitness feedback

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For personality traits, studies have shown that self-schemata (cognitive representations of the self) moderate the processing of self-relevant feedback: People schematic in a specific domain prefer consistent over positive feedback in that domain (self-consistency), whereas people without schema (unschematics) prefer positive over consistent feedback (self-enhancement; Petersen et al., 2000). An online study could not replicate this result in the exercise domain (Ennigkeit & Hänsel, 2014). The present study tested the effect of exercise self-schema on affective and cognitive reactions to fitness-related feedback in a laboratory setting. We hypothesized that compared to the respective other group, exercise schematics would cognitively prefer consistent feedback, and unschematics would affectively prefer positive feedback. In a 2 (schematic vs. unschematic) x 3 (type of feedback: consistent with, deviating positively, deviating negatively from the subjects' own self-assessment) design, 215 university students (64.2 % male, Mage = 23.82, SD = 2.32) were randomly given a bogus fitness test result corresponding to one of the three feedback conditions. We used Weiner's (1985) affect scale (nine items, e.g., happy) to assess affective reaction, and nine items derived from Swann et al. (1987) to measure cognitive reaction (e.g., accuracy of feedback). For cognitive reaction, a significant interaction was found, $F(2, 208) = 10.18$, $p < .001$, $\eta p^2 = .089$, but contrary to expectations, unschematics preferred consistent over positive feedback. For affective reaction, we only found a significant main effect for type of feedback, $F(2,208) = 74.65$, $p < .001$, $\eta p^2 = .418$. Positive feedback was preferred regardless of exercise self-schema. Unexpected results for cognitive reaction could be explained by differences between exercise and personality feedback (desirability of maximum vs. optimum values; Stahlberg et al., 1997). Further research on processing of self-related fitness feedback, e.g., provided by instructors, may lead to a better understanding of the relationship between exercise and self-concept.

Is younger always better? The effects of age in performance of athletes in the FIFA World Cup finals

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In football, declining performance is often attributed to aging, but effects of age not fully understood. While some conventional theories indicate a degeneration of physiological performance factors, e.g. speed, agility (Wilmore, Costill, & Kenny, 2008), other findings revealed that older athletes score better in neuromuscular and psychological skills (Magill, 2010). Physiological factors are also affected by non-age related factors like training, lifestyle, or genetics (Porter, et al., 2002). The purpose of this study is to probe and isolate the effects of age on performance in World Cup. Performances of 1207 athletes (M age = 26.9, SD =3.78) who actively participated in World Cup 2010 and 2014 were observed. Analysis of covariance was employed to understand the interaction between age and performance based on FIFA's Castrol Performance Index. No significant correlation was found when age of players was compared with performance ($F(1,1180)= 1.31$, $p <.05$, $\eta2 = .024$;). However, a significant effect of age on the Castrol index was found after controlling for the effects of players' playing position, countries, zones, and experience, $F(22,1180) = 3.35$, $p <.05$, $\eta2 = .06$. The covariates, playing position $F(1,1180)= 33.05$, $p <.05$, $\eta2 = .027$; zones $F(1,1180)= 39,9$, $p <.05$, $\eta2 = .033$; experience, $F(1,1180)= 116.55$, $p <.05$, $\eta2 = .09$ were significantly related to the Castrol index. Our findings suggest that age per se does not explain performance at world cup. However, when variables such as experience, position, countries, and zones are taken into account, removing these variables attenuate the age effect. These findings reinforce the intricacy of the age effect in football. Therefore, until more conclusive findings are unveiled coaches should not assume that younger athletes are the

unequivocal superior options simply because of age. Further investigation of age effects on playing positions, countries, and zones should provide more insights.

Comparing 2D & 3D video technologies in eliciting anticipatory decisions and affective responses in tennis

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The 3- dimensional (3D) technology has become widely available over the last decade. However, research investigating the effects of 3D technology has been limited to non-sport domains (e.g. communications, advertising, and psychotherapy). The potential advantage of 3D over the 2D technology however, is unknown (Johnson, 2012; Kehr, 2010). In this study we compared the two technologies in eliciting anticipatory decisions along with affective responses in the game of tennis. The sample consisted of 60 (nFemale = 28) NCAA I varsity (n = 21) and recreational tennis players between the age of 18 and 24 (M = 20.47, SD = 2.00). Participants were randomized into three conditions: 3D, 2D, or 2D with glasses (placebo). In each condition, participants viewed a series of tennis serves from the position of the returner. The video scenarios were occluded at ball-racket contact. Participants were asked to anticipate and indicate as quickly and accurately as possible the ball's direction. Reaction time, response accuracy (RA), and perceived experiences of physical transportation, flow, and enjoyment were recorded. A 2 (Gender) × 2 (Skill-Level) × 3 (Viewing Condition) ANOVA was performed on each of the dependent variables. Results revealed a significant ($p < .003$) Skill-Level effect. Specifically, varsity players (M = 63.4%, SD = 7.87%) were more accurate than recreational players (M = 53.75%, SD = 13.04%). Although non-significant, yet still meaningful, participants' RA in the 2D condition was higher than in the other two conditions (M = 60.96% vs. M3D = 56.96%, MPlacebo = 57.81%). The findings indicate the 3D and 2D technologies produce similar anticipatory values, and thus are equally reliable in eliciting perceptual-cognitive results.

Why elite female basketball players in Slovenia terminate their sports careers so early?

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The aim of the study was to investigate characteristics of sports career termination (SCT) of Slovenian elite basketball players. Recently, we have been noticing that numerous elite female basketball players are ending their careers during transition from developmental to mastery stage or shortly afterwards. This is an acute problem in basketball as only scarce number of players continues to play at the elite level well into the adulthood (Cecić Erpič, 2013). The sample consisted of 40 former elite basketball players (19-24 yrs) who played in (semi-)professional clubs at the highest level. In order to differentiate age related SCT aspects, they were divided into two groups (SCT before 19, n=21; SCT after 20, n=19). Sports Career Termination Questionnaire-IIb (Cecić Erpič, 2002) was used to assess characteristics of SCT process (i.e., active sports career, SCT, transition to post-sports life, adaptation to post-sports life). One-way between subjects ANOVA showed that age of SCT has not significantly influenced any of measured SCT characteristics. Most players retired voluntarily, experiencing relatively easy and non-traumatic transition out of elite sport. Injuries, difficult relationships with coaches, commitment to the education, lack of motivation and opportunities outside of sport were among the most predominant antecedent factors. As female basketball is relatively unattractive sport in Slovenia, complex factors (which will be discussed) play important role in diminishing motivation of talented players and consequently contributing to their relatively early retirement from elite sport.

Focus group study of perceived barriers to and benefits of physical activity among sedentary young women in Japan

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Young women in Japan exhibit the lowest level of physical activity participation within the general population, but the reasons for this disparity are poorly understood. This qualitative study explores the perceptions of physical activity held by young women, who are a non-regular exercisers, through the use of focus groups. In the study, 21 Japanese young women (between the ages of 18–20), considered physically inactive, participated in three focus groups. These participants were recruited via purposive sampling, at a large women's university in west central Japan. Focus group topics included discussion of participants' daily physical activity, perceptions regarding barriers to and benefits of physical activity and regular exercise, and strategies for enhancing physical activity in Japanese universities. The focus group sessions were audio-recorded. A team of investigators subsequently transcribed the conversations, and coded data, in the interest of identifying key themes. Results from the study show that participants had similar perspectives about the barriers to and benefits of physical activity. Barriers included lack of time to exercise, lack of money, fear of being muscular, and a dislike of being tired. In contrast, participants acknowledged benefits of physical activity, including the reduction of stress, controlling of weight and the possibility of forming new relationships through exercising. The study demonstrates how psychological and social factors may influence physical activity behaviors among young, sedentary Japanese women. The researchers argue that the study's findings may contribute to guiding the development of physical activity interventions for such women in Japan.

Effective team communication in sport: a qualitative exploration

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Effective communication is a key to successful team functioning in sports. Based on social exchange theory, Sullivan and colleagues (Sullivan & Feltz, 2003; Sullivan & Short, 2011) have conceptualized effective communication in team sports as a four-multidimensional model (i. e., Acceptance, Distinctiveness, Positive Conflict, and Negative Conflict). According to DeVito (2012), communication contains a content component (the what) and a relational component (the how). Besides, Sullivan, Jowett, and Rhind (2014) defined communication as a "dynamic process by which a sender transmits a message through a medium to a receiver." However, all dimensions in Sullivan's model pertain to how teammates communicate to each other but not what is communicated. Moreover, these dimensions do not illustrate the effectiveness of communication. We argued that, for team communication to be effective, team members should be able to transmit adequate messages in appropriate ways. Therefore, the purpose of our study was to explore the concept of effective team communication from a more comprehensive perspective. Ten collegiate athletes were interviewed and data were analyzed via the principles of general inductive approach. Results showed that effective team communication contained three major components: relational, content, and competent. The relational component consisted of five global themes reflecting how teammates communicated to each other (Acceptance, Distinctiveness, Positive Conflict, Negative Conflict, and Empathy). The content component comprised five global themes reflecting what was communicated in a sport team (Technique, Strategy, Goal, Emotion, and Responsibility). The competent component contained four global themes reflecting team members' ability to send and receive messages effectively (Adaptation, Expressiveness, Attentiveness and Responsiveness). These results contribute to extend a more comprehensive understanding of effective team communication in sports and provide a potential starting point for further studies.

Staying alive: The meaning of a cardiac rehabilitation exercise group

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Exercise is considered to be a cornerstone intervention in cardiac rehabilitation, which is normally delivered through exercise groups run by clinical staff. Continued attendance at community exercise groups is therefore important in maintaining this lifestyle change (Clark, Mundy, Catto, & MacIntyre, 2010; Martin & Woods, 2012; Thow, Rafferty, & Kelly, 2008). The aim of this study was to explore what makes cardiac patients stay with an exercise group. Two focus groups were conducted with 25 cardiac rehabilitation exercise group participants (mean age = 61, SD = 10.42) from two exercise groups in England, the questions focused on what makes them return to the group and what they perceived to be benefits of the group exercise. Thematic analysis demonstrated that the structure of the exercise group was the main source why exercisers returned to the group, this included the six sub-themes social support, routine, progression, enjoyment, leadership skills, and health benefits. Confidence, survival, and getting back to normality were identified as perceived benefits of the exercise group. Participants felt that the exercise groups helped them getting back to normality and without the exercise groups they would not achieve the required exercise prescription. This study demonstrates the importance of exercise groups in the process of changing cardiac patients' lifestyle and getting them back to normality. The group environment appears to contribute to longer term adherence to community organised cardiac rehabilitation exercise, and group leaders could be educated on how to facilitate social support, progression, and they could help to increase group participants' confidence.

A qualitative study of thriving in elite athletes

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Sport performers are often challenged to produce high levels of performance under pressure (Jones, 1995; Lazarus, 2000). The ability to respond effectively to this demand is likely to dictate whether an individual thrives, manages, or succumbs in competition. To date, attempts to examine the most desirable of these responses, thriving, have involved applying non-sport models to the athletic domain with limited success (e.g., Jones, Dunn, Holt, Sullivan, & Bloom, 2011). This study sought to overcome this issue by exploring human thriving in elite sport from the perspective of athletes themselves and some of the individuals supporting them. To achieve this aim, a qualitative design was adopted whereby semi-structured, one-to-one interviews were conducted with national or international athletes (n = 5), coaches (n = 5), and sport psychology practitioners (n = 5). Transcripts were analyzed using an inductive thematic analysis. Twelve higher-order themes were identified, which were categorized into three dimensions: 'Characteristics of Thriving in Elite Athletes', 'Factors Influencing Thriving in Elite Athletes', and 'Outcomes of Thriving in Elite Athletes'. Characteristics of thriving included: having a desire to achieve, control over the situation, high level performance, enjoyment, and signs of growth and progression. The factors identified as influencing thriving were: preparation, a training mindset, a competition mindset, and the role of social agents. The outcomes of thriving were: realization of ability, momentum for future success, and impacted motivation. This study provides an important foundation for future inquiry into and enhancement of human thriving in sport. Specifically, the findings can give impetus to scholarly investigations of the identified matrix of variables and potential relationships between them which, together with the findings of this study, can create an evidence-base to informs athletes', coaches', and practitioners' in their quest to experience and facilitate human thriving in sport.

Age differences in game anticipation of young handball players

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Anticipation is the cognitive ability “to jump forward in the future as response to stimuli from the present” (Anokhin, 1962). Anticipation in sport is the ability of the athlete to make decisions and to act ahead of time (Surkov, 1982). This ability to foresee the development of the game situation (the highest 5th level of anticipation) is crucial for performance in handball games while at the same time methods for investigating and developing it are very scarce, mostly because anticipation is studied only on sensorimotor or perceptual levels. There is no data on the changes in game anticipation in different age periods. This is why the aim of the presented study was to identify age differences in the development of the game anticipation in young handball players (11-18 years old). Subjects were 121 handball players (92 males and 29 females). The method for measuring game anticipation (anticipation on thinking level) was a new video test (Varbanov, Tishinov, Zsheliaskova-Koynova, 2014), consisting of 41 video clips; the subjects predict the development of each handball situation choosing from 3 possible answers (only one of them is correct). The internal consistency of the test is good (α=0.86). One-way ANOVA (3 levels of the factor “age” for females, 4 levels for males) was applied. The handball players aged 11-12 demonstrated the best results in the group of males; then significant drop followed in the 13-14 years old group, significant improvement of game anticipation in 15-16 years old, and stabilization in the last group. There were no significant differences between the three age groups of females. The data suggests possible existence of sensitive period in the development of game anticipation between the ages of 11 and 12 years for boys, just before the onset of puberty. This hypothesis should be tested in future longitudinal study.

Physical activity, body composition and mental well-being of visually impaired and blind children in Germany

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It is a common belief that visually impaired and blind persons are restricted in their mobility because of their handicap (Bietz, 2002). This insufficiency hypothesis implies a negative effect on general physical and psychological health (Giese & Hildenbrandt, 2010). The study in question (N = 233) investigated whether visually impaired and blind students (n = 115) in specialized schools experience deficits in mobility, body composition and mental well-being. The methodology included various analytical processes such as a pedometer and a bio-electrical impedance analyzer to measure body composition, specifically fat and muscle mass. A questionnaire was also employed that featured the WHO Well-Being Index (WHO-5) for measuring positive mental outlook. The WHO index contains five items rated on a 6-point Likert scale relating to positive mood, vitality and general interest (WHO, 1998). All results were compared with a group of visually unimpaired children (n = 118) in regular schools. Analysis of mobility in everyday life confirmed comparable movement of visually impaired students to regular students. Also, none of the expected adaptations such as low muscle substance ratio and increased body fat percentages were found in the visually impaired children. The WHO index scores of the visually impaired children compared favorably with their unimpaired counterparts and the degree of visual impairment did not correlate significantly to ranges of mobility, body composition and mental well-being. These findings question the insufficiency hypothesis and effectively counteract the perception of the visually impaired as deficient. Visually impaired children are not to be underrated in terms of physical activity, body composition and mental well-being. Moreover, visually impaired children with high WHO scores had good body composition values. Results confirm a connection between body composition and mental well-being.

Analysing performance in a competitive event using a debriefing structure

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Competition analysis serves several important purposes: feedback obtained in an analysis gives insight on how to practice in the subsequent periods; it helps gain perspective and distance from one's performance; and thus helps the athlete calm down after the event (Gallucci, 2013). This is particularly important when an athlete has several performance opportunities in one competition, such as swimming, tennis, or in team sports (Cox, 2011). Intense emotions disrupt one's performance – this goes for both positive and negative emotions – sadness and despair as well as elation or satisfaction can lead to diminished performance (Weinberg & Gould, 2010). It is suggested that analysis should be done in the structure of the positive feedback structure – "positive, negative, and positive," but we rather suggest a "positive, negative, and question mark" structure (Kajtna & Jeromen, 2013). That is, start with what was good, then continue with what was bad, and conclude with instructions for future performance. Sometimes, when the competition has been a great disappointment, we suggest structuring the analysis in the same way as debriefings in a crisis intervention setting (Roberts, 2005) – where a seriously flawed performance is often perceived as a crisis situation. The structure then starts at the cognitive level, proceeds to the emotional part, and then returns to the cognitive (Collins & Collins, 2004). We start with an introduction, present the facts, continue with the athlete's thoughts, ask for emotional reactions, then continue with symptoms and education, and conclude with re-entry. This structure can also be adapted to each particular sport setting and event, but can prove to be extremely helpful when helping an athlete deal with underperformance. It can be used for example with a swimmer who swam poorly in one event, but needs to perform again the next day in another.

Determination of sport participation motivation of young athletes from different sports

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Koivula(1999) stated the benefits of doing regular exercise on both physical and psychological aspects. In addition to this, regular participation to sport has similar impacts on health, psychological well-weing, cognitive stress and decrease in level of anxiety. Besides, keeping continuity and success in sport, motivation plays a key role (Tiryaki, 2000). Deci and Ryan's (1985) self-determination theory explains the importance of motivation in participation to sport.The aim of this research was to determine sports participation motivation of athletes aged 12-16 according to sports type. 409 male (67.7%) and 195 female (32.3%), as a total of 604 athletes (M_age=13.95±1.41, X_sport experience)=3.49±2.30) voluntarily participated to the research. Athletes completed Participation Motivation Questionnaire (Gill, Gross & Huddleston, 1983). The data was analysed by descriptive statistics and MANOVA. Tukey was used as a post hoc analyse. Level of significance was determined to be 0.05. According to the results, it was seen that sport participation motivation of the athletes differs according to sport type F (40, 2578,00) = 3,425, p = ,000; Wilks' λ = ,798; Partial η2= ,044. Analysing the results for each dependent variable showed that there was a significant difference in team affiliation F(5, 598) = 10,742, p = ,000, Partial η2 = ,082; fitness/energy release F(5, 598) = 4,204, p = ,001, Partial η2 = ,034; enjoyment F(5, 598) = 3,855, p = ,002, Partial η2 = ,031; friendship F(5, 598) = 2,567, p = ,026, Partial η2 = ,021; and competition F(5, 598) = 4,040, p = ,001, Partial η2 = ,033 according to sport type. The results of this research reveal the motivational features of young athletes from different sports. The results of this research reveal the motivational features of young athletes from different sports.

Effects of (un)predictable whole body vibrations on visual performance

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Over recent years, it has repeatedly been shown that optimal gaze strategies enhance motor control (e.g., Foulsham, 2015). However, little is known, whether, vice versa, visual performance can be improved by optimized motor control. Consequently, in two studies, we investigated visual performance as a function of motor control strategies and task parameters, respectively. In Experiment 1, 72 participants were tested on visual acuity (Landolt) and contrast sensitivity (Grating), while standing in two different postures (upright vs. squat) on a ZEPTOR-platform that vibrated at four different frequencies (0, 4, 8, 12 Hz). After each test, perceived exertion (Borg) was assessed. Significant interactions were revealed for both tests, Landolt: $F(3,213)=13.25$, $p<.01$, $\eta p2=.16$, Grating: $F(3,213)=4.27$, $p<.01$, $\eta p2=.06$, elucidating a larger loss of acuity/contrast sensitivity with increasing frequencies for the upright compared with the squat posture. For perceived exertion, however, a diametrical interaction for frequency was found for acuity, $F(3,213)=7.45$, $p<.01$, $\eta p2=.09$, and contrast sensitivity, $F(3,213)=7.08$, $p < .01$, $\eta p2=.09$, substantiating that the impaired visual performance cannot be attributed to exertion. Consequently, the squat posture could permit better head and, hence, gaze stabilization. In Experiment 2, 64 participants performed the same tests while standing in a squat position on a ski-simulator, which vibrated with two different frequencies (2.4, 3.6 Hz) and amplitudes (50, 100 mm) in a predictable or unpredictable manner. Control strategies were identified by tracking segmental motion, which allows to derive damping characteristics. Considerable main effects were found for frequency, all F's$(1,52)>10.31$, all p's$<.01$, all $\eta p2$'s$>.16$, as well as, in the acuity test, for predictability, $F(1,52)=10.31$, $p<.01$, $\eta p2=.17$, and by tendency for amplitude, $F(1,52)=3.53$, $p=.06$, $\eta p2=.06$. A significant correlation between the damping amplitude in the knee joint and the performance drop in visual acuity, $r=-.97$, $p<.001$, again points towards the importance of motor control strategies to maintain optimal visual performance.

The effect of athletes' modesty bias on counterfactual thinking in Korea

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Since the publication of Peng and Nisbett's(1999) seminal paper on dialectical thinking, a substantial amount of empirical research has replicated and expanded on the core finding that people differ in the degree to which they view the world as inherently contradictory and in constant flux. Eastern modest people tend to accept negative feedback and blame themselves for their failures, they are likely to attribute the failures to internal and personal causes(Hui et al., 2009). Thus, it was hypothesized that more modestic athletes would tend to show self-referent counterfactual thinking rather than other-referent counterfactual thinking. The purpose of this study was to investigate the effects of soccer athletes' modesty bias on counterfactual thinking. This study replicated and extended key features of the Hwang et al. (2013) study of several large Korean samples. In particular, we tested the extent to which the modesty bias observed in team athletes samples would replicate in samples from individaul athletes. The respondents were 253 soccer athletes and we used a Korean version questionnaire adapted by Hwang & Lee(2006) to measure modesty bias and Counterfactual thinking. Correlation and regression analyses showed that modesty bias has a positive statistically significant effect on self-referent upward counterfactual thinking. However, modesty bias has no effect on other-referent upward counterfactual thiking. These findings indicated that modesty bias is an important factor to understand counterfactual thinking in sport.

Reciprocal relationships between job burnout/vigour and physical activity: A longitudinal perspective

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According to Shirom (2003), burnout is an affective state that is likely to exist when individuals experience resource loss over a period of time, and it consists of three dimensions: physical fatigue, cognitive weariness and emotional exhaustion. In contrast,individuals who are not affected by any form of resource loss continue to experience a positive affective state called vigour, consisting of physical strength, emotional energy and cognitive liveliness (Shirom, 2004; 2007). According to the Self-Determination Theory (SDT; Deci & Ryan, 2002) and the Sens of Community Theory (SCT; McMillan & Chavis, 1986) both contextual and individual determinants of job burnout and vigour were identified. Furthermore, it has been shown that regular physical activity could reduce the feeling of job burnout (Gerber, Lindwall, Lindegard, Borjesson, & Jonsdottir, 2013). Adopting a longitudinal perspective, the aims of the present study are: to examine the reciprocal influence between job burnout/vigour and physical activity; to examine the psycho-sociological mechanisms responsible for the job burnout/vigour as well as for the practice of physical activity, studying the contextual (sense of community and motivational climate) and individual (satisfaction /threat needs, motivation) determinants presented in Self-Determination Theory and Sense of Community Theory. We hypothesize that participants working in a company to which they feel connected and where colleagues support their basic needs can show higher needs satisfaction, increased self-motivation over time, higher levels of satisfaction and vigour and lower levels of burnout; at the same time, the practice of physical activity may play a protective role and reduce the level of burnout, and maintain or increase the level of vigour and satisfaction. 400 workers aged from 18 to 66 years old completed an online survey three times among 6 months. Results of the structural equation modeling are still being processed and will be presented at the conference.

Changes in mental health in compliers and non-compliers with PA recommendations in patients with stress-related exhaustion

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There is increasing evidence for the beneficial effects of physical activity (PA) in patients with mental disorders (Rosenbaum, Tiedemann, Sherrington, Curtis, & Ward, 2014). In the present study, clinical data were analysed to examine if initially physically inactive patients, clinically diagnosed with stress-related exhaustion, taking part in 12-month multimodal treatment (MMT), differ at the 18-month follow-up regarding mental health, depending on whether they did or did not comply with PA recommendations resembling those of the American College of Sports Medicine. The study population consisted of 69 patients (65% women) who were referred to a stress clinic due to stress-related exhaustion. All patients received MMT. A major goal was to increase patients' PA levels. The patients received general comprehensive instructions including personal advice regarding the positive effects of PA on mental health and could self-select for an 18-week coached exercise program. Changes in mental health symptoms over an 18-month period were compared between non-compliers (n=26), mild compliers (n=22) and strong compliers (n=21) with the PA recommendations included in the MMT. Non-compliers, mild and strong compliers did not differ regarding burnout, depression and anxiety at baseline. Although substantial improvements occurred in all groups, mild and strong compliers reported significantly lower burnout and depression levels at the 18-month follow-up than the non-complying group ($p<.05$). The general pattern of findings was corroborated, if standard cut-off criteria for clinical burnout were used. Compliance with PA recommendations is associated with better

mental health. Thus, the promotion of a more active lifestyle among patients with stress-related exhaustion should be implemented as a part of MMT.

High definition transcranial direct current stimulation enhances motor learning in a simple serial visuo-motor task

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Transcranial direct current stimulation (tDCS) is a non-invasive technique to modulate neural activity (Reis & Fritsch, 2011). It has already been reported that conventional anodal tDCS can increase motor learning (Nitsche, M., Schauenburg, A., Lang, N., Liebetanz, D., Exner, C., Paulus, W., et al., 2003; Reis & Fritsch, 2011). However, it is not known whether high definition (HD)-tDCS (Edwards, D., Cortes, M., Datta, A., Minhas, P., Wassermann, E. M.,& Bikson, M., 2013) effects motor learning in a simple motor task. Thus, we investigated effects of repeated anodal HD-tDCS in a simple visou-motor task. Right-handed participants (n = 12, 6 female, age M = 23,35; SD = 1.60) were randomly divided in two groups. The task was to perform the Purdue-Pegboard-Test (PPT), a simple manual reaching task. During the performance of the PPT the STIM-group was stimulated with anodal HD-tDCS (1mA) via two Pi-Electrodes (3,14cm² Ag/AgCl Electrodes) by C1 and C2 for 15 Minutes. Six Returnelectrodes were positioned by FC5, T7, CP5, FC6, T8 and CP6 (10-20-EEG-System). The SHAM-group performed the same tasks, but received sham stimulation. A follow-up test of PPT was performed five to seven days after the posttest. A non-parametric Mann-Whitney U-tests was performed for the PPT. The results yielded significant differences between groups only at follow-up test for subtest right hand ($z = -2.88$, $p = .004$) and the general performance of right and left hand ($z = -2.24$, $p = .025$). The results of this study suggest that HD-tDCS exerts an effective influence on learning in a simple serial visuo-motor task and, thus, supports the positive effects of anodal tDCS (Nitsche et al., 2003; Reis and Fritsch, 2011). However, further research is needed to investigate and differentiate cognitive and motor aspects of these results as well as more complex visuo-motor tasks.

The implementation of a new program of leadership development: A qualitative examination of athletes' experiences

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Athlete leadership, defined as an athlete who influences team members towards the achievement of a common goal (Loughead et al., 2006), is recognized as being vital for achieving effective team functioning and performance (Bucci et al., 2012; Gould et al., 2002). Despite research suggesting that all athletes can lead and highlighting the importance of including all team members in leadership development efforts (Crozier et al., 2013; Price & Weiss, 2011), theoretically grounded and empirically tested athlete leadership development programs are scarce. Thus, the purpose of the current study was to explore athletes' perceptions of a season-long leadership development program. Specifically, this program implemented four leadership workshops to successfully target the development of both human capital (i.e., the development of an individual's ability to be effective in leadership roles and processes) and social capital (i.e., the development of the collective to be effective in leadership roles and processes). A total of 10 athletes from two intercollegiate teams who participated in the leadership development program attended one of three focus groups exploring their experiences in the program. A hierarchical content analysis led to four dimensions of participant feedback; program structure, influences of the program, challenges implementing leadership, and suggestions for future improvements. Overall, athletes believed that the structure and delivery of the program was effective in helping their team function optimally. Athletes highlighted the human and social capital developments that occurred throughout the season and discussed individual- and team-level challenges to implementing the information learned through the leadership program. Results of the current study provide researchers, sport psychology consultants, and coaches with valuable insight

into the effectiveness of this athlete leadership development program. Further implications pertaining to leadership development efforts will be discussed.

Perceived parental support and overall climate profiles by elite adolescent athletes related with their motivation

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Parents can play a key role given the importance of the quality and quantity of support and the opportunities they may provide to their children regarding sport participation (Bois et al. 2009). The self-determination theory (Deci & Ryan, 1985) was rarely used as framework (Grolnick, 2003). This study aims to identify the type of motivation of elite adolescent athletes based on their perceptions of (1) the degree to which their parents are autonomy supportive, involved, provide warmth, and (2) their parental involvement toward their sport. A sample of 305 (Nboys = 189; Mage=15.98) elite French athletes, practicing a mean of 12.2 hours a week, since 8.11 years, completed - the Parental Involvement in Sport Questionnaire : Active Involvement (AI), Praise and Understanding (PU), Directive Behaviour (DB), Pressure (P); and - the Perceptions of Parental Scales : Autonomy Support (AS), Involvement (I), Warmth (W), for mothers and fathers, respectively and – the Behavioral Sport Regulation Questionnaire. Latent profile analyses revealed four different profiles for sport context labelled: (1) no parental involvement; n=60 (2) adaptive parental involvement (i.e., low scores on P and DB, high scores on PU and AI); n=168 (3) high level of father pressure and mother support; n=35 (4) moderate parental involvement; n=42; MANOVA revealed that athletes from the 1st and 2nd sport profiles had higher scores on autonomous motivational regulations. For the overall context, the groups were labelled: (1) low score level; n=51; (2) moderate level; n=104 (3) high score level of parental I, AU and W; n=147; and (4) high intensity of father I, with no mother participation; n=3. The MANOVA revealed that the 3rd and 4th overall context profiles were characterized by higher scores on autonomous motivational regulations. These findings suggested that future research should focus on quality parental behaviors and involvement to improve elite youth motivation and well-being.

The effectiveness of implicit and explicit learning in the acquisition of motor skills in basketball

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Recent studies show it is possible to acquire motor skills through implicit methods, even if the explicit knowledge of its execution is missing (Masters & Poolton, 2012). However, there is little research investigating the link between technical and tactical training. Therefore this study aims at comparing the effectiveness of implicit and explicit learning processes in the acquisition of motor skills with basketball beginners, when technical and tactical training are combined. A total of 86 children participated in the study (34.9% girls; 65.1% boys) with a mean age of 10.59 years (s=0.85). The number of subjects was grouped as follows: implicit learning (n=18), explicit learning (n=21), implicit-explicit learning (n=20) and control group (n=27). All intervention groups trained over a period of five consecutive days (total duration of 25 hours). In the learning phase, basic basketball techniques (chest pass and shooting) were taught using the step-by-step movement rules method (explicit learning) or the “errorless” method, along with tactical training for all three groups. Before and after the intervention, each participant underwent a pre- and post- test to assess learning performance of the basketball techniques. The values of the dependent variables (chest pass and shooting) were z-transformed and aggregated, to achieve one value for the technique. The results show a significant and large interaction effect ($F_{3,82}=6.43$; $p<.01$; $\eta p2=0.19$), accompanied by graphical interpretation. The implicit learning group and the implicit-explicit learning group improved over time, whereas the remaining groups showed a decrease in the performance of

the motor skills. A post-hoc analysis of the interaction effects shows that the implicit-explicit learning group differed significantly from the explicit ($p<.01$) and the control groups ($p<.05$). Thus, it can be stated that a combination of learning methods leads to better performance when technical and tactical training are coupled in the learning stage.

Coaching a melting pot: Coaches' experience in working with culturally diverse teams

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Sport psychology scholars have recently turned increasing attention to the influence of cultural phenomena on various important aspects of contemporary professional sport. Researchers within the newly emerging field of 'cultural sport psychology' (Schinke & Hanrahan, 2009) have focused particularly on the experiences of immigrated athletes (see Battochio, Schinke, McGannon, Tenenbaum, & Yukelson, 2011). Here, the impact of cultural differences on coaches' work experience within diverse teams has been examined in a relatively small number of studies, predominantly carried out in Northern American contexts (e.g. Duchesne, Bloom, & Sabiston, 2011), but less attention has been paid to similar processes occurring in other settings. This study draws on Schinke and McGannon's (2014) theorising of 'acculturation loads' to explore the experiences of coaches working within culturally diverse teams – that is, those comprising both local and immigrated players – in Europe. Data were gathered using semi-structured interviews, which were conducted with six head coaches of professional basketball teams in Central and Northern European countries (two in Czech Republic, two in Germany, two in Latvia), and analysed using qualitative thematic analysis. The study focused on communication and interaction between immigrated players and coaches, and on strategies used by coaches to overcome problems arising within multicultural teams. The findings identified three main themes: differences in values between foreign and domestic players/coaches; the formation of ethnic subgroups in teams; and difficulties arising from racial differences in coach-athlete relationships. The implications of this study include developing cultural awareness educational programs for coaches, and recognising the need for further studies in this relatively under-researched area.

The attentional function of self-talk: Testing the alertness and vigilance dimensions of attention through the Vienna Test System

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Conceptual models and preliminary research on the mechanisms explaining the facilitating effects of self-talk on performance suggests that the attentional mechanisms seem the most prominent (Theodorakis, Hatzigeorgiadis, & Zourbanos, 2012). Nevertheless, little laboratory-based experimental evidence exists to support such postulations. The present study tested the effects of self-talk strategies on the intensity dimensions of attention; alertness and vigilance. Two lab experiments were conducted, involving the alertness and the vigilance dimension of attention. In both experiments, following a baseline trial participants were assigned into equal baseline performance groups, which were subsequently randomly assigned as experimental and control. In the first experiment, 45 students (mean age 22.32) were assigned into intervention (n= 20) and control (n= 25) groups. In the second experiment (vigilance), 34 students (mean age 22.39) assigned into intervention (n = 17) and control (n = 17) groups. A 3-day practice period followed, with participants practicing on a darts task, with participants of the experimental group training in parallel on the use of self-talk. On the final day of each experiment, participants completed the tests assessing the dimensions of attention, with the intervention groups using self-talk. For each experiment participants completed two sub-tests on the Vienna Test System, one with visual stimuli and one with auditory stimuli. Overall, the results for both experiments showed that the intervention groups had significantly better scores in both the visual and the auditory tests compared to the control groups. The results provide robust support for the importance of the attentional

function of self-talk. Within this framework, alertness and vigilance seems to be among the important mediating mechanisms explaining the beneficial effects of self-talk on performance. From an applied perspective, for the designing of effective interventions, sport psychologists should consider self-talk strategies when aiming at improving athletes' attentional performance.

Does exercise imagery mediate the relationship between exercise behavior and affective outcomes?

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Imagery is used by regular exercisers as a self-regulation technique for maintaining physical activity levels and further enhancing affective outcomes. Active individuals also place greater emphasis on exercising for mood regulation than less active individuals (Hsiao & Thayer, 1998). Past research has determined that energy imagery is positively related to feeling states whereas enjoyment imagery predicts autonomous motivation (Stanley & Cumming, 2010; Stanley, Cumming, Standage, & Duda, 2012). It is not clear what mechanism imagery plays in enhancing exercise-related outcomes. To elucidate this role and test a prediction of Cumming and Williams' (2013) revised applied model of deliberate imagery use (RAMDIU), the present study examined exercise imagery as a potential mediator between exercise behaviour and feeling states and enjoyment experienced as a result of exercising. A total of 421 individuals (277 male; 144 female) between the ages of 18 and 70 (M = 31.88; SD = 12.03) completed the Godin Leisure-Time Exercise Questionnaire (Godin & Shephard, 1985), the Exercise-Induced Feeling Inventory (Gauvin & Rejeski, 1993), the interest/enjoyment subscale from the Intrinsic Motivation Inventory (Ryan, 1982), and a modified version of the Exercise Imagery Questionnaire (Hausenblas, Hall, Rodgers, & Munroe, 1999; Stanley & Cumming, 2010). Five mediation analyses were conducted using ordinary least squares path analysis. The percentile bootstrap confidence interval was used based on 10000 bootstrap samples. Enjoyment, technique and energy imagery mediated the relationship between exercise behavior and interest/enjoyment, energy and enjoyment imagery mediated the relationships between exercise behavior and revitalization and physical exhaustion and only enjoyment imagery mediated the relationships between exercise behavior and positive engagement and tranquility. In support of RAMDIU, relationships between physical activity and positive responses to exercise are partially explained by the use of types of imagery. Individuals are encouraged to use exercise imagery to maximize the well-being benefits of exercise.

A case study of a top female athlete in the psychological support through counseling – mind and body constellation

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This study presents personal working experiences in the psychological support with a female Olympic athlete, using the counseling approach. The athlete was counseled in total in 122 sessions at a monthly basis for 10 years. After graduating from high school, the athlete resumed her sports career under financial support of a Japanese company. Within in the next three years the athlete's performance remained constant, however, suddenly her performance turned to be instable caused by inner problems and psychological pressures. In this period she showed a synchronic phenomenon of mind and body. In other words, the athlete's strong psychological pressure, i.e. her suffering and emotional instability, lead to somatic injuries and physical symptoms. In order to treat this psychological problems, in the counseling sessions the methods of active listening and empathic understanding were applied and, gradually, the athlete recovered. To conclude, when athletes want to remain at a top level such problems will be inevitable so that sport-counselor should be made aware of this and be taught to support in such situations.

The influence of physical activity on short-term memory

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The aims of this study were: (a) to examine what type of physical activity (PA): (1) sub-maximal aerobic activity, (2) anaerobic a-lactic body-resistance activity, and (3) volleyball tactical activity, has better effect on working memory (WM) – visual-motor and auditory, (b) to examine the differences between two types of WM in two times: pre and post PA. Participants were 20 males aged 18-50 (M = 27.3; S.D = 3.2), who trained twice a week, two hours a session, as a leisure-time activity. Procedure included pre and post intervention tests of visual-motor and auditory WM; intervention included three types of physical activity. A crossover design was applied on the tests' order. Three-way ANOVA with repeated measures revealed significant differences in both visual-motor and auditory WM between the three types of activities from pre to post intervention ($F(2, 38) = 26.376$; $p < .001$). In addition, there was an interaction between pre and post and between the type of activities ($F(2, 38) = 15.575$; $p < .001$). Post Hoc procedure revealed that the volleyball tactical activity group had significantly greater improvement in both WM tests compared to the sub-maximal and an-aerobic activity groups. Conclusions: (1) Intermediate intensity of physical activity improves WM, (2) activities of tactical games have a greater effect on WM improvement compared to sub-maximal aerobic activity and anaerobic a-lactic activity, and (3) physical activity that includes cognitive aspects improves WM to a greater extent than continuous monotonous activity, or anaerobic activity.

Physical activities and their influence on self esteem of people with psychosomatic and psychiatric problems

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The aim of this study is to explore the relationship between physical activity and physical self esteem among people with psychosomatic and psychiatric problems. From 2013 to 2014 we conducted an individual examination of people with psychosomatic and psychiatric problems using the Physical Self-Perception Profile (Fox & Corbin, 1989). The study group consisted of 50 adults, who were psychosomatic problems and the group 50 adults in psychiatric care. The perception of the physical aspects was proved very important in self esteem. Serious disturbances in perception of self-esteem were found in people with psychosomatic and psychiatric difficulties. We found statistically significant decrease physical self-esteem for woman in all observed scales, men's global self-esteem is more attached to physical strength. The research confirmed that the self-esteem is an important clinical sign people with psychosomatic and psychiatric problems, which should be assessed and which should be the goal of the interventions.

Exploring the relationship between action observation and motor imagery in motor skill learning

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Mentally rehearsing or observing a motor task elicits similar neural activity and involves similar perceptual processes to when the same action is performed (Grèzes & Decety, 2001). It has been postulated that the three simulation conditions could access the same motor representations for covert elements of action (Jeannerod, 1994). This suggests that modifications in how we visually perceive during a motor task leads to changes in these covert processes, also affecting visual perception during mental simulation and physical execution of action. This study aims to explore whether gaze behavior modifications, by means of observational learning, change gaze parameters during motor imagery and action execution. Thirty intermediate-level shooters would be asked to take part in an 8-week experiment and be randomly allocated to 3 experimental groups: two groups performing

visually-guided learning (VGL) (eye movements superimposed on video vs no eye movements) and a control group. A pre- and post-tests will measure gaze metrics (number of fixations, fixation duration, fixation location, quiet eye (QE) prior to movement onset and relative duration of the QE during action execution and mental simulation. Moreover, performance data would be reported with regards to shooting accuracy and mean radial error (i.e. the distance between the desired point of impact and the actual point) as well as imagery ability (MIQ-R) and vividness (VVIQ-2). The VGL groups would watch videos of their own performance from a first person perspective and compare them to another video of an expert performing the same task. We hypothesize that the experimental groups undergoing visually-guided learning would modify their gaze behavior, especially with regards to the duration and onset of QE prior to movement execution from the pre- to post-test; and that this changes would be reflected in a similar fashion during the mental simulation of the task as well as its execution.

Chronic effects of static stretching on some biomotoric features

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Acute effect of stretching has been studied extensively over the past two decades but little evidence exists regarding the chronic effects of long-term stretching (Kallerud, Gleeson, 2013). Therefore, the purpose of this study was to examine the chronic effects of static stretching on some biomotor features of sedentary youth aged 12-14 years. A total of 34 boys were randomly divided into control (n:19) and static stretching exercise group (n:15). Anthropometric tests, seat and reach flexibility test, squat (SJ) and counter movement jump (CMJ) tests were performed before and after static stretching exercises (SSE). Subjects in both groups participated in an orientation session about static exercise practicing and laboratory tests prior to testing procedures. The static stretching exercise was performed three times, 30 sec practice and 15 sec rest, three days in a week and a total of six weeks for each leg only on five muscle groups. According to research results there is a significant difference on sit and reach flexibility test but there is no significant difference on SJ and CMJ test results. As a summary of results, SSE have no effect on vertical jump performance, have positive chronic effect on flexibility performance. In numerous studies have shown that SSE may have positive effect on flexibility (Chen, et. al. 2011), positive or no effect on jumping performance (Kokkonen, et.al., 2007; Bazet Jones, et.al., 2008).

Enchancing coaches' professional development through a goal setting program: An action research cross-case study

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Lack of knowledge and practical training are some of the main barriers for coaches not to use mental training in their everyday practice (Weinberg, Butt, Knight, & Perritt, 2001). Educational programs for coaches should include relevant topics and hands-on experiences to increase motivation in further education. Goal setting as a mental training technique is associated with positive outcomes, e.g., enhanced performance and mood (Brobst & Ward, 2002; Martin, Carron, & Burke, 2009), increased team cohesion (Senécal, Loughead, & Bloom, 2008) and self- confidence (Vidic & Burton, 2010). In spite of extensive theoretical knowledge on goal setting in sport there is a gap in disseminating this knowledge to sport practitioners. Therefore, the study served two purposes. Firstly, to develop a goal setting program and evaluate its applicability from the coaches' perspective. Secondly, to evaluate the process of educational workshops in order to make improvements to the goal setting program as well as providing information on coaches' education. Action research approach was adopted and cross- case analysis on interventions with two coaches of team sports was conducted. Results of the study confirmed the applicability of the developed goal setting program in a team setting in basketball and football. During the educational process, action research method was adopted. According to this approach, continuous cycles of reflection,

planning and action allowed to consider coaches' needs and adapt to their learning styles (Evans & Light, 2008; Rovio et al., 2012).Dynamic learning environment that combined introducing the theory with discussions and practical exercises was evaluated positively by the coaches. Therefore, the results of the study support the practical approach in coaches' education that takes into account coaches experiences and their needs. The goal setting program was applied only in two sports, hence, future studies could be aimed at validating the program in different sports.

Benefice of fencing practice on identity dynamics in imprisoned minors in Senegal

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The general topic of this paper deals with the influence of sport practice on self-perception and identity dynamics. The term of identity is used in consistence with Erikson (1950, 1958) and the term of self-concept according to Harter (1999). The sample include imprisoned minors in Thies (Senegal) who are often disconnected from family and society. The study explores how fencing practice may help them to precise their self-perception and structure their identity. Fencing has been chosen as a dual sport, including the control of a weapon, and relationships with another person in a codified (ritual and rules) context. Male and female prisoners have been proposed to practice fencing twice a week. The program is running, and its duration for one prisoner depends on the duration of the period spent in jail. Most of the participants to the study have beneficiated from the program during at least 6 months. Influence of the fencing practice on behavior and identity's dynamics is identified through 10 cases' studies done with individual interviews and behavioral observations during fencing and social activities. Results indicate, firstly, that the minors perfectly understand and integrate the rules of fencing and their rationale. Secondly, fencing practice sessions may induce changes in the self-perception related to other's perception, especially in the relationships between boys and girls, and in the understanding that others' differences may be interesting instead of leading to rejection. Results are discussed with those obtained with young (18-21 years old) male prisoners (Meek, 2013) and theoretical processes potentially explaining the influence of fencing practice upon the identity dynamics are hypothesized and linked to the benefice of sport upon emotions' regulation and self-construction.

Perfectionism, self-handicapping and attribution of positive and negative events among athletes

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According to Jones and Berglas (1978) self-handicapping can be defined as „any action or choice of performance setting that enhances the opportunity to externalize (or excuse) failure and to internalize (reasonable accept credit for) success" (p. 406). As a result the assumption that people having irrelevantly high expectations regarding an event, other people or their own life use these strategies seems legit. In our study (N=106) team and individual athletes are participated, and attributional style (SASS), the level of adaptive and maladaptive perfectionism (MPS-F) and self-handicapping (SHS) were measured. As it was predicted, linear regression analyses revealed that perfectionism (in particular the maladaptive form) predicts self-handicapping, which relationship is mediated by controllability. Regarding team and individual athletes, the latter group has significantly higher level of perfectionism and self-handicapping. The results are discussed accordingly.

A meta-analysis of the drive for muscularity's relationships with exercise, disordered eating, and supplement consumption

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Research reveals mixed results for the drive for muscularity's relationships with specific health-related behaviours including exercise (weight training and non-weight training), disordered eating, supplement consumption, and exercise dependence (Edwards, Tod, & Molnar, 2014). No attempts have been made to clarify these relationships using meta-analytic techniques. These relationships might be moderated by drive for muscularity questionnaire type, Chronbach's alpha, or sample status (student versus non-student), but again, these have not been examined. The purpose of this meta-analysis was to (a) examine the drive for muscularity's relationships with exercise behaviour, disordered eating, supplement consumption, and exercise dependence in males; and (b) assess if these are moderated by drive for muscularity questionnaire type, Chronbach's alpha, or sample status. A systematic electronic and manual literature search yielded 77 studies meeting the inclusion criteria (English-based peer reviewed articles in which researchers had asked males of any age to complete quantitative measures of the drive for muscularity, exercise behaviour, disordered eating, supplement consumption, and exercise dependence). A random effects model was used to perform analyses and r was the effect size calculated. The drive for muscularity had significant relationships ($P < 0.05$) with weight training behaviour ($r = .31$), non-weight training exercise (.11), disordered eating (.30), supplement consumption (.36), and exercise dependence (.43). The drive and supplement consumption relationship was stronger (a) in non-student samples (.57) than student samples (.43, $P < .05$)), and (b) when using the total scores from the Drive for Muscularity Scales (.50) than using subtotal scores (.22, $P < .05$). The small-to-moderate relationships indicate the value of adopting theoretical perspectives allowing the examination of the drive for muscularity's role in predicting exercise and dietary behaviour within a broader psychosocial context.

Athletic identity as a predictor of overtraining and injury among elite Swedish athletes

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The overtraining syndrome (OTS) is a complex multidimensional construct encompassing alterations in biochemistry, physiology, and mental states. Evidence indicates that overtrained athletes are at an increased risk for outcomes such as injury and illness (Vetter & Symonds, 2010). Limited research however, has examined psychosocial factors associated with OTS. One psychosocial factor that has been linked to an increased likelihood of deleterious states such as burnout and injury is athletic identity (Black & Smith, 2007; Coakley, 1992). Given these findings, there is reason to believe that athletes who strongly identify with the athlete role may also be more susceptible to overtraining syndrome, which may in turn increase the risk for chronic injury. The purpose of this study was to examine relationships between athletic identity, overtraining syndrome, and injury occurrence/frequency. To evaluate our study purposes, 628 Swedish athletes competing at the highest national level, completed a validated measure of athletic identity (AIMS; Brewer et al., 1993), a "training practice inventory" used in previous overtraining research (Kentta et al. 2001), and injury occurrence/frequency. Linear regression analyses revealed that athletic identity significantly predicted the physiological aspect of overtraining syndrome ($\beta = 0.118$, $p = .003$, adjusted $R2 = .012$), a greater likelihood of injury occurrence ($\beta = 0.078$, $P = .05$, adjusted $R2 = .004$), and a greater injury frequency ($\beta = 0.119$, $P = .03$, adjusted $R2 = .013$). Although the results are statistically significant, the shared variances between the variables are small (approx. 1%), suggesting caution in interpreting results from the present study. Our findings do however, provide a preliminary link between a high athletic identity, excessive training, and injury. Careful consideration by coaches and sport leaders should therefore be given in promoting too strong an identification with the athlete role.

Physical ativity level in MCI and hippocampus volume

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Mild Cognitive Impairment (MCI) can be considered as a stage of pre-dementia (Dubois et al., 2007). Identifying and treating older adults with MCI is important to prevent and reverse the progression of AD, which impacts on reducing functional decline (Chertkow et al., 2006). Recent randomized controlled trials (RCTs) of aerobic exercise for healthy older adults provided evidence that participation in exercise programs involving aerobic exercise leads to an improvement in cognitive function (Voss, Nagamatsu, Liu-Ambrose & Kramer, 2011) and a greater brain volume in specific regions, e.g. hippocampus (Erickson et al., 2011). So, the purpose of this study was to evaluate this positive correlation between physical activity level and brain volume remains in MCI elderly. Therefore, 42 community-dwelling older adults clinical diagnosed in MCI (age 70,7(5,8) MMSE 25,6(5,8)) answered the International Physical Activity Questionnaire (IPAQ), which is used as a standardized measure to estimate habitual practice of physical activities (Booth, 2000). Structural MRI was collected on a 3.0 Tesla (Philips Achieve scanner) and freesurfer program was used to analyze hippocampus volume. In order to verify if there was any relation between physical activity level and hippocampus volume, Pearson´s correlation was performed. Pearson´s correlation showed IPAQ score relates with right hippocampus volume (r^2=0,46, p=0,02) but not with left hippocampus volume. The results suggest that physical activity level may have influence on hippocampus volume. So, it may reduce the risk for developing AD, especially for those who present high risk, such as MCI group.

Effect of action scenes on muscular contraction: Evidence provided by a grip-force sensor

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Some linguistic studies revealed a motor activity during action words processing (Hauk et al., 2004). Indeed listening an action word specific to a body-part elicit a specific activity patterns in frontocentral action-related areas. With a grip force sensor, this new experimental tool can record online activity of the action words processing (Aravena et al., 2012). However, little is known about this motor activity when watching visual motor scenes. The aim of this study is to contrast the effects of different motor action scenes on grip-force adjustments in a hand-held manipulative task. Participants were seated in front of a computer and were required to hold a grip-force sensor with their right hand in a nonchalant manner. While maintaining a steady hand-posture, they were instructed to watch scenes of (1) people performing hand-directed motor actions (active-hand) or (2) people performing whole body actions (active-body) or (3) individuals posing in a resting state (resting). In order to verify that participants were actively exploring the scenes, their explicit task was to detect and count how many hidden figures were contained within the scenes. Higher grip force levels were observed when participants watched active compared to resting scenes. However, grip force levels were greater when they watched scenes of people performing hand-directed actions. Our results confirm the effect of action scenes on motor control. Nevertheless, they reveal specificity in muscle contraction. Future research needs to assess whether the observation of people performing whole body actions can stimulate self-performed physical activity.

Is self-control predictive to athletes' anti-doping behavioural responses?

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Self-control is a limited resource that allows individuals to effectively overcome the impulses or temptation for distal goal attainment. The present study applied the strength energy model

(Baumeister, et al., 1998; Tangey et al., 2004) to understand the relationships between self-control and athletes' behavioural responses of doping and anti-doping in sport. Participants were 410 elite and sub-elite athletes in Western Australia. This study comprised a cross-sectional survey and a real-time assessment of anti-doping behaviours. Participants completed a questionnaire that measured trait self-control, attitude and intention toward doping, and the intention and behavioural adherence to avoid unintended doping. We simulated a situation of unintended doping using a 'lollipop' decision-making protocol (see Chan et al., 2014) and subsequently measured whether participants would refuse to take or eat lollipops of an unfamiliar brand, and would read the ingredient table printed in the packages of the lollipops. Hierarchical multiple regression showed that self-control was a significant negative predictor of doping attitude and intention, and a significant positive predictor of the intention and behavioural adherence to avoid unintended doping. Hierarchical logistic regression revealed that self-control significantly and positively associated with the refusal of both taking and eating the lollipops, but its proposed positive association with reading the ingredient table was not significant. The results were held after controlling for the effects of age, gender, sport level, and sport type. The findings provided initial support of the strength energy model of self-control in the context of anti-doping. Athletes who had higher trait self-control tended to have lower doping attitude and intention, and higher intention, behavioural adherence, and awareness to avoid unintended doping in daily life.

The perception of sport federations' trustworthiness in anti-doping prevention

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Doping seems to be an inherent part of top-level sports. It also means a high risk for the trustworthiness of sport protagonists (e.g. sport federations or the WADA). Doping prevention aims to detect doping and to control the behaviour of athletes and their environment in a transparent and fair way. The research question of this study was to determine whether sport federations are perceived as trustworthy parties in Anti-Doping prevention. Based on the model of trust (Mayer, Davis & Schoorman, 1995) the perception of trustworthiness depends on existing expectations towards the integrity, benevolence and ability of an organization like a sport federation. In this study, the perception of trustworthiness of three German sport federations (cycling, track and field, gymnastics) was analysed by using the affective priming paradigm. In an experiment, the logos of the three federations were shown to participants for 315ms. Afterwards they had to categorize trust- and distrust adjectives to the correct side of the screen. Reaction time was measured for each stimulus. 50 participants took part (MeanAge 23.34 years SD = 4.83, 52% female). While for track and field ($t(47)=-3.30$, $p<.01$) and gymnastics federations ($t(43)=-2.85$, $p<.01$) positive adjectives can be categorized faster than negative, this effect can not be found for cycling federation ($t(38)=-0.48$, $p=.64$). Results indicate that the cycling federation is not perceived to be as trustworthy as other sport federations regarding its doping prevention. The perception of the trustworthiness of the responsible parties in doping prevention may have an effect on doping behaviour of athletes. Therefore further research is important that helps the protagonists of sport increasing their trustworthiness regarding their attitudes and behaviours on doping.

Motivation for exercise therapy in patients with non-specific back pain

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Information on patients' motivational states could enable therapists to enhance therapy compliance and adherence. However, there is little research in terms of motivation in exercise therapy of patients with non-specific back pain. Thus, following the Organismic Integration Theory (Deci & Ryan, 2000) the aim of the study was to find typical motivational patient sub-groups and correlations of these sub-groups with person, pain and therapy

related parameters. 254 (Mage = 33.3 yrs, SDage = 13.0 yrs, 42.91 % female, 64.5 % involved in competitive sports) patients with non-specific back pain receiving exercise therapy took part in the study. Exercise therapy motivation was assessed using an adapted version of the Behavioral Regulation in Sport Questionnaire (BRSQ, Londsdale et al., 2008). Furthermore body concept (Deusinger, 1998), pain-related parameters (e.g. intensity, duration) so as kind/frequency of exercise therapy were measured. Based on BRSQ-subscales a cluster analysis was conducted to identify motivational patient sub-groups. Cluster differences concerning person, pain and therapy parameters were estimated by performing Chi-square tests and ANOVAs. The analysis revealed four clusters of exercise therapy motivation. “Completely Motivated" (CM), “Intrinsically Convinced" (IC), “Controlled Convinced” (CC), and “Less Motivated” (LM). While CM-participants scored high on all forms of autonomous regulation, IC-participants showed merely high levels of intrinsic and identified regulation. The CC-cluster was particularly characterized by high scores on identified regulation. The LM-cluster is marked by low scores in all forms of regulation. Differences across the clusters were found for age, sports competition level, body concept and kind of exercise therapy, however not for pain related parameters. Results show, that typical motivation-oriented patient sub-groups have to be distinguished. In practice, the identification of these single sub-groups (e.g. by using appropriate and feasible measurements) would facilitate group-specific approaches to enhance exercise therapy motivation. Thus, exercise therapy compliance and adherence could be enhanced.

The effective sport psychology professional: International perspectives about professional quality of life (PQL)

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Researchers examined psychology professionals’ experiences of life stress, recognizing how these experiences may impact their ability to effectively provide services for their clients (Guy et al., 1989; Pope et al., 1987). Sport psychology consultants (SPCs) might experience similar issues due to the nature of their work and their sense of responsibility related to their clients’ psychological well-being (Cropley et al., 2007; Tod, 2007). These experiences may also be potentially exacerbated by SPCs’ atypical working conditions characterized by unique settings (Andersen et al., 2000), multiple responsibilities (Males, 2006), flexible schedule, demanding hours, frequent travel (Jackson, 2006; McCann, 2000), and other challenging barriers (Andersen et al., 2000). Understanding how SPCs experienced life-work stress and how they viewed their professional quality of life (PQL) is a previously unexplored area of inquiry. Self-care presents ethical- and health-related challenges to competent practice (APA, 2002). This study aimed to develop an in-depth understanding of the afore-mentioned experiences of 20 SPCs around the world. Researchers in this study employed Consensual Qualitative Research (CQR) Methodology (Hill et al., 1997; 2012) in the analysis of data. Using audio-recorded, in-depth semi-structured interviews, the researchers investigated the personal self-care and quality of life perspectives of 20 “expert” SPCs (10 from the U. S. and 10 from outside the U.S.). Findings revealed SPCs insights into the challenges, development, promoters and strategies related to PQL and self-care, as well as how the relationship between PQL and self-care developed. Generally, “experienced” professionals from around the world described a positive PQL that they related, in part, to consistent engagement in self-care despite the lifestyle challenges they faced. Results will be used to craft a preliminary view of the work-life balance of SPCs. The researchers will offer recommendations for professional development.

Psychosocial risk factors of overuse injuries in an elite rhythmic gymnastics club : A 12-month ethnographic study

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Although the high prevalence of overuse injuries in sport, until recently there has been a dearth of research exploring the prediction of and responses to this type of injury from a psychosocial perspective (for recent examples, see Traneus, Johnson, Engstrom, Skillgate & Werner, 2014; Van Wilgen & Verhagen, 2012). The aim of the present study was to expand on the existent literature about prediction of overuse injuries, by conducting an in-depth exploration of the environment of a sport club to observe the psychosocial factors involved in the prevention and response to overuse injuries. Underpinned by ontological relativism and epistemological constructionism, a 12-month ethnography was conducted in an elite rhythmic gymnastics club. There were twenty-eight participants, consisting of sixteen gymnasts, three coaches, one physiotherapist, seven parents, and the club's president. The qualitative methods used were observations, field notes, formal interviews, informal conversations, diaries, and focus groups with data analysed using thematic analysis (Braun & Clarke, 2006). Data analysis procedures resulted in 111 codes, which were grouped into themes and subthemes, describing the main factors affecting the overuse injury process: risk culture (pain normalization, lack of care about pain and injury), impression management (group norms, fear of showing weakness), ineffective communication (fear of coach, lack of emotional disclosure), and short-term gains mentality (unawareness of long-term consequences, wishful thinking behaviours). Next, themes were organised in a more comprehensive representation of the gymnastics environment (culture, values, beliefs, behaviours) that fosters the development of overuse injuries from a psychosocial perspective. These findings indicate that practitioners should increase awareness about overuse injuries and their consequences, to encourage a change of beliefs and behaviours in the gymnastics environment and among stakeholders in sport organizations. By doing this, gymnasts will have a better chance to prevent the development of overuse injuries and enjoy a healthier sport experience.

The relationship between psychological privileges and the trust and happiness emotions in relations of the professional dancers

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In this study, the relationship between psychological privileges and trust and happiness in bilateral relations of couples practising salsa dancing was examined. In order to investigate psychological privilege, the psychological privilege scale, developed by Campbell and colleagues (2004), was used. This scale was translated into Turkish by Akin and Yuksel (2011) and consists of nine items. Furthermore, in order to investigate trust in the dancing couple's relationship, the psychological privilege scale (Larzelere & Houston, 1980) was employed. This scale was adapted to Turkish by Cetinkaya et al. (2008) and it consists of seven items. The happiness rate scale (Fletcher et al., 1990) was used to assess happiness. The Turkish version was used (Kislak, 2002). There are six items in this scale. Moreover, 63 pairs consisting of 126 salsa dancers were interviewed. Following data screening, 120 cases were retained for analysis. Out of 122 dancers, 61 were female and 61 were male. The internal consistency (Cronbach's Alpha) rate was calculated at 0.829. The Pearson correlation factor in trust in bilateral relationships and the psychological privilege was calculated as r= 273 and the Pearson correlation factor between trust and happiness as r= 453 thus indicating a moderate relationship.

System of psychological support in sport

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The problem of using methods of psychology in coaching is one of the most important and simultaneously the least developed aspect in sports psychology (Kellmann, & Beckmann, 2003). Therefore, many psychological problems in elite sports are already present at the stage of early sports specialization (Gorskaya & Rogaleva). Research conducted among coaches in gymnastics showed that 70% do not carry out or do not know how to conduct psychological work with athletes (Grigoryants, 2005). The system of psychological work with athletes developed by the authors is based on the theory of self-determination and self-development (Rubinstein, Deci, Ryan) and includes the program of coach's work aimed at creating conditions for autonomy, competence, support for athletes in accordance with their age and in terms of training and competition. The main criteria of efficiency for the system of psychological work were selected: Firstly, motivation for sports activity at different stages of sports career (motivation for interest, motivation for achievement of success, motivation for self-affirmation, motivation for self-actualization and self-development). Secondly, complex personal characteristics (target setting, self-esteem, self-regulation, self-control) providing the transition stage by stage from control of own actions to setting one's targets and responsibility for achievement of personally significant results in sport. Using this approach with youth (8-10 years old) and adolescent (15-16 years old) football players showed a higher level of development, not only on psychological characteristics, but also a higher level of efficiency of sports activity in comparison to sportsmen not included in this program.

Talent identification and early development programme

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In western countries, scientific approaches increasingly are being used in talent identification programs. However there are still numerous of problems that need to be addressed. First, skills and aptitudes shown at a young age do not automatically translate into talent development and performance. Second, as a function of missed opportunities the talent never might be recognized. Evidence suggests that it takes ten years of concentrated training to reach the highest levels. Training must be directed at improving or developing a skill. It should be purposeful and goal-directed. Children often should not practice if it was not for parental and individual encouragements. Children practice more when everyone are progressing and finding the practice pleasurable. Also, Individuals have to enjoy an activity before anybody may practice deliberately. Many researchers believe to be psychological factors to be the main determinants of individuals' potential in sport in terms of the development of skills, a continuing commitment to training and competing and consistent high performance. Determinants of performance and potential are likely to differ and mature values are hard to predict. Determinants of performance among males and females are different. Therefore, in this study a program will be introduced that used a series of physical tasks and an interactive Sport setting. The goal was to determine the suitability of this sports program for young people and to investigate the validity and applicability of for talent development. Providing educational opportunities to development coaches and managers through Coaches Training Courses and workshops covering an array of topics uncommon to the 'elite developing athletes. Undertaking innovative research projects to gain understanding of the route to excellence in elite sports development.

Chronic psycho-affective alterations in active male athletes with a history of concussions

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Concussive injuries are known to cause somatic, cognitive and emotional symptoms (Duhaime, 2012). Emotional states reported by athletes indicate that they may experience increased tension, pain and depression following injury (Jorge, 2004). However, these disturbances are believed to resolve within weeks of injury (McCrory, 2013), and few studies evaluated the long-term psycho-affective outcomes of concussion. Therefore, the current study evaluated the long-term psycho-affective outcomes of concussion in male collegiate athletes. Seventy-seven male athletes (43 history of concussion (HOC); 34 controls) underwent psycho-affective assessment. All participants were asymptomatic at the time of testing and those with a concussion history were one+ years post injury (26.58 months ± 14.67). Participants completed the Beck Depression Inventory-II (BDI-II) and the Profile of Mood States (POMS). Analyses revealed that HOC athletes (5.72 ± 3.92) reported significantly higher scores on the BDI-II, relative to controls (3.91 ± 3.40; $p < 0.05$, $\Delta = 0.53$). In addition, HOC athletes reported significantly greater total mood disturbance (17.81 ± 24.11) on the POMS, relative to controls (5.82 ± 16.94; $p < 0.05$, $\Delta = 0.71$), with the largest group differences observed for the anger, depression and confusion sub-scales. Lastly, bivariate correlations failed to reveal a relation with number of injuries and score on either the BDI-II or POMs (p's ≥ 0.20). In conclusion, male HOC athletes who made a complete return to their sport, and were asymptomatic at time of testing exhibited multiple alterations in psycho-affective functioning. However, the number of injuries suffered by athletes did not influence the magnitude of this effect. Thus, a single concussive injury may be sufficient to cause subtle, yet persistent alterations in psycho-affective functioning in male athletes. Hopefully these results will provide an impetus for further inquiry and more comprehensive psycho-affective evaluations following concussion.

Session 3 – Thursday 16 July, 10am-11.30am

Exploring the flow state in professional jump jockeys: Content and connecting analysis

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Research on flow in elite sport has largely focussed on traditional sports and has yet to consider the possibility of unique performance experiences in the case of horse-rider sports. This study sought to explore; (a) the conditions influencing the occurrence of flow; (b) the characteristics of flow; and (c) the connections between the conditions and characteristics of flow in horse racing jockeys. Ten full-time professional National Hunt (jump) jockeys (Mean age = 28.1; SD = 5.21) participated in semi-structured interviews exploring the flow state in horse racing. Data was analysed through an alternating process between content analysis (Colaizzi, 1978) and connecting analysis (Maxwell, 2012). The content analysis revealed that ten characteristics described the state of flow in jump jockeys, of which the optimal interaction with the horse has not emerged previously. Synchronisation of horse and jockey during flow experiences was characterised by communication, physiological and locomotive features. The optimal horse-jockey partnership involved the fusion of conditions pertaining independently to both the horse and jockey and was subsequently expressed through altered kinaesthetic sensations in the horse-rider relationship. Twelve facilitators, ten inhibitors and seven disruptors were identified as being influential to the state of flow in jockeys, with all three circumstances including a novel theme; the demeanour, performance and characteristics of the horse. The connecting analysis extracted 35 links between the conditions and characteristics of flow, through which confidence, concentration and the optimal interaction with the horse were highly influential. This study made two important contributions by characterising the experience of flow in the interspecies equine sport of horse racing and identifying the manner in which the facilitative factors influenced flow in jump jockeys. Additionally, results also alluded to elements of the autotelic personality in jockeys. Results are discussed in relation to previous research and recommendations for theoretical and research developments outlined.

Safety concerns and social traps: A meta-study of qualitative research examining determinants of active free play in children

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Children's engagement in active free play has declined (e.g., Gray, 2011). Numerous qualitative studies of active free play have been completed across a range of academic disciplines. This literature is somewhat fragmented and has yet to be subjected to systematic review. The purpose of this research was to produce a meta-study by completing a systematic review of qualitative research examining determinants of active free play in children. Systematic electronic and manual searches were completed to identify studies. Studies were included if they: (a) clearly focused on active free play rather than sedentary forms of play, (b) were original research published in peer-reviewed academic journals, and (c) reported primary data using at least one qualitative research method (e.g., interview, observation). Forty-six studies were retained. The total number of participants across these studies was approximately 1,950 children, 1,050 parents, and 80 other adults (e.g., teachers, community members). Included studies were subjected to meta-method, method-theory, and meta-data analyses, followed by a final meta-synthesis (Paterson et al., 2001). Identified determinants of independent active free play were child characteristics (age, competence, and gender), parental restrictions (safety concerns and surveillance), neighborhood and physical environment (fewer children to play with, differences in preferences for play spaces between parents and children, accessibility and proximity, and maintenance), societal changes (reduced sense of community, good parenting ideal, changing roles of parents,

privatization of playtime and play spaces), and policy issues (need to give children voice). An ecological model depicting these factors, and the relationships therein, was created. This model depicts that parents' perceived safety concerns are the primary barrier to children's active free play. These safety concerns are moderated by child-level factors (age, competence, gender) and broader social issues. Overall, this study suggests that community-based interventions that address multiple social determinants may be effective for reviving active free play.

The effects of interrogative and declarative self-talk on performance: Replication and extension

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The role of self-talk as a performance enhancement tool has been widely studied in sport settings (Hatzigeorgiadis, Zourbanos, Galanis, & Theodorakis, 2011; Tod, Hardy, & Oliver, 2011). Senay, Albarracin, and Noguchi (2010) explored the hypothesis that the grammatical form of self-talk statements would differentially affect a performance task and behavioral intentions related to exercise. Specifically, Senay et al. conducted a series of four experiments, all of which supported the effectiveness of the interrogative form of self-talk ("Will I?") relative to the declarative form ("I will"). In accord with the suggestion of Cumming (2013) that replication be a foundation of the body of knowledge, the purpose of this research was to replicate and extend the findings of Senay et al. to assess the effects of the interrogative and declarative forms of self-talk on motivation, exertion, and performance. In Study1, undergraduates (N = 118) gave informed consent, were randomly assigned to one of three priming conditions (i.e., "I will," "Will I," or control), performed a task, and rated their motivation and level of exertion. Counter to the findings of Senay et al., no differences were found among groups on any of the variables studied. It seemed possible that failure to replicate was due to the priming effects being insufficient to generate group differences. Therefore, Study 2 was a replication of Study 1 with 108 participants using the forms of self-talk immediately before performance. Again, no significant differences among the conditions were found regarding performance, motivation, or effort. Results of these studies suggest that differential performance effects of self-talk of various grammatical forms are not easily replicated and significant results may reflect publication biases. Replication efforts can be used to enhance the integrity of the published research literature (Cumming, 2013).

Transitioning out of professional sport: The psychosocial impact of career-ending injuries among UK cricketers

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The process of transitioning out of sport can be a significant time in an athlete's life (Alfermann, 2001), particularly when it occurs due to non-normative reasons (Schlossberg, 1984) such as a sport injury. To date, research into exploring transition out of professional sport due to injury (Park, Lavallee, & Tod, 2013; Wylleman, Alfermann, & Lavallee, 2004), and the psychosocial impact of career-ending injuries (Stoltenburg, Kamphoff, & Lindstrom Bremer, 2011) is limited. This study documented the psychosocial impact of career ending sport injury. Three professional male cricketers each with over nine years of playing experience in professional cricket in the United Kingdom participated in a one-on-one semi-structured interview with regards to their sport injury experience and the process of transitioning out of professional sport. The Interpretative Phenomenological Analysis (Smith, 1996) revealed that for all participants, the injuries were medical in nature, preceded by a number of musculoskeletal injuries. The participants felt that at the time of the injury, they were already at the "final stretch" of their professional sporting careers. They described a range of thoughts (e.g., pressure to play), emotions (e.g., frustration), and behaviors (e.g.,

keeping busy) post injury as well as number of factors that had contributed to the ways in which they had coped with, and responded to, their injury and the resultant situation. Despite a range of reactions to injury, all participants appeared to experience a healthy career transition out of sport. To best prepare athletes for a life outside of sport, ensuring athletes have sufficient plans in motion early on in their careers can eliminate number of external and internal stressors. By eliminating and alleviating such stressors it is likely that risk of injury occurrence will also be reduced, and in case of career-ending injuries, athletes' reactions are less likely to lead to a retirement crisis.

The coach-athlete interpersonal relationship in Japanese judo's youth

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University of Tsukuba, Japan

The psychological state of the interpersonal relationship between coach and young athletes in judo was assessed and compared internationally. One hundred and forty-one judo athletes participated (male, 101; female, 37; unknown, 3). Active members of a Japanese high school judo club (88.6%, black belts), responded to a translated version of the coach-athlete relationship questionnaire (CART-Q). The measurement used in this study was a translated version of CART-Q, developed by Jowett and Ntoumanis (2004) to measure athletes' subjective assessment of the relationship with their coaches. Mean scores on a seven-point scale from 1 (strongly disagree) to 7 (strongly agree) for three traits of interpersonal relationships, i.e. closeness, commitment, and complementarity of the participants were not very high, ranging between 4.54 and 5.18. Compared with data of seven other countries, UK, China, Belgium, Greece, Spain, Sweden and the USA, (Yang & Jowett, 2012) using the same instrument (CART-Q), young Japanese judo athletes showed a weaker relationship with their coaches. Japanese mean scores for the three traits were ranked: closeness (seventh), commitment (seventh), and complementarity (eighth). Assumed causes of a weak relationship between coaches and young judo athletes in Japan were discussed. One assumed cause was the social condition in which coaches teach students in the Japanese school sports club system. In Japanese middle and senior high schools judo coaching is conducted by teachers. They are not always specialists of judo, while coaches working within the sports club system are mostly licensed, and take good care of the relationship with their athletes.

Effects of grouping forms, student gender and ability level on pleasure felt in physical education

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Regarding the lack of studies on pleasure in PE and grouping form alternations, the aim of this study was to estimate the main and interaction effects of grouping forms (i.e., alternate ability-based/mixed groups vs. mixed ability classes), student gender and ability level (i.e., low, average, or good) on pleasure felt in two different activity units (endurance and basketball) in PE. The participants comprised 178 secondary school students (M = 13.17, SD = .81), including 72 students involved in a basketball unit and 106 students involved in an endurance unit. Seventy-eight students participated in PE in alternate ability-based/mixed groups, and 100 students participated in mixed ability classes. Pleasure was assessed using a validated 10-item scale. This one-dimensional questionnaire has been validated and adapted from the "Physical Activity Enjoyment Scale" (PACES) (Kendzierski & DeCarlo, 1991) (18 items) by Delignières and Perez (1998). The results indicated a significant main effect of grouping forms on pleasure felt in basketball and a tendency towards an effect in endurance. The students felt more pleasure in the alternate ability-based/mixed groups compared with the mixed ability classes. There was no significant main effect of student gender or ability level and no significant interaction effect between the two or three independent variables (i.e., grouping forms, student gender and ability levels) on the pleasure felt in both activity units. Considering the educational value of pleasure in PE and

the importance of pleasure in the development of physical activity habits in students, teachers are encouraged to alternate ability-based and mixed groups.

Comparison of the psychological effects of Baduanjin Qigong and ninth broadcast gymnastics on SDS and POMS

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The purpose of this study was to compare the psychological effects of 16 weeks traditional Chinese exercise “Baduanjin Qigong” and broadcast gymnastics exercise on healthy adults. One hundred and fifty healthy adults (aged from 20 to 59 years old) were randomly assigned into three groups: BG (Baduanjin Group, n=50, female=25,male=25,sixteen weeks of Baduanjin exercise), GG (Gymnastics Group, n=50, female=25,male=25,sixteen weeks of broadcast gymnastics exercise) and CG (Control Group, n=50, female=25,male=25). Participants in both BG and GG practice 3 times per week and 30-45 minutes per time which was organized by experienced teachers. SDS and POMS tests were conducted before and immediately after the sixteen weeks exercise. The results were analyzed by SPSS 19. The results of the study revealed that:(1) Both the men(37.9±9.8；33.6±8.4) and women (42.2±10.5； 34.5±8.3)showed significant changes in their SDS scores following the interventions of 16 weeks exercise, with the women showing extremely significant improvement(P＜0.01＝. (2) Participants in GG showed extremely significant improvement in the depression index(46.6±8.6；32.1±9.2；P=0.000＜0.01＝. (3) There were no significant changes among BG and GG scores for tension, anger, fatigue, and energy . But there were significant differences in depression(4.08±3.49, 2.25±3.39, P=0.018；5.02±3.91, 3.10±3.82, P=0.006) and self-esteem(8.65±2.69, 9.90±3.72, P=0.033, 8.51±2.69, 10.00±3.20, P=0.005). In conclusion, Both male and female participants in BG and GG showed improvement in depression, with especially significant improvements shown for women. Compared with Banduanjin Qigong, The 9th broadcasting gymnastics can be used more effectively to reduce the subjects’ mental depression status.

Detecting single-target changes in multiple object tracking: The case of peripheral vision

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In sports games, it is often necessary to perceive a large number of moving objects (e.g., the ball and players). In this context, the role of peripheral vision for processing motion information in the periphery is often discussed especially when motor responses are required. In an attempt to test the capability of using peripheral vision in those sports-games situations, a Multiple-Object-Tracking task that requires to track a certain number of targets amidst distractors, was chosen to determine the sensitivity of detecting target changes with peripheral vision only. Participants’ primary task was to recall four targets (out of 10 rectangular stimuli) after six seconds of quasi-random motion. As a second task, a button had to be pressed if a target change occurred (Exp 1: stop vs. form change to a diamond for 0.5 s; Exp 2: stop vs. slowdown for 0.5 s). Eccentricities of changes (5-10° vs. 15-20°) were manipulated, decision accuracy (recall and button press correct), motor response time and saccadic reaction time (change onset to saccade onset) were calculated and eye-movements were recorded. Results show that participants indeed used peripheral vision to detect changes, because either no or very late saccades to the changed target were executed in correct trials. Moreover, a saccade was more often executed when eccentricities were small. Response accuracies were higher and response times were lower in the stop conditions of both experiments while larger eccentricities led to higher response times in all conditions. Summing up, it could be shown that monitoring targets and detecting changes can be processed by peripheral vision only and that a monitoring strategy on the basis of peripheral vision may be the optimal one as saccades may be afflicted with certain costs.

Further research is planned to address the question whether this functionality is also evident in sports tasks.

'I just wanted to be Big Dan': An exploration into the development of high levels of drive for muscularity in men

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Studies on the drive for muscularity (DFM) have primarily been quantitative focusing on identifying correlates, e.g. correlating DFM with internalization and resistance-training (Edwards, Tod, & Molnar, 2014). Little is known about how men describe the experiences that lead them to desire high levels of muscle and engage in potentially unhealthy related-behaviors. Using a narrative approach we extended knowledge by exploring the stories of men with high DFM revealing the socio-cultural and personal factors leading to their high level of DFM. In-depth life-history interviews (Mean duration=66.20 minutes) and multiple in-the-field conversations were undertaken with twenty males (Mean age=28.45 SD=6.96) who scored three or more on McCreary and Sasse's (2000) Drive for Muscularity Scale (Mean=4.28 SD=0.70). Interview transcripts (N=281 pages) were thematically analysed. Men's stories primarily focused on events during their childhood and teenage years. The primary drivers to high levels of DFM include: (a) non-normative physical stature, (b) unsupportive socio-cultural milieu, (c) peer and sibling comparison, (d) shyness, and (d) thwarted sport and social engagement. Men also spoke about activating events during young and middle adulthood (e.g., divorce) that stimulated reflection on insecurities stemming from their teenage years. These experiences led males to feel that their needs were not met in their lives and the DFM represented a way to compensate for feelings of potential isolation, inadequacy, and insecurity. Findings reveal that developmental theory (e.g., Erikson, 1950) and basic needs theory (Deci & Ryan, 2000) may help explain the processes leading to high DFM levels in men. These findings may help practitioners to identify historical processes leading to high DFM, to recognize relevant activating events, and to devise theoretically driven interventions that may stabilize the DFM in men who are negatively affected.

Does self-talk mediate the relationship between coaches' motivational climate and athletes' self-efficacy? An exploratory study

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Self-talk refers to all the things individuals say to themselves, to stimulate and reinforce, direct, and evaluate events and actions. Given the wide-reaching behavioral, motivational, affective and cognitive consequences of self-talk, it is suggested that more holistic understanding of the factors that shape and influence athletes' self-talk is required (Theodorakis, Hatzigeorgiadis, & Zourbanos, 2012). However, the association between athletes' perceptions of coach-created motivational climate and athletes' self-talk has not been examined. In an attempt to fill this literature gap, the purpose of the present study was to explore the mediating role of self-talk in the relationship between athletes' perceptions of coach-created motivational climate and athletes' self-efficacy. Two hundred eighty nine youth football players (M = 11.63 years, SD = 1.55 years) completed the Automatic Self-Talk Questionnaire for Sport (Zourbanos, Hatzigeorgiadis, Chroni, Theodorakis, & Papaioannou, 2009), the Empowering and Disempowering Motivational Climate Questionnaire (Appleton, Ntoumanis, Quested, & Duda, 2011) and self-efficacy measure for football (Bray et al., 2004). Following the recommendations of Baron and Kenny (1986), two structural models, a direct and a mediated, were examined to test the mediation hypothesis. The results showed that only positive and not negative self-talk mediated the relationship between empowering motivational climate and self-efficacy (indirect effect: .17, $p < .05$). Examination of the Langrange Multiplier test contributed to explanation of 9% of athletes' self-efficacy. Whereas no relationship emerged between disempowering climate and self-efficacy, highlighting the role of self-talk explainig this relationship .The results of the present study shed some light

regarding the adaptive and maladaptive effects related to motivational climate in youth sport, and may facilitate a better understanding of the self-talk phenomenon and guide further research regarding antecedents of self-talk. It would be desirable if longitudinal interventions were conducted to examine the relationships between empowering and disempowering motivational climates, self-talk and self-efficacy over time.

A brief intervention to develop self-regulation for dietary temptations

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The present study attempts to address two problems. First, previous research has shown that the use of self-regulatory skills has been associated with improved weight loss in interventions (Annesi & Gorjala, 2010; O'Neil et al., 2012). However, these interventions tended to incorporate physical activity and dietary advice alongside their self-regulatory skills training. Therefore, it is difficult to isolate the independent effect of training self-regulatory skills. The second problem is that although they are often associated with positive behaviour change, many weight loss interventions are overly expensive and complex (Franz et al., 2007; Lombard, Deeks, Jolley, Ball, & Teede, 2010). In this study we combined a number of temptation-related self-regulatory skills in a low intensity intervention. Fifty five participants (Mage = 37.60 years, SD= 13.47, M BMI = 32.60, SD = 4.86, 72% female) were randomized into experimental and control groups and received two training workshops and weekly practice tasks. The experimental group was trained to use six self-regulatory skills: Delayed gratification, thought control, goal setting, self-monitoring, mindfulness, and coping. The control group received dietary and physical activity advice for weight loss. Physical, self-regulatory, and psychological measures were taken at baseline, end of intervention (week 8) and at follow-up (week 12). Using intention-to-treat analysis, weight, waist circumference, body fat and body mass index (BMI) were significantly reduced at follow-up for both groups. There were significant increases in all six self-regulatory skills and the psychological measures of self-efficacy, self-regulatory success, and physical self-worth for both groups. Results indicate that self-regulatory skills training might be as effective as dietary and physical activity advice in terms of weight loss and related outcomes.

Controlling emotions at sporting events

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Unique Ultimate Sport & Academy, Nigeria

Sport is an emotional experience for many athletes and fans. Researchers found the increased causes of athletes and fans to reacts negatively physically and mentally in a manner that may negatively affect their performance abilities and the games. Control will probably improve training and games: a.) attitude, b.) body language, and c.) work ethic. Concentration is the mental quality to focus on the task in hand. If the athletes lack concentration then their athletic abilities shall not be effectively or efficiently applied to the task. Confidence results from the comparison an athlete makes among the goal and their ability. Commitment: Sports performance depends on the athlete being fully committed to numerous goals. In competition with these goals the athlete shall have many aspects of life to manage. Common causes and effects may be perfectionism, that is, when your team does not perform perfectly you lose composure because you become frustrated and then focus too much on your errors or lost instead of the tasks needed to perform well. Irrational beliefs cause you to stay stuck in old, ineffective patterns of behavior. "Thinking that my team mates may blame me or everyone may hate me." Fear of failure is based on your intense need to win and causes you to worry too much about losing or failing. This may led to you playing defensive and tentative instead of composed and play freely. It becomes easier to get frustrated and lose emotional control, that may not help you stay composed after failure. With these practices, athletes can become more aware of their emotions and able to use psychological strategies to manage their performances. Practicing sport skills using these solutions can help you deal with these emotional challenges.

Mental toughness: A psychophysiological approach

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Mental toughness (MT) concerns performance in pressure situations (Hardy et al.,2014) and the underlying psychological processes (Gucciardi et al.,2015). Our two-study project tested the validity of these authors' scales for assessment of MT: MT-H and MT-G. In Study 1, 200 athletes completed questionnaires measuring MT (MT-H, MT-G), reward-sensitivity (Behavioural Action System, BAS; Eysenck Personality Questionnaire Short-Reward Sensitivity, EPQS-RS), and punishment-sensitivity (Behavioural Inhibition System, BIS; Eysenck Personality Questionnaire Short-Punishment Sensitivity, EPQS-PS). The scales were consistent: MT-H: MT-G, r=.52, p<.05; BAS:EPQS-RS, r=.52, p<.05; and BIS:EPQS-PS, r=.58, p<.05. Moreover, MT-G (r=.45,p<.05) and MT-H (r=.35,p<.05) were positively correlated with BAS, whereas MT-G (r=.11,ns) and MT-H (r=.13, ns) were not significantly correlated with EPQS-RS. Furthermore, MT-G (r=-.23,p<.05) and MT-H (r=-.15,p<.05) were negatively correlated with BIS, whereas only MT-G (r=-.39, p<.05; MT-H: r=-.11,ns) was negatively correlated with EPQS-PS. 150 participants also completed handgrip strength (maximum voluntary contraction) and endurance (mean relative force-output over 3minutes) dynamometer tests. MT was positively correlated with strength (MT-G,r=.48,p<.01; MT-H, r=.22,p<.01) but not endurance (MT-H,r=.02,ns; MT-G,r=-.01,ns). Study 2 evaluated situations and processes surrounding MT by requiring 84 novice athletes to complete MT-scales, then perform a golf-putting task under eight counter-balanced pressure situations (cf.,Hardy et al, 2014), whilst cardiac, somatic, kinematic and behavioural measures were recorded. No correlation was found between MT-scales and performance. Physical pressures (e.g.increased difficulty) did however cause a significant decrease in performance compared to competition based psychological pressures, which conversely facilitated a positive effect. Physiological data analysis is ongoing. This project provides further evidence of the validity of two new assessments of MT in relation to measures of personality and physical strength. Contrary to predictions, however, MT was unrelated to endurance and skilled performance under pressure. In conclusion, our research contributes to our understanding of MT and the specific situations under which performance is impaired and facilitated by pressure.

Case study – development of coach´s communication skills using Video Interaction Guidance method

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This case study relates to the field of sport psychology trying to improve communication skills. Coach should have the knowledge and skills of technique, tactics, fitness and psychology regarding the sport. In essence, it´s not what coach knows, but how well he can communicate information to others (Weinberg & Gould, 2011). Good communication skills contribute to performance enhancement, personal growth, good interpersonal relationship and also to positive motivational climate. The aim of this case study is to use the Video Interaction Guidance (VIG, in Czech rep. VTI; Biemans, 1990) method for working with coach in order to develop his communication skills and consequently evaluate utility of this method on the basis of behavior changes. The intervention was realized from January 2014 to May 2014 and on October 2014 the follow-up was executed. Twenty four years old female coach with three year experience in coaching completed six video – feedbacks (based on VIG cycle). Based on the previous experience of the author with this intervention method (Baláková, 2011, 2013) process of the intervention was extended. Methods used for the purpose of evaluation of the intervention (participated observing, video-analysis, semi-structured interview with coach and questionnaires completed by players) have been modified. Results show that coach is able to communicate more effectively (get and keep player´s attention, uderstandability), use more encouragement and general technical

istruction, activate players to own thinking and adopt more individual approach. The paper helps to increase the number of VIG application areas and shows the new direction of coach education and improvement.

Forward ice hockey: Which kinematics parameters are relevant for coaches?

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The aim of this study was to investigate the relationship between expert coaches' knowledge and biomechanical knowledge about the kinematics parameters of forward ice hockey skating. We argue that interplay between scientists and professional coaches' knowledge helps to build a greater representative research design protocol and a more relevant movement analysis. Semi-structured interviews were lead to access to the concerns of ten ice hockey expert coaches (Côté, Salmela, Trudel, & Baria, 1995), transcribed and analyzed using grounded theory methodology (Corbin, & Strauss, 2008). Meaning units were collected and grouped in higher categories. Two researchers independently coded the data to ensure the rigor of the study. Three higher categories emerged from the interviews' analysis. The coaches assessed forward skating kinematics based on posture, lower limb kinematics and arm movements. The coaches' observations were often consistent with biomechanical research findings. They used operative knowledge which were specific to ice hockey and built up through practice and experience. For example, during the push-off phase they were focused on the "full leg extension at push-off," yet provided no estimates of the knee angle at the end of push-off. So coaches' focus converged with forward ice hockey biomechanical analysis but not following a linear way. Lower limb kinematics and more precisely the push-off movement is the sub-category that illustrated the strongest link between scientists and coaches' knowledge: coaches evaluated movement capturing joint amplitude kinematic subjectively but biomechanical study confirmed their preoccupations by measurements. Two main disagreements among coaches appeared: they did not sharing the same opinion concerning how arms move during skating and where the skate touch down at the end of recovery phase. These differences could be connected with a lack of science-based knowledge. Interviews' analysis confirmed the close link between biomechanical analysis and coach observations and could guide new research protocols.

High team cohesion and negative consequences: The role of balanced perceptions of cohesion

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It is likely that most athletes, coaches, and sport psychologists view high cohesion favourably. However, Hardy, Eys, and Carron's (2005) qualitative findings reveal that athletes do endorse the potential for a number of personal and group level negative consequences of being a member of a team with high social and high task cohesion, respectively. Athletes also indicated a lack of negative consequences of high social cohesion when part of a team with balanced levels of task and social cohesion. In the present study, we further examined this issue utilizing a repeated measures experimental vignette based study design. More specifically, we investigated the extent to which athletes perceive negative consequences of high social cohesion and high task cohesion, when part of teams with balanced or imbalanced task and social cohesion. A sample of 198 participants (Mage = 25.35, SD = 8.08; males = 153, females = 45) recruited from interactive team sports from the UK and Trinidad and Tobago read three vignettes that were manipulated to portray the three cohesion conditions: (balanced) High Task/High Social, (imbalanced) High Task/Low Social and Low Task/High Social). Following each vignette participants responded to the Negative Consequences of Cohesion Questionnaire (NCCQ) and manipulation check items, which provided support for a successful manipulation of the independent variables. Data were analysed using repeated measures MANOVA. Follow-up tests revealed that at both the personal and group levels, less negative consequences of high social cohesion and high task

cohesion were perceived when in the balanced (i.e., High Task/High Social) as compared to the imbalanced experimental conditions. Collectively the present data adds support to the possibility that high cohesion might not always be beneficial and reinforces the importance of developing both task and social cohesion in team building activities.

The challenges faced by Canadian high school teachers-coaches: A national survey

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In Canada, high school sports are practiced by over 750,000 student-athletes and each year, more than 52,000 individuals volunteer to coach in this context (School Sport Canada, 2013). In most cases, teachers voluntarily assume the leadership of sport teams at their school, taking on the dual role of teacher-coach. Hence, high school teachers do not have a professional obligation to coach but inherently have a 'moral obligation' to volunteer as coaches in order to ensure the viability of their schools' sport programs. As such, teachers often view coaching as an expected extracurricular commitment but managing the demands of both roles is challenging, often leading to role conflict (Richards & Templin, 2012). Many studies have examined teacher-coach role conflict (e.g., Figone, 1994; Kosa, 1990; Ryan, 2008; Sage, 1987) but to date, no large-scale research has been conducted to comprehensively examine the challenges teacher-coaches face in managing their dual role. The purpose of this study was to conduct a national survey of the challenges faced by Canadian high school teacher-coaches. The survey was disseminated online in collaboration with School Sport Canada, the national governing body for school sport. Data collection occurred from October 2014 to February 2015, leading to a nationally-representative sample of 3200 respondents from all provinces and territories. Preliminary (descriptive statistics) findings indicate that the greatest challenges faced by the teacher-coaches were related to family obligations and administrative tasks. Less than 3% of respondents indicated receiving a reduction in teaching responsibilities because they coach, even though 62% reported coaching two or more sports in 2014-2015. Such findings have implications for school administrators who should consider implementing initiatives to ensure the long-term health of their teaching staff and their continued involvement in coaching. Full analysis of the data is currently being undertaken and complete results will be communicated in the poster.

A thematic analysis of body image and athletic performance in competitive female figure skaters

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Petrie and Greenleaf's (2012) sociocultural model of eating disorders in sport suggests that societal and sport-related pressures to achieve an ideal body, internalization of those ideals, and body dissatisfaction promote disordered eating symptoms. Aesthetic sport athletes in particular are encouraged to focus on leanness and appearance for performance success and experience greater weight pressures, body dissatisfaction, and disordered eating symptoms than athletes of other sport types (e.g., Krentz & Warschburger, 2013). As an underexplored aesthetic sport, few studies have examined figure skaters' body image directly, which has limited our understanding of the development of disordered eating in these athletes. Moreover, the impact of body image on athletic performance is unknown. The purpose of this study was to gain an in depth understanding of body image and its relationship to athletic performance among competitive female figure skaters. Fifteen female skaters ages 14 to 21 (M = 17.3, SD = ± 2.50) completed 60 to 90 minute semi-structured interviews. Data were analyzed using an inductive thematic approach such that, following data organization and interpretation, thematic maps were developed to conceptualize the data relative to the study purposes (Braun & Clarke, 2006). The ideal skating body was characterized as thin, lean, strong, and small with a prepubescent body shape while representing an attractive and feminine image. Skaters reported that society is more permissive of womanly curves than skating and that they continually negotiate between

societal and skating-related body ideals. Skaters identified a unique link between body image and athletic performance. Specifically, body image concerns were reported to interfere with key psychological factors that influence skating routines, including confidence, attention, motivation, and attitude. This study provided important insight into how skaters construct body ideals as skaters and as women and revealed a novel way to address body image from a performance perspective.

Contextual guidance of attention of handball- and video-game players

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Both team sports and video-game playing show an intricate relationship with attention, so that both forms of training (physical and cognitive) may train attentional abilities. An example for an attentional training may be the contextual cueing paradigm (Kristjánsson, 2006; 2013). The aim of the study was to examine how attentional skills of team sport athletes compare with those of video-game players by using this paradigm. In two experiments we transferred the contextual cueing paradigm to the dynamic field of team sports (handball) and video-game playing in order to investigate if team sport athletes and video-game players show improved implicit learning of repeated spatial configurations for efficient search guidance in repeated environments. We used the original contextual cueing paradigm (search of a "T" among "L"-shapes; Chun and Jiang, 1998) and a sport-specific pseudo 3-D contextual cueing task (search of the ball-carrying player). In both experiments, search advantage for repeated displays was comparable in all groups. This, however, was modulated by the specific context. Handball players showed a significant earlier onset of contextual cueing in a handball-specific setting, whereas video-game players showed an significant earlier onset of contextual cueing in the more abstract "T among L" search. Thus, contextual learning in specific situations was significant faster for both test groups. However, no general contextual cueing advantage was found across paradigms. Results indicate, that both team-sports and video-game playing lead to faster implicit learning of repeated spatial configurations in specific situations. Visual search and attentional performance seems to be facilitated under familiar objects contexts. From an information-processing perspective, the early onset of contextual cueing for both test groups may be due to acceleration in one or more of the early processing stages which detect the target, select and execute an adequate motor response.

Behavioral and movement-related cortical potentials associated with single or two finger(s) voluntary force production

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The neural mechanisms related to finger coordination have been proved that the neurons of motor cortex dominate the higher level of motor strategies associated with finger control. This study aims to examine the role of task-specific dexterity in the modification of finger force enslaving and to provide empirical evidence for specific EEG potentials may be an end-effector dependent phenomenon. We applied the enslaving effect found among single finger and slaved fingers, and designed five different tasks to perform 50% maximum voluntary contraction (MVC) rate of force finger force production. 15 college subjects performed five different tasks. The force traces generated by the assigned finger, the force generated by the slaved fingers, and the amplitudes of movement-related cortical potential (MRCP) of the five tasks were analyzed. The results showed that the right index finger revealed the highest accuracy of force trace with the lowest enslaving and the highest amplitude of MRCP. Within the four components BP(-600-500 ms), MP(-100-0 ms), MMP (ramp 0-1000 ms), MMP (static 2000-4000 ms) of cortical potentials, the ramp phase demonstrated the highest amplitude comparing to the other three components.For those two finger tasks, the amplitude of different finger of two hands demonstrated higher level than either identical finger of two hands or two fingers within one hand. Therefore, we assumed that there would subsist

different control mechanisms in terms of behavioral and cortical outcomes at the higher level of motor system while performing finger tasks with either one or two fingers in both hands.

Attractive ergo competent?

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Attractiveness is associated with attribution of positive traits and skills such as competence, confidence, assertiveness etc. (Eagly, Ashmore, Makhijani, Longo, 1991). Attractive pupil are perceived as more competent from their teachers (Dunkake, Kiechle, Klein & Rosar, 2012). Thus, attractiveness of a person might be a determining factor that leads to an affective bias in attribution of competence. The aim of this study was to investigate the influence of perceived athlete's attractiveness on the referee's attribution of competence in gymnastics. In an Implicit Association Test (IAT), pre-validated pairs of adjectives referring to competence/ incompetence as stimulus material were applied, as well as pictures of male and female persons that were presented as athletes. The pictures were selected through preliminary ranking (n = 4) and morphing (n = 4). In total, N = 44 female referees (M age: 34.36 years, SD = 13.49, M years of experience in competitions: 15.36 years, SD = 13.49, 5 national league, 14 first league, 17 state level, 5 regional level, 3 others) participated in the study. Regarding the block in which participants were asked to match stimuli from the field "attractiveness" and the field "competence" to a common side, it took them significantly less time compared to matching stimuli from the categories "attractiveness" and "incompetence". The effect was significant across all stimuli ($22.592 \leq (F\ (1;43) \leq 96.612$, $p < .001$, $.34 \leq \eta 2 \leq .69$). Experimental sequence effects can be excluded. The results indicate that the attractiveness of athletes can lead to a bias of the general attribution of competence by referees. It must be stated that a comparison sample is missing. The experiment should be adopted to further settings and an intervention design should be conducted in the future.

The development of personality characteristics of Japanese elite youth athletes. Using projective psychological tests

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There have been a number of studies on applied work with elite athletes in Japan, reporting several common psychological characteristics among the athletes (Nakagomi, 2013). Employing a projective technique, some researchers found that the elite sport performers had a couple of unique psychological characters, such as somatic experience and obsessional character (Takeda, 2012). Although, the way in which competitive experience in elite sport could impact on personality development of athletes has been discussed. However, there has been only a little number of literatures on applied work with, and psychological development, of Elite Youth Athletes (EYA) in puberty and preadolescence. To complement a lack of information on the area and further develop the EYA, the Japanese Olympic Committee is now formally integrating periodical psychological checks (e.g., tree test, interview) and sport psychological support into their development program. Therefore, the purpose of this study is to examine phases of personality development in Japanese EYA from view of internal world using the tree test. A total of 66 EYA (12-18years) participated in psychological check (the tree test, interview) about 4-12times. Particularly, an overall impression of each tree and positional relations with a tree and the ground were adopted as an axis of the evaluation. Five experienced specialists evaluated all the drawings. Results indicated that a number of unique expressions emerged from initial drawings, reflecting their personality (more than 90%). On the other hand, in sequence analysis in pursuit of changes, only a few drawings showed some distinctive features after the second test (less than 80%). It was suggested that internal growth was inhibited under the special development program

for EYA. Additionally, the poster will include an introduction on the program for EYA, and our unique psychological approach “Shinri-Rinsho”, which Japanese sport psychologists and practitioners originally proposed.

The performances of cognitive function and social ability after head injury

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Athletes are at higher risk of head injury. There are approximate 1.6 million to 3.8 million people with head injury caused by sports injury every year, especially on boxing, football, and martial arts. Head injury may cause damage on physiology, cognitive function, and social ability. Theory of mind refers to attribute self or others’ mental state, including thoughts, feeling, and belief (Premack & Woodruff, 1978). Poor performance on theory of mind may influence their social ability, causing difficult to build relationship with others. Besides, the damage on cognitive function is related to theory of mind (Turkstra, 2008), which will influence severely patients’ life. We administered 23 head-injured patients and 22 healthy people, who were matched for gender, age (M=37.20; M=36.64), and degree of education (M=12.61; M=12.95). Most head-injured patients with intracerebral hemorrhage were mild injury causing by falls, fights, or traffic accidents. All participants wrote informed consent and completed cognitive tasks which assessed their executive function and working-memory. They also undertook multiple theory of mind tasks and self-report social scales, which assessed their social ability. The result showed that head-injured patients performed significantly worse than control group in theory of mind ($t = -2.84$, $p < .01$, $ES = .85$) and working-memory ($t = -4.03$, $p < .001$, $ES = 1.20$), but no significant difference in executive function between two group. The significant relationship was found between working-memory and theory of mind ($r = .59$), and working-memory might predict the performance on theory of mind. It is concluded that head injury caused the damage on cognitive function and social ability. Working-memory is an important predictive factor to theory of mind, but executive function may not be a critical factor. The finding may be replicated in the patients with sports-related head injuries and apply in clinical health care.

Perceived Social Influences in Sport Scale-2 (PSISS-2): A mixed method approach for scale development and validation

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Perceived social influence in sport scale (PSISS; Chan, Lonsdale, & Fung, 2012) is a psychometric tool that evaluates the relative influence (i.e., positive-reinforcement and punishment/criticism) of significant others (e.g., coaches, parents, and teammates) on young athletes. The scale was constructed by a top-down or theory-driven process, so the face validity, external validity, and coverage of the scale could be problematic. Qualitative research helps capture the essence of psychological and behavioural constructs, and may therefore provide essential information to assist the development of a new PSISS using a bottom-up and respondent-imposed method. Possessing the merits of both qualitative and quantitative research, the present study aimed to demonstrate a mixed method approach for developing PSISS-2. We developed 49 items based on qualitative data about social influence of youth sport (Keegan et al., 2010). Using an expert panel protocol, we examined the content relevance, clarity, and appropriateness of the items based on the feedbacks from 11 experts of sport psychology. The refined items were then examined by exploratory factor analysis (EFA; 98 athletes) and confirmatory factor analysis (CFA; 348 athletes) respectively, using separate samples. The criterion validity of the scale was examined by correlating the constructs of PSISS-2 to athletes’ self-reported enjoyment, effort, competence, and competitive trait anxiety in sport. In addition to the two constructs identified in PSISS, namely (1) positive-reinforcement and (2) punishment/criticism, two factors associated with (3) affiliation/closeness and (4) conflict/dysfunction, emerged respectively from the qualitative

and quantitative (EFA) investigation. CFA showed that the four-factor model fitted the data acceptably (CFI=.94, RMSEA=.05, SRMR=.06), and each of the factors explained significant proportion of variance to the outcome variables. Using a mixed method approach, our study expanded the content validity and coverage of the items assessing the perceived social influence of athletes by introducing the PSISS-2.

A three wave design: Reciprocal relationships between motivation and basic psychological needs

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Maintaining a high level of motivation throughout the competitive season is considered as one of the most important qualities that athletes need to develop (Martinent, Decret, Guillet-Descas, & Isoard-Gautheur, 2014). A conceptual model which seems particularly useful for understanding motivation is the Self-Determination Theory (Deci & Ryan, 2000). The belief that changes in basic psychological needs (BPN) will lead to changes in subsequent motivation is the origin of much of the interest within the BPN-motivation relationship. However, there is a need to better delineate similarities and discrepancies between BPN and motivation. Indeed, there are still several untested relationships and/or unanswered questions. More particularly, significant limitations in this area tie to the lack of work: exploring the relationship between BPN and motivation over time in sport; examining the BPN thwarting-motivation relationship; and testing simultaneously these reciprocal relationships. We use a three wave 8 months design to provide a finer grained portrait of these reciprocal relationships among a sample of 144 adolescent elite athletes (Mage = 16.3). The partial least squares path modeling approach (PLS-PM) results between T1 and T2, and T2 and T3 corroborate previous research which showed that satisfaction of BPN for relatedness is an antecedent of increased self determined motivation. But, they also highlighted that some motivational regulations (e.g., external, introjected, intrinsic) predicted both decreases in satisfaction and increases in thwarting of BPN. Our results furthered knowledge on the temporal ordering between BPN and motivation. In regards to practice, these results can help to determine whether intervention could be based only on one construct or rather on both. Specifically, because both BPN and motivation precedes each other over time, it would be difficult to improve athletes' adjustment by intervening only on one construct. In this case, the changes provoked by intervention will be at the best temporary or ineffective.

Perceived coach-autonomy support and athletes' well/ill-being: The mediating role of experiential avoidance

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In the sport domain, the coaches play significant role in shaping athletes' optimal functioning (Duda & Balaguer, 2007). Researcher have begun to understand the mechanisms linking perceived coaching environments and the indices of well- and ill-being (Adie, Duda, & Ntoumanis, 2008, 2012; Reinboth & Duda, 2004). However, experiential avoidance is a mechanism rarely discussed in the sport psychology. There is a growing interest in experiential avoidance because researchers have found it to be a critical determinant of mental health and behavioral effectiveness (Bond & Flaxman, 2006; Hayes et al., 2004). Thus, investigating the role of experiential avoidance in an athlete might help practitioners design suitable programs to enhance athletes' performance and functioning optimally. Therefore, the main aim of the present study was to examine the mediational role of experiential avoidance in the relationships between perceived coach-autonomy support and well/ill-being. Student athletes (age range from 18 to 23) from a university in Taiwan completed the measurement of perceived coaches' autonomy support, acceptance and

action questionnaire, depression, life satisfaction, positive emotion and negative emotion. The results showed that perceived autonomy support was related to depression and negative emotion through experiential avoidance. However, experiential avoidance did not mediate the relationship between perceived autonomy support and positive emotion and life satisfaction. In summary, this study provided preliminary evidence to support that athletes perceived their coaches encouraged them to make their own choices and gave them positive feedback, they had lower experiential avoidance to protect themselves against depression and negative emotion. This study opened a new avenue for investigating experiential avoidance in the sports contexts.

Effective motivational methods to change physical activity behavior of sedentary adults in a rehabilitation setting

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The scientific evidence for the positive health effects of regular physical activity (PA) is well established (e.g.: Lee et al., 2012). Also the evidence for the efficacy of different methods to increase the level of PA in patients is increasing (e.g.: Garrett et al., 2011). How to motivate behavior change and create a healthier lifestyle however is a challenge for practitioners in the rehabilitation setting. The objective of this presentation is to describe the protocol and preliminary results of a systematic review and possible meta-analysis of effective motivational methods to increase PA among sedentary adults in a rehabilitation setting. The project is funded by the Finnish Social Insurance Institution. The PICO guidelines for systematic reviews are followed. The studies included in the review are PA interventions, mainly using a randomized control trial design with a follow-up. Participants are working age adults (18-65 y. o.); the main outcome variable is measures of PA. According to the current search results 1581 studies from MEDLINE, 1680 from EMBASE, 85 from CINAHL, 130 from CCRCT, and 130 from PsycINFO have been extracted. An updated version of the review results and preliminary analysis of the final pool of studies will be complete by June 2015 following the application of specific inclusion and exclusion criteria. Implications for best practices and suggestions for future research in this area will be discussed.

Flow experiences in atletes from a variety of sports

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Achieving peak performance is an all-important goal for competitive athletes and coaches. A number of researchers study the interrelations between flow state and peak performance (Jackson, 1992, 1993; Jackson & Roberts, 1992; Privette & Bundrick, 1991). Csikszentmihalyi (1990) characterized flow as a state of optimal experiencing, the holistic sensation. He outlines nine dimensions, characterizing the flow. Some authors pose the question whether it is possible the state of flow to be controlled or it just happens, whether there is a connection with some personal dimensions, and how dependent this complex state is on the environment or the personal characteristics. The aim of the present study is to research the state of flow with competitors from a variety of sports, its dependence on some personal characteristics, as well as the possibility to control it. The research was done among 56 elite competitors from various sports (rhythmic gymnastics, football, wrestling, judo, sambo) aged between 16 and 25, all of them awarded at World and European championships. In order to fulfill the aim, the following methods were used: 1) Flow State Scale (Jackson & Marsh, 1996); 2) Multidimensional Perfectionism Scales (Frost-MPS), Frost, Marten, Lahart, & Rosenblate (1990); 3) Task and Ego Orientationin Sport Questionnaire – TEOSQ (Duda & Nicholls, 1992); 4) Self-Efficacy Methods in Sport (T. Iancheva, Tzv. Misheva-Aleksova, 2006). The results reveal some specifics in the manifestation of the dimensions of Flow state with the athletes from various sports. There are certain interdependences between the flow and the level of qualification, and some personal

characteristics. On the base of the obtained results some guidelines for searching possibilities for control of the flow were outlined, as well as some recommendations for optimization of both the education-training and competitive processes.

Intrinsic motivation and self-efficacy predict performance satisfaction in athletes: A longitudinal analysis

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According to self-determination theory intrinsic motivation refers to engaging in an activity because of the inherent enjoyment (Ryan & Deci, 2000). Global beliefs about ability to deal with task at hand may play a role in the formation of intrinsic motivation. However, in line with social cognitive theory, sport-specific self-efficacy is proximal to sport outcomes. Therefore, efficacy beliefs referring to sport-specific barriers should operate as mediators between intrinsic motivation and performance indices. Our study investigated if performance satisfaction at a follow-up would be predicted by general self-efficacy, with intrinsic motivation and personal-barrier self-efficacy (specific for athletes' daily functioning) operating as the sequential mediators. The sample consisted of 197 professional athletes (113 women; 57.4%). Participants were 16 to 43 years old (M = 21.7). All athletes were competing at the national or international level. The measurement included Sport Motivation Scale- 6 (Mallet, Kawabata, Newcombe, Otero-Forero, & Jackson, 2007), General Self-Efficacy Scale (Luszczynska, Scholz, & Schwarzer, 2005), Personal-Barriers Self-Efficacy scale (Blecharz et al., 2014), and Satisfaction with Sports Performance scale (Balaguer, Duda, Atienza, & Mayo, 2002). The questionnaires were filled out at the baseline (T1) and at 3-week follow-up (T2). The results of sequential mediation analysis indicated that higher general self-efficacy (T1) was related to higher intrinsic motivation (T1). Further, personal-barrier self-efficacy (T1) was explained by higher general self-efficacy (T1) and higher intrinsic motivation (T1). Finally, higher personal-barrier self-efficacy (T1) was related to higher performance satisfaction (T2), after controlling for the baseline levels of performance satisfaction. The significant indirect effect coefficients suggest a two-mediator pathway, assuming that the general self-efficacy --satisfaction association was mediated by intrinsic motivation (Mediator 1), linked to personal-barriers self-efficacy (Mediator 2). The findings may have implications for psychological practice. Boosting general self-efficacy may be the most effective way to improve athletes' intrinsic motivation, and, indirectly performance satisfaction.

Inclusion or illusion? Requirements for the participation of individuals with mental health difficulties in Austrian sport clubs

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Although several qualitative studies have emphasised that physical activity positively influences physical health, mental health and social inclusion (e.g. Mason & Holt, 2012), an Austrian pilot study indicated that 84% of 149 people with mental health difficulties are less physically active than they would like to be. One assumption is that for individuals with mental health difficulties, the chance to become regularly physically active could increase if sport clubs were to offer participative and inclusive physical activity programmes. The aim of this study is to describe what prerequisites the individuals would need in order to participate in a sport club activity. For this study, individuals were only eligible if they suffer from mental disorders and have attended the "Pro Move" physical activity programme run by a mental health centre at least once since 2013. Interviews were undertaken with 15 people (13% women) with a mean age of 36.7 (SD=11.8) and a mean body mass index of 27.6 (SD=5.6). The data from the semi-structured interviews were recorded and transcribed. Relevant paragraphs were coded and assigned to categories with the "MAXQDA" text analysis software. All the interviewed persons described the participation in the „Pro Move"

programme as crucial for their mental well-being an social identity. However, apart from this exclusive setting, most of the participants had never been active in a regular sport club. Reasons given for this included the fear of stigma, as well as entry barriers such as high costs. In order to make sport clubs activities attractive for this particular target group, mental health centres, sport clubs and the concerned individuals will have to work together to develop inclusive physical activity programmes within sport clubs. Measures such as specially qualified coaches might help to decrease the fear of stigma and to increase self-esteem among people with mental health difficulties.

Perceived effect of the teaching aid „moving together“ on class cohesion

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The teaching aid „moving together“ is a selection of physical activity tasks (of 20 minutes, each) to promote social cohesion. Twenty activity-cards are addressed to teachers aiming to use physical activities to support class cohesion. Each card contains a physical activity task as “guiding someone blind” or “circle lap sit” and questions to provoke a discussion after the experience like “what have you been afraid of?”. To evaluate implementation of the teaching aid in the classroom and perceived effect on social cohesion, an online survey with 38 (open and closed) questions was sent to all primary and secondary teachers, who used the teaching aid during the last 12 months. In total, 216 teachers were addressed whereof 162 (75.0%) finished the questionnaire. The teachers perceived a significantly higher class cohesion if physical activities were combined with following class discussion in contrast to those who never or only sometimes combined both parts of the teaching aid (76.9% vs. 54.4%, p=0.026). Among participating teachers, 16.9% stated that they often or always discuss the experiences directly after the activity, whereof 40.0% spent more than 10 minutes for each implementation. The 83.1% of the teachers who never or only sometimes discussed the experiences after the activity task, spent generally less time for the implementation (8.8% spent more than 10 minutes on each session). The study showed that the teachers dedicated less time for the implementation of the activities than is recommended by the teaching aid. A majority never or only sometimes implemented both parts – activity and discussion – in combination. Nevertheless, a majority of the respondents observed the effects that are intended by the teaching aid. However, those positive effects on teachers’ perception of the class cohesion could be enhanced, if the activities were combined with following class discussions more often.

Evaluation of effectiveness of complex technique of increasing mental readiness of Olympic athletes on the pre-contest stage

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The psychological preparation of athletes includes different structural elements like the diagnosis of mental properties and states, adaptation to stress, mental regulation and self-regulation (Alekseev, Babushkin et al.). The aim of the study was to develop and test a complex technique to increase mental readiness in Olympic athletes for competitions. The research approach comprised of exercises, tasks, psychoregulation methods, motivational coaching, training the self-regulation of the functional state and relaxation as well as computer experiments (PSY-MONIT, Sivitsky, 2014). The experiment was conducted with three differing group of sports - cyclic sports (swimming athletes, n=12), combat sports (n=20) and precise coordination sports (n=10) – and it included three measurement series. The first series was designed to identify the dynamics of the level of situational and personal anxiety, activity, mood, feeling and pre-contest mental state including physical, emotional and cognitive components. The second and the third series were aimed at identifying the

dynamics of the level of frustration tolerance, self-control, stress factors expression, situational anxiety and basic emotions as well as important psychomotor skills for swimming athletes and gymnasts respectively. Results showed that the Olympic athletes improved their perception of space and time that evaluates the features of hand-eye coordination, visual perception and accurate assessment of spatial segments and time intervals. In addition, they showed increased (?) physical and emotional well-being, confidence and vitality. Furthermore, athletes showed increased levels of psychological readiness, concentration and they learned to control their emotional state, the technique of breathing and psychoregulative exercises. In sum, the results suggest that complex technique is an effective tool that enables to create basic, cognitive, motivational, emotional and volitional components and allows to quickly activate internal resources in Olympic athletes. Finally, recommendations will be given how to use this methodology.

Effects of music and music video on affect during and post-exercise at the lactate threshold

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Researchers have emphasized the role of affective responses to exercise as an important determinant of exercise adherence (Tempest & Parfitt, 2013; Williams, 2008). The ventilatory threshold and lactate threshold (LT) represent biological markers upon which affective responses to exercise begin to decline (Ekkekakis, 2003). Musical accompaniment has the capacity to positively influence affective responses to exercise (Karageorghis & Priest, 2012a, 2012b) and is frequently combined with visual stimuli within exercise environments. Thus, researchers have recently sought to examine the interactive effects of auditory and visual stimuli on affective responses to exercise (e.g., Hutchinson, Karageorghis, & Jones, 2015; Jones, Karageorghis, & Ekkekakis, 2014). They have yet to address the effects of such stimuli during and post-exercise at the LT, which is associated with the greatest variation in affective responses (Ekkekakis, 2003). The present study examined the effects of music and music video on affective responses (affective valence and perceived activation) during and post-exercise. Participants (N = 12; 5 females and 7 males) cycled for 20 min at LT under three conditions: music, music-video, and control. Mixed-model MANOVA revealed a higher-order interaction for affective valence (Condition x Time x Gender, $p = .005$), as well as a main effect of condition ($p = .021$). The music and music video conditions elicited the highest levels of affective valence in females only. Moreover, there was a twoway interaction for perceived activation (Condition x Time, $p = .031$; Time x Gender, $p = .007$), as well as a main effect of time ($p = .003$). The present findings support the efficacy of music and music video as a strategy for enhancing exercise-related affect at the LT. Given the emerging support for the affect-adherence relationship in the exercise realm, consideration of the targeted use of music and music video by exercise and health professionals is warranted.

Beneficial effects of Paneurhythmy learning on mood, personality characteristics and subjective well-being

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Paneurhythmy is a combination of exercises, live music and verses, executed early in the morning in natural environment, with partner in a group. Our objective was to study the influence of Paneurhythmy on the psychological characteristics of adult people who learn to practise Paneurhythmy. The design was quasi-experimental. The subjects were 155 healthy individuals: 77 in the experimental group (EG) (Mage=41.7), and 78 adults similar in socio-demographic characteristics to them (control group: CG) (Mage=41.8). Subjects of EG learned to play Paneurhythmy over the course of 6 months, 1-2 sessions weekly with 1.5 hours duration (exercise time 30-40 min). All subjects were tested twice: at the beginning of Paneurhythmy course and after its end. The Bulgarian versions of the following psychological tests were used in the study: STAI-Y (measuring state- and trait anxiety); PSS (perceived

stress) BDI-2 (depression); BDHI (aggression); PANAS (positive and negative emotions); FEQ (happiness); Inspiration Scale; MAAS (mindfulness); RSES (self-esteem); GSE (general self-efficacy); SWLS (life satisfaction); LOT-R (optimism); AHS (hope); ER-89 (ego-resiliency); SOC (sense of coherence); SF-36 (health-related quality of life). Student's t-tests for paired and independent samples, Mann–Whitney U-test and Paired-sample Wilcoxon signed rank test were applied. There were no statistically significant differences between EG and CG on any of the variables before the Paneurhythmy course. Statistically significant changes were registered in all 19 variables in EG (but not CG) after the course. Paneurhythmy learning significantly decreased levels of state- and trait anxiety, perceived stress, depression, aggression, negative emotions; significantly increased happiness, inspiration, mindfulness, positive emotions, self-esteem, general self-efficacy, optimism, hope, ego-resiliency, sense of coherence, life satisfaction, mental and physical health. Possible explanations of the Paneurhythmy's paths of influence are discussed. The evidence of beneficial changes of mood and personality characteristics allows us to recommend Paneurhythmy as a method for improving well-being and quality of life.

The impact of received support upon psychological well-being among university student-athletes

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The current study aimed to clarify the relationship between athletes' received support and psychological well-being. Social support has been identified as a salient factor in athletes' mental well-being (Hardy, Richman, & Rosenfeld, 1991). Though there is evidence of positive influence of social support in relation to athletes' burnout (Tsuchiya, & Nakagomi, 1996), and competitive stress (Crocker, 1992), more recently, the need of further clarification of social support mechanisms in sport has been emphasised (Rees, 2007). Indeed, while there is a consistent evidence of importance of received support, impacts of received support have not been yet fully examined. In this study, the participants (147 Japanese university student-athletes; Mean19.91±0.61years) completed the questionnaires, which measure the frequency of received support (i.e. Emotional, Esteem, Informational, and Tangible support) and psychological well-being (i.e. autonomy, self-acceptance, and positive relationships with others). The multiple regressions were conducted for the data analysis. Results revealed that athletes who received frequent social support showed significantly higher levels of psychological well-being. More specifically, the athletes with frequent social support perceived that they have positive relationships with others. The results also suggested that female athletes received frequent social support compared to male athletes. In sum, positive effects of the receipt of social support upon psychological well-being were partly identified in the current study. These findings indicated the significance of further examination of impacts of athletes' received support with specific features of athletes (e.g. gender). As researchers encourage athletes to be proactive to their use of available social support (Rees, 2007), further evidence-based study will contribute to the enhancement in athletes' utilise of available social support for their well-being.

An examination on international transfers of elite Japanese football players to the European football league

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In the 1998 FIFA World Cup held in France, where Japan made its first appearance, all 23 of the players who participated belonged to the J-League. However, of the 23 players who competed in the World Cup held in Brazil this year, 12 belonged to overseas clubs; this number actually reaches 15 when one includes two players who had belonged to a foreign club in the past, and a player who transferred to an overseas club after the tournament. The

present study seeks to collect information on problems experienced by active professional football players playing in major European leagues, how they cope with them, the support they wish for, and so forth, and obtain basic information toward providing players who are playing abroad with knowledge and specific support. The ranks of Japanese football players currently playing in countries and regions around the world have swelled to numbers so high they cannot be fully ascertained, but in the present study, subject leagues were the first or second division of the major leagues of Western Europe where most of the world's top-level footballers play. There were four currently active players who were interviewed as participants. Semi-structured interviews were conducted with each player. The data was analysed using the grounded theory approach. The results revealed that important factors comprised six categories, decision of transfer, anxiety, language, food, family and social support. The Japanese migratory player is required to make a significant life-changing decision, not just sign for a new club, but to move to a new country. As a consequence of this, they are required to use and converse in a foreign language, adapt to new soccer culture and playing style, build good relationships with coaches and team staff.

Affective responses and flow experience during a scuba diving

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The concept of “flow” has been used to describe an intrinsically rewarding experience that people can experience during an activity. Although the relationship between flow experience and affect is limited, Landhäuβer and Keller (2012) indicated that flow is positively related to positive affect. However, this relationship does not hold for every type of activity (Csikszentmihalyi & Rathunde, 1993). The purpose of the study was to examine the relationship among divers’ affective responses and flow experience before and after a scuba diving. One hundred and four scuba divers volunteered to participate in the study, ranging in age from 20 to 57 years old (M=32.17, SD=7.16). The divers completed, based on how they felt one hour before the dive, two 11/point scales measuring the perceived skills’ of the diver and the perceived challenge of the activity (Csikszentmihalyi, 1975). Just after the dive, the participants completed the Flow State Scale-2 (Jackson & Eklund, 2002), the Activation-Deactivation Affective Schedule (Thayer, 1986) with regard to how they felt during the dive. Using median splits, the divers were assigned into four groups: apathy (low challenge-low skills), anxiety (high challenge-low skills), relaxation (low challenge-high skills), and flow (high challenge-high skills). The results indicated that the divers in the relaxation and flow quadrants showed higher means in energy and lower values in tension compared to the apathy and anxiety group athletes. Additionally, energy revealed significant positive correlations, while tension was negatively correlated to flow experience. Finally, divers’ skills showed positive correlations to energy and calmness, and negative correlations to tension. The research findings suggest that flow conditions are related to the experience of positive affective responses, as this was indicated by the higher energy and lower tension. Participants’ skills as well as the balance between challenge-skills can lead to foster the experience of a positive emotional state.

Effects of psychological skills training on sports performance among rifle and pistol shooters

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In recent years, the research in mental skills has been accepted and recognized making sports excellence a multi-dimensional process. Along with the physical training, achieving excellence in sports demands sharpening of one’s psychological skills. Stress management and arousal regulation are two of the most crucial psychological skills that equip any sports person to face the competitive distractions and challenges of the game adequately. Research clearly suggests that inability to manage stress and regulate optimum levels of

arousal can mean the difference between success and failure in competitive sport. The present paper aims to study the effect of psychological skills training on sports performance among rifle and pistol shooters. For this purpose, ten pistol and rifle shooters have been taken through a four weeks systematic intervention training involving various psychological skills building techniques. The subjects are assessed on their perceived level of stress management and arousal regulation during pre-intervention phase and post-intervention phase. The paired t-ratios are computed to determine significant difference in the pre-test and post-test perceived scores on stress management and arousal regulation. Results will be discussed in light of earlier findings.

Status, power and retributive justice in sports: Role information of athletes and the equality of punishment among coaches

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Research has shown that resource-holders (e.g., leaders) with different levels of status (high reputation) and power(dominate resources) would treat others differently in terms of justice (Blader & Chen, 2012). Leaders with higher status treated followers much fairly than leaders with higher power. This study investigated the effects of status and power of coaches on retributive justice judgments and attentiveness toward athletes. Participants were 39 adult athletes (28 male and 11 female) from badminton, basketball or table tennis. Participants were firstly primed with status or power by means of reading a vignette which described a coach with high status or power. Secondly, participants read 3 scenarios describing an athlete with one of the three different roles on the team (i.e., a starter, average player, or trouble maker) who violated team rules (stealing). Afterwards, participants answered questions regarding their responses toward the athletes (the probability of releasing the athletes from the team and attentiveness toward the athletes). A 2 (power prime) × 3 (role information) MANOVA found a significant main effect of role information on both the probability of releasing the athletes ($F(2, 36) = 5.50$, $p = .006$) and attentiveness toward the athletes ($F(2, 36) = 12.07$, $p = .001$). The probability of releasing trouble makers was higher (M = 95%) than average athletes (M = 69%) and in turn higher than starters (M = 61%). Participants also reported that they would pay more attention to starters (M = 5.53) and average players (M = 5.46) than trouble makers (M = 5.01). It seemed that athletes' contribution to the team was the main factor influencing a coach's response toward a rule-violating athlete, regardless of the coach's levels of status and power. However, more studies are needed regarding the manipulation of status and power in sport settings.

An examination of gender and exercise stage of change differences in self-control, general self-efficacy and life satisfaction

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The aim of this study is to examine self-control, general self-efficacy and life satisfaction of university students with respect to exercise stage of change and gender. 307 university students (nmale = 170; age= 21.31±2.28 ve nfemale = 137; age=20.47±1.70) aged between 17-32 years old vountarily participated in this study. Rosenbaum's (1980) Self-Control Schedule (SCS), The Satisfaction with Life Scale (SWLS), General Self-Efficacy Scale (GSES) and the Exercise Stages of Change Questionnaire (ESOCQ) were administered to the participants. The results of Univariate Analysis of Variance (ANOVA) and Mann-Whitney U test indicates that there is no gender difference in self-control, general self-efficacy and life satisfaction. On the other hand, the results of ANOVA revealed a significant difference in general self-efficacy with respect to exercise stages of change ($F(4,292)= 2.77$; $p< 0.05$), but there is no significant difference in terms of self-control ($p>0.05$). Concerning life satisfaction, the results of Kruskal-Wallis Analysis showed a significant differences for stage of change in exercise ($\chi 2 = 20.07$, $p<0.001$). It can be concluded that self-control, general self-efficacy and life satisfaction do not vary among males and females. The general self-efficacy scores

of the participants who are at the preparation stage of exercise are lower than the ones who are at the maintenance stage of change for exercise. In addition the participants in the later stages of change had higher life satisfaction scores than those in the early stages of exercise change.

Floorball is a more motivating activity than spinning for menopausal women

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Regular physical activity can be a challenge for women around menopause. Motivation is related to participation in physical activity (e.g. Pelletier et al., 2001). Therefore, menopausal women's motivation for specific physical activities and the impact of the actual activity on their motivation should be examined. This study investigated menopausal women's motivation for a team-based activity, floorball, compared to an individual activity, spinning. The Self-Determination Theory (Deci & Ryan, 2000) and the Hierarchical Model of Motivation (Vallerand & Lalande, 2011) were used as a theoretical basis. Seventy women (mean age = 50.66, SD = 3.37) were allocated to either a floorball or a spinning group. This intervention was funded by the Copenhagen Women Study and the Copenhagen Centre for Team Sport and Health. A Danish version of the Sport Motivation Scale (Pelletier et al., 1995) was administered at week 2 and 11. Effects of group and time on motivation levels were tested with repeated measures mixed ANOVA. Significant main effects for group were found for intrinsic motivation, extrinsic motivation, and amotivation, with a medium to large effect size for all three forms of motivation. Overall, floorball participants had 21,50% higher intrinsic motivation, 22,65% higher extrinsic motivation, and 44,87% lower amotivation than spinning participants. A significant main effect for time was found only for extrinsic motivation. All participants increased 6,14% in extrinsic motivation over time. No significant interaction effects between group and time were found. According to the Hierarchical Model of Motivation, situational motivation affects contextual motivation for the activity. As motivation levels were consistently higher for floorball than for spinning participants, floorball appears to be a more motivating activity for women in the menopause transition.

The congruence between athletes' expectations and career assistance programs objectives in a Catalan high performance centre

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Career Assistance Programs (CAPs) have been implemented in the last years around Europe. Most of these CAPs are based in previous scientific research and practical experience in the field of elite sport and career transitions. The "Exits Program" from the Sant Cugat's High Performance Centre (HPC; Regüela, 2011) is a CAP designed to assist elite athletes during their staying at the HPC. Exits' main objective is the promotion of Dual Career (DC). However, do the athletes expect the same when they first arrive at the HPC? The purpose of this work is to evaluate the congruence between Exits' main objective and athletes' expectations. Framed in the welcome process to the HPC, 60 athletes (35 men; 25 women; M = 16.8; SD = 1.88) were interviewed. The interviews lasted approximately 20 minutes and included oral and written parts. The expectations were asked as a written open-ended question. The answers were qualitatively analyzed through hierarchical content analyses (Sparkes & Smith, 2014). Results showed seven kinds of expectations related to their staying in the centre: athletic performance, personal growth, academic development, general learning, benefit HPC's resources, socialization and a HPC's adaptation course. Only 21% of the athletes reported expectations related to DC opportunities. Taking into account that less than 25% of the interviewed athletes perceive their staying also as an opportunity to develop themselves in an academic level, as well as the athletic level we conclude that the congruence between Exits' main objective and athletes' expectations

should be improved. New strategies to communicate the importance of following DC will be designed and implemented for the newcomers.

Neural correlates of motor imagery and observation in springboard diving

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Motor imagery and mental practice are crucial elements in training and competition of springboard and platform divers. As the simulation theory (Jeannerod, 2001) posits, simulations of action such as motor imagery and motor observation share neural activation patterns with motor execution. A single-case comparison was performed to gain a first insight into neuronal activation patterns within motor imagery and observation, each from internal and external visual perspective. In accordance with the coaches the reverse two-and-a-half somersaults, tuck (305c) was used in this study. One internationally competing springboard diver (male, aged 27) was compared to one age-matched control participant (male, aged 27, internationally experienced judoka), and one youth springboard diver (female, aged 16). 32-Channel EEG was recorded for 40 trials of each condition (RCT). All trials were shown on a screen and introduced by baseline measurement and a preparation phase with condition specific symbols, which were then shown in imagery conditions or replaced by a video in observation conditions. Participants were instructed to imagine the dive as vividly as possible or to put themselves in the position of the recorded diver as well as possible. Event-related desynchronization (ERD) analysis was performed in alpha-frequency (8-12Hz). The youth athlete showed widespread ERD in all four conditions within the two seconds of preparation and the first two seconds of execution. The control participant showed more focused activation in form of ERD than the youth athlete and activation patterns comparable with the adult diver but with more central and frontal activation. The adult diver showed the most focused ERDs postcentral in all four conditions. The results are consistent with the neural efficiency hypothesis (Del Percio et al., 2008) which claims that neural activation patterns enlarge less topographically with level of expertise. These finding can be used for further investigation and psychological training in springboard diving.

Adaptation of agentic engagement scale to Spanish physical education students

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The objective of the study was to adapt and validate the agentic engagement scale (AES) in physical education high-school students. Drawing on self-determination (Deci & Ryan, 1985), social cognitive (Bandura, 1997) and personal causation (de Charms, 1976) theories, agentic engagement (AE) consist in the constructive contribution of the students into the flow of the instructions they receive (Reeve & Tseng, 2011). The conceptualization and assessment of AE was developed by Reeve (2013). For this aim, a back-translation of the scale, from English to Spanish and vice-versa, was done. Moreover, five experts in this area and a group of 28 students verified the wording and the cultural adaptation of the items. Finally, a group of 307 adolescents students (163 males and 144 females) from several Spanish high-schools completed the scale. Confirmatory Factor Analysis (CFA), sex invariance, internal consistency, correlation and regression analyses were done. The CFA revealed that this version ($\chi 2 = 12.80$; $p = .02$; $\chi 2$ /d. f. = 2.56; CFI = .98; IFI = .98; TLI = .97; CFI = .98; RMSEA = .07; SRMR = .03) has suitable values. The invariance by sex was also confirmed. The Cronbach's alpha of the scale was good ($\alpha = .82$). A positive correlation (greater than 0.35) between the five items was observed. Finally, agentic engagement considerably predicts autonomous motivation ($\beta = .53$, $p < .05$), supporting the external validity of the scale.This work showed that the Spanish version of AES was a valid and reliable instrument for evaluating the positive contribution of the students into the flow of the teaching they get.

Biomechanics of movements of lower extremities through Sunjeevan yoga postures to prevent sport injuries

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This study provides insight into the cause of sports injuries and role of Sunjeevan yoga in the prevention and rehabilitation of sports injuries. Thirty male sportsmen from Pune city suffering from skeletal and muscular injuries in the lower extremities, whose ages ranged from 20 to 30 years, were chosen using purposive sampling. An experiment was conducted on state, national and international level players of different sport disciplines namely hockey, volleyball, basketball, football, handball, cricket, tennis, badminton, kabaddi, kho-kho, track and field. The total duration of the experiment phase was 24 weeks. Questionnaires were used to evaluate pain related to the sports injury. Medical diagnosis of injuries was conducted by standard X-ray and MRI techniques. X-ray and MRI reports confirmed the rehabilitation of the sportsmen from sports injuries. The ANOVA followed by Scheffe's post-hoc tests was employed to assess the efficacy of the training intervention towards rehabilitation of sports injury of the selected players.

Flow experience of athletes: Investigating the difference between team and individual sports

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Flow has been described as a state of optimal experience involving total absorption in a task at hand, and creation of a state of mind where optimal performance is capable of occurring (Russel, 2001). In recent years, exercise and sport psychologists have focused on flow states of individuals and their behaviours related to this. With this aim, optimal performance flow state has become one of the most important topics and concepts in terms of reflecting cognitive and psychologic state occuring though optimal performance experience in sport and exercise setting (Jackson et.al., 1998; Jackson and Marsh, 1996; Jackson et.al., 2001). The aim of this research was to compare flow experience of the athletes from individual and team sports. A total of 251 athletes, 150 athletes (%59.8) from team sports and 101 athletes (%40.2) from individual sports, participated to the research. Mean age of the athletes was 14.50±1.70. Athletes completed Dispositional Flow Scale-2 (DFS-2) (Jackson & Eklund, 2004). Language adaptation of the scale into Turkish was made by Aşçı et al., (2007). This scale has nine sub-dimensions. Level of significance was determined to be 0.05. Results showed that there was a significant difference between team and individual sports athletes in challenge-skill balance ($t=2.917$, $p<0.05$) and clear goals ($t=2.010$, $p<0.05$). There was not any significant difference in action-awareness merging, unambiguous feedback, concentration on the task, sense of control, loss of self-consciousness, time transformation, autotelic experience ($p>0.05$). It was seen that that individual sports athletes had significantly higher scores in challenge-skill balance and clear goals compared to team sports athletes.

Correlations between pre-competitive moods states and performance of elite futsal players

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Based on studies of emotions in sports, the present research investigated the empirical relation between the present mood state and the performance of futsal athletes. While emotions have been identified as an important predictor of athletes' performance (Weinberg & Gould, 2008), few studies have showed specifically which actions or skills can be influenced by pre-competitive mood states. This study identified and qualified this interaction making a correlational analysis between the pre-competitive mood state and the performance of elite futsal players. Professional futsal athletes (n =18) completed the Present Mood State List (Engelmann, 1986), individually, 40 minutes before six official

matches, which were recorded for a post-session performance analysis using a Futsal Scout (20 actions and skills). Pearson correlation analyses showed a significant and strong positive correlation just in goalkeepers´ actions. Physical and mental fatigue were correlated with "goal conceded" (r = 0.79; P= 0.05). Results also indicate that lower level of shame has a correlation with advanced actions of goalkeepers (r = -0.84, P= 0.03). Literature has showed that physical and mental disposal are essential for an efficient performance in sports. The goalkeeper's failure implies, most often, in the opponent's goal. Therefore, the mood state of the goalkeepers in the pre-competitive moment can affect their performance and consequently the score of the match. Thus, the goalkeeper has to be well prepared both physically and psychologically before the game. Advanced actions of goalkeepers in Futsal are a good defensive strategy because they can cover a winger or reduce the possibilities of kick in a situation of one versus one. Therefore, the findings indicated that low levels of shame in goalkeepers can improve the team's performance.

Psychological changes in behaviour during practice and competition among sportspersons

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Competition can bring out the best or the worst in athletes, and the psychological demands are especially high when individuals or teams are striving to achieve the same goals. Getting into the correct mind-set prior to competition is one of the most crucial aspects of top performance. In fact, a study of Olympic athletes showed that the combination of mental and physical readiness was a key factor that distinguished more successful athletes from their less successful counterparts in the Olympic Games. The ability of the individual to control mental and emotional elements during a competition assists task performance as well as creating a psychological foundation for confidence and well-being. It helps one to enhance one's emotional intelligence, the ability to recognize different emotional states, assessing the effects of emotions on subsequent behaviour, and the ability to switch into the best emotional state to manage the stress of competition. The present research aims to study the differences in behavioural aspects of sportsperson with national and international participation in respect to practice and competition. It is argued that the behavioural aspects in sports performance during practice and competition can be studied better by understanding the changes in the levels of stress, anxiety, arousal and attention during practice and competition.

The emotions joy and anger as part of the psychological momentum in soccer coaches during game management

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Every soccer game is characterized by a great variability due to unexpected events which might endanger the competition goals the coach wants to reach. Several authors have stressed that the process of reaching goals and the resulting affects could be explained by a dynamic interaction between player and environment, and more precisely by action regulation and control. Psychological momentum (PM) can have an influence on this interaction, and is characterized by an acceleration or deceleration of the progression towards the goals (Gernigon, Briki, & Eykens, 2010). Affects are present during PM because the coach is confronted with the reality of succeeding in his expectations or not. The purpose of this article is to test a theoretical framework of action regulation, and to analyse the relations between two emotions 'Joy' and 'Anger' with PM in soccer coaches during a game. In total, 64 soccer coaches of national level completed the Emotional Expression Scale and two questionnaires on Joy and Anger in three characteristics during a game: (a) general game context, (b) game match preparation, and (c) evaluation of the game process and

emotion based on the Self-Assessment Manikin Scale. Multiple regression shows that Joy and Anger are related to the confrontation between the reality of the match and the cognitive framework of the coach. One-way ANOVA reveals that Joy PM is characterized by the perception of better progression towards goals, a positive valence, less physiological activation, and more dominance compared to Anger PM. Based on these results, we can suggest that more flexibility in the coach's cognitive framework could prevent continuity disruptions in goal achievement and emotions related to this process.

Athletes' pre-event impression formation

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The impressions we form of people occur quickly. Athletes use information received from reputation and body language to evaluate their opponents (Greenlees, Bradley, Holder, & Thelwell, 2005). Nonverbal sources of information described in Warr and Knapper's (1968) schematic model of person perception, in addition to dispositional factors, allow a perceiver to develop an expectation of how an individual will behave and how the interaction will proceed and conclude. The few studies that examined these elements in sport used small sample sizes, limited sport types, and focused solely on male athletes. A 2 (gaze; low, high) X 3 (reputation; positive, negative, neutral) X 3 (prime; challenge, threat, neutral) X 2 (gender; female, male) between subjects design was used with 408 (204 female) athletes, from thirteen combat and non-combat sports. Participants viewed two videos (control, experimental) of a Judoka preparing for a bout; Judokas were the same gender as the participant. Subsequently, participants provided their impressions of the opponent and their confidence in beating them. Analysis of variance revealed a significant main effect of gender, $F = 5.46$, $p < .001$, $\eta 2 = .09$ on impression formation, and outcome expectations, $F = 94.04$, $p < .001$, $\eta 2 = .2$. There was also a main effect of reputation, $F = 9.9$, $p < .001$, $\eta 2 = .05$ on outcome expectations. Interestingly, there was an interactive effect of eye gaze X reputation, $F = 4.02$, $p < .001$, $\eta 2 = .05$, where participants viewing an opponent with low eye gaze and a negative reputation had higher expectations of success. Priming did not have an effect on impression formation or outcome expectations. This could be due to the 'personal relevance' of the situation, since only 28 participants were experienced in combat sports. Based on these findings self-presentation interventions may prove effective in shaping impression formation.

Athletes perfectionism in relation to their attributions for the most and least successful competition performance

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Success in sport often means perfect performance.Understanding perfectionism can help us discover how to properly develop high standards for performance which are necessary for the success in sport and at the same time reduce the tendency of excessive self-criticism and self-blame that can compromise this success.The aim of this study is to examine the differences in attributions for success and failure in sport between positive(adaptive) perfectionists, negative(maladaptive) perfectionists and non-perfectionists.We expect that adaptive perfectionists will express attributions which are considered desirable in sport situations in a greater extent than maladaptive perfectionists.In this study we used Dual process model of perfectionism (Slade & Owens, 1998) and categorical approach to separate participants into three groups.In their model, Slade & Owens(1998) suggested that individual whose motivation derives from positive perfectionism would be someone who wants to win and achieve positive reinforcement but for whom failure will not have any long-term consequences.In contrast, an individual who is driven by negative perfectionism will constantly want to win to avoid failure.In this case winning will mean little but failure will have major negative personal consequences.This leads to the prediction that athletes who have more pronounced one or the other form of perfectionism will express differences before and

subsequent to competition.The sample is made from 106 Croatian judo players (international level competitors).We used CDS-II(McAuley et.al.1992), PANPS(Terry-Short et.al.1995) and performed nonparametric Kruskal-Wallis test.Results show significant differences on the locus and personal control for success and stability and external control for failure.Adaptive perfectionists make more internal and personally controlled attributions for their most successful performance and also less stable and externally controlled attributions for their least successful performance than the maladaptive perfectionists thus partially making more desirable attributions for sport situations.Greatest contribution of this research is further understanding of the rarely investigated relationship between attributions and perfectionism in sport.

The relationship between physical activity and sleep in adolescence. A systematic review of methodological approaches

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Physical activity (PA) is widely considered an effective, non-pharmacological approach to improve sleep (American Academy of Sleep Medicine, 2004; Passos et al., 2011; Youngstedt, 2005). However, the accurate measurement of PA and sleep among adolescents is fraught with challenges (Wolfson et al., 2003). Additionally, a comparison of the results of different studies is often difficult due to the diversity of assessment tools, analyses and data reporting procedures used. While previous reviews have given detailed consideration to variables that may confound this relationship, this systematic review examines the variations in measurement methods. Based on this overview, a meta-analysis was performed to assess possible influences on effect sizes of the various approaches. Twenty-three studies were included in the systematic review, of which 18 were appropriate for meta-analysis. For this, four subgroups were formed: subjective PA and sleep, objective PA and subjective sleep, subjective PA and objective sleep, and objective PA and sleep. The majority of studies used subjective measures, often with unknown reliability or validity. Few studies employed objective tools to measure sleep. Thus, more studies employing subjective and objective measures for both PA and sleep are needed. Generally, the creation of dose-response relationships must take into account several compliance and assessment factors unique to the adolescent population, which should be thoroughly considered before use in a study.

The impact of a primary school violence prevention program on mood and learning outcomes

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Violence prevention in primary schools is an interdisciplinary field, where psychology, pedagogics and sport science can provide knowledge and methods. Especially active physical involvement of the participants has been described as an important factor to enhance the effects of prevention programs (Davis & Gidycz, 2000). Teachers acknowledge the necessity of prevention programs, but often describe a lack of specific skills. This poster shows the formative evaluation of the “Gewaltpräventionsbuch“ (Violence Prevention Book), a classroom based program aiming at cognitive understanding, physical involvement, education-oriented skills, and positive interpersonal communication strategies in the context of violence prevention. Following a specific curriculum, trained teachers can teach units on the following topics: emotional differentiation, body charts, awareness, physical contact, wrestling games, children’s rights, stress, understanding violence dynamics, behavioral strategies against violence, prevention of sexual violence, discussion rules, “New Media” and violence, structural violence. Before the final print, a formative evaluation of the book was conducted by senior physical education students. Eight primary school classes (1st to 4th grade) in six schools in the country and city of Salzburg participated at six units of the

program guided by trained students. A total of 161 children were asked for their emotional states before and after the units, their evaluation of subjective learning outcome and enjoyment. The given answers were transcribed and coded. None of the units led to significant changes in the emotional states. However, 75% (SD=10.2) of the children enjoyed the units. In addition, positive learning outcomes were reported by 77% (SD=8.7). Of the 335 positive learning statements 25% were coded as content knowledge, 24% as behavioral skills, 14% as social competence and 7% as personal competence. The results showed predominantly positive reactions to the units. Furthermore an improvement in the differentiation of the answering pattern by the age of the children could be shown.

Twitter and sport: A cross-cultural study

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Sports have been using intensively the resources of new media and social networks, as a phenomenon of contemporary society. However, these resources have changed interpersonal relationships, making them more fluidic, unstable, polysemic, chaotic and polyphonic (Rebustini, 2012). Thus, this research aims to analyze the media coverage of the messages posted on Twitter by athletes. We analyzed 20 jornalism articles published on the internet in four languages - portuguese, english, spanish and french (5 for each language) obtained by metasearchers and chosen by convenience. We adopted a cross-cultural netnographic method (Kozinetz, 2009) with the application of content analysis (Schreier, 2012). The content analysis resulted in 12 categories: the role of social networks, inter-relations, nettles and clashes, another exhibition and offenses, language, fake and pirates, incentive, image and brand, explanation and denial, punishment and accountability, restriction and guidance. The results showed that, in summary, 10 categories are present in the reports in Portuguese; 10 categories in English; 8 in Spanish and 9 in French. It was observed that 6 of the categories (restriction; guidance; role of social networks, inter-relationships; image and brand, fake and pirates) are present in all languages, and two categories: Incentive and language are only present in the texts in english. We highlight the importance of the cross-cultural method for the design of the research, once it allowed a number of larger and more profitable categories. These results indicate how different cultures pass messages and shows that there are clear positive and negative consequences for the participants of the sports scenario. It is important to understand how new media are affecting the athlete's behavior, whether in the sports environment or in personal life.

Do emotionally intelligent coaches possess better communication skills in your football team?

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Research into emotional intelligence in sport have predominantly focused on effects of sporting performance (Lane et al., 2010). Emotional intelligence, the ability to effectively express and manage feelings when interacting with others in sporting environment (D'Urso, Andreina & Robazza, 2002) the exact nature of their role in sporting performance is still very under-researched. However, researchers in sport psychology have suggested that the emotional intelligence is inherently social and interpersonal. In this premise, communication skills manifests inherent emotional intelligent that is a very important factor on sporting performance. Given the relative dearth in research examining emotions in sport, this study investigates the relationship between level of emotional intelligence and communication skills among football coaches. The study population was comprised of male (N= 431) football coaches from different level of coaching background (including manager, coach, goalkeeping coach, junior team coach, junior team assistant coach, junior team goalkeeping coach) who completed measures of emotional intelligence and communication skills. Regression analyses revealed that emotional intelligence had predictive power (0.13) on communication

skills while there was a positive correlation between emotional intelligence and communication skills (r=0.37, p<0.01). Furthermore, status of coaches and years of working experience in coaching were significantly associated with emotional intelligence and communication skills (p<0.01). Consequently, findings of this study lend support to the notion that emotional intelligence possess better communication skills in football coaches in relation to their status and number of years in coaching. Regardless, this study addresses that the level of emotional intelligence draws attention to increase communication skills for football coaches. Thus, examination of factors that might aid the development of strategies aimed to manage such emotions could not only aid conceptual clarity, but also help develop strategies intended for communication skills to assist the sporting performance. For better explanation, further research is needed to clarify this relationships.

Quiet eye training for performance enhancement in sports: A meta-analysis

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The quiet-eye is a phenomenon which is defined as “a final fixation or tracking gaze that is located on a specific location or object in the visuomotor workspace within 30 of visual angle for a minimum of 100 milliseconds” (Vikers, 2007, p. 11). It is suggested that longer quiet eye period is associated with superior performance. Subsequently, intervention protocols designed to train athletes for longer quiet-eye period were developed. The current study presents a meta-analytic review on the quiet-eye period; specifically on the intervention studies of the quiet-eye period. The keywords “quiet-eye”, “gaze control, “intervention” and “sports” were used individually and/or combined to elicit all the publications in the field. The literature search was conducted using six databases: SPORTDiscus, ScienceDirect, EBSCO, PsycNet, Web of Science, and Research Gate. Additionally, authors working in the field were contacted to review the final list and add any additional studies to their knowledge. Studies without enough information to compute an effect size or not sport-related were not included. Nine articles were selected to generate two types of effect sizes. The first type pertained to the mean difference between the control and experimental groups in the length of the quiet-eye period (n=14). The second pertained to the difference between the two groups in performance (n=15). Large effect sizes were found on the training interventions both for the quiet-eye (d = 1.53) as for performance (d = 0.84). These large effect sizes reveal that quiet-eye training is a useful intervention to prolong the final fixation before the initiation of the movement, but also shows that by prolonging the quiet-eye period a higher performance can be achieved in sports. Discussion and future research suggestions are offered.

Move your body and I will tell you how you feel: Reading emotional state through body kinematics

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Often ignored, non-verbal behaviours seem to matter as much as verbal behaviour. Indeed, many studies have shown that most information like gender, identity and intention can be derived from body posture and/or kinematics (e.g., Kozlowski & Cutting, 1977; Lewkowicz et al., 2012). Emotional content seems also to be successfully decoded from human movement. However, the research methods used are poorly satisfying as they use actors to portray emotions often in a caricature way with diverging actions. In this study, we used music to induce emotional state and then, investigated whether body motion kinematics could be used as indicators of emotional state. A unique standardized task of cycling was used. Two experiments were conducted. First, we used a music emotional induction paradigm to elicit 4 different emotions: sadness, happiness, scary and peacefulness (using stimuli validated by Veillard et al., 2008). Participants were exposed to these musical samples before (30s) and

during the first minute of a 2-minute cycling session. Body motion kinematics was recorded with a 3-camera infrared system that measured the 3D dynamics of 16 passive markers positioned on the cycling-actor. Emotional states throughout the cycling session were assessed using the Geneva Emotional Wheel (Scherer, 2005). In the second experiment, point-light display videos of the actors (N=10) were presented to 35 naïve observers during an emotion recognition task. Results revealed that not only movement kinematics were characteristic of a given emotional context (coherence, rhythmic patterns and stability) but also that naïve observers could distinguish emotions even when face emotion was prevented. These findings provide exciting applied perspectives in the field of sport sciences, such as providing coaches with objective tools to decode emotion dynamics to prevent e.g. motivation loss and overtraining.

Coach effectiveness and transformational leadership in sport: Effects of gender and athlete experience

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Research has demonstrated the potential importance of transformational leadership and perceived effectiveness of sport coaches for athlete development (Kavussanu, Boardley, Jutkiewicz, Vincent, & Ring, 2008; Charbonneau, Barling, & Kelloway, 2001). Further, coach/athlete gender and athlete sport experience may influence athletes' perceptions of their coach's effectiveness (Kavussanu et al., 2008). Researchers to date have not investigated the potential impact of coach/athlete gender and athlete sport experience on athletes' perceptions of their coach's transformational leadership, or replicated the findings of Kavussanu et al. (2008). The coaching efficacy model (Feltz, Chase, Moritz, & Sullivan, 1999) and transformational leadership theory (Bass & Avolio, 1994) were the guiding frameworks. Male (n = 150) and female (n = 147) athletes from team (football [n = 49], hockey [n = 53], rugby [n = 51]) and individual (badminton [n = 50], swimming [n = 45], gymnastics [n = 49]) sports completed the coaching effectiveness scale (Kavussanu et. al., 2008) and the differentiated transformational leadership inventory (Callow, Smith, Hardy, Arthur, & Hardy, 2009). Multiple regression analyses revealed (a) athlete sport experience did not predict athletes' perceptions of coach effectiveness or transformational leadership, (b) female athletes perceived their coaches to be more effective on all dimensions of coach effectiveness and higher on all dimensions of transformational leadership than male athletes, and (c) coaches were perceived more effective in motivation effectiveness and higher on all dimensions of transformational leadership when they were of the opposite sex to athletes than when sex matched between coach and athlete. Coach and athlete gender may have important implications for athletes' perceptions of transformational leadership and coach effectiveness in team and individual sports.

Sports psychology issues in elite athletes in Guatemala

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In their mission to achieve success at international championships National Olympic Committees have improved the sport psychology assistance available to their athletes, teams and coaches often in advance of competition (Blumenstein & Lidor, 2007). In the present project individual coaching sessions and workshops were conducted with national athletes from Guatemala to prepare them for the Central American and Caribbean Games 2014 in Veracruz/Mexico. The aim of the present analysis was to identify which sport psychology issues were most relevant to athletes from Guatemala. Over four weeks, 289 athletes (54.0% male; M = 22.9 years old) from 42 individual and team sports took part in workshops and individual sessions. In total, 45 workshops and 60 individual sessions were provided, with athlete attendance at individual sessions ranging from one to three occasions. The authors kept a diary to record the psychological issues raised in each intervention. Using

these daily reports, all issues raised were subjected to content analysis (Mayring, 2010). Descriptive statistics were used to explore the frequency of issues raised. A total of 77 issues were raised in 60 individual sessions. Results show that 74% of issues raised concerned performance related topics, whilst 16% were related to organisational topics and 10% to personal topics. Within individual sessions that dealt with performance related topics, mental preparation for competition (35%), self-regulation (23%) and motivation (21%) in training and competition were important to athletes. This analysis shows that there is a demand in Guatemalan athletes for action- and regulation-oriented technique instruction that allows them to cope with the mental strains of training and competition. These findings mirror other results that identify athletes' needs for regulation-oriented support during sport psychology counselling (Anderten, in prep.). Thus, future interventions should offer further education to sport psychologists in Guatemala in order to meet the demands of national athletes.

The effect of feedback system on eye movement properties in binocular gaze control

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In a variety of sports which require players to execute fast and accurate movements in response to external events, it is important to utilize overt shift of attention (i.e., eye movements) as well as covert attention. Recently, systems of recording binocular eye movements with presenting instantaneous feedback information have been developed. Here, electrooculogram (EOG) technique was used because of its simplicity, causing relatively less discomfort to participants than other eye-tracking systems, and because its method has been used and validated in some earlier studies (e.g., Belov et al., 2010). The present study aimed to examine the effects of feedback information about binocular eye movement properties on static and dynamic properties in gaze control. Participants sat in a chair in a dimly illuminated room. Their head was stabilized and directed straightforward. Light-emitting diodes (LEDs) were located on the horizontal plane at participants' eye level. The task for participants was to shift their gaze toward an illuminated LED as quickly as they could. If the LED extinguished, they were asked to keep their eyes at the remembered fixation location as accurately as possible. During the entire task, EOG monitored participants' binocular eye movements at 1000Hz. Properties of binocular eye movements were monitored with customized software. After each trial, knowledge of result feedback (e.g., eye movement properties such as peak velocity and duration) was given instantaneously. Result showed that the monitoring system used here could offer appropriate feedback information of the static and dynamic properties when executing version and vergence eye movements. Also, using the feedback information had significant effects on binocular eye movement properties such as higher peak velocity ($p<.05$) compared with no feedback condition. These results suggest that the feedback system used in the present study has some effects on overt shift of attention. Future applications for sports players to improve their eye movement behavior will be expected.

Influence of psychomotor activities on attention of younger school-aged children

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In this time many children have problems with their concentration during lesson. Teachers complain that children are not able to hold their concentration for longer time. Many authors (Penkman, 2004; Thomson & Kerns, 2005; Warner-Rogers & Taylor, 2000, Matějček, 2005) agree that it is a complex problem, which arise not only from the cognitive area but also from the emotional and motoric area. This work deals with the influence of the intervention program, which includes the psychomotor activities to the attention of the younger school-age children. The aim of the work is to validate the impact of an intervention program to the attention of the younger school-age children and if special psychomotor activities can positively influence children's concentration. For the research we used the method of education experiment. We used the methods of data collection Test of Attention d2 and Test

of Attention “Numerical Square”. We worked with an experimental group of 41 children and with a control group of 35 children aged 9 and 10 years old in the fourth class of 2 primary schools. We implemented psychomotor activities into physical education classes once per week for 45 minutes during 9 months. Before start we realized input diagnostics and after the finishing output diagnostics. We've tested the change in concentration and the extent of the attention before and after the application of the intervention program. We found out that in a concentration of attention wasn't a statistically significant difference between the groups, to the extent of attention, we have demonstrated that a change in the experimental group, compared to control was statistically significant.

The effects of eight weeks of aerobic exercise on the students’ self-esteem

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Exercise is a way to improve self-esteem. Good self-esteem improved individual's mental growth and plays prominent effects on an individual’s thoughts, feelings, values, and goals .This clinical trial study was performed on 84 male students that selected and classified randomly into experimental (N=42) and a control group (N=42). Fifty eight-item Cooper Smith test was used to measure self-esteem. The experimental group performed aerobic exercises for 45 minutes, with 60-70 percent of heart rate, three times a week for 8 weeks. In this study, an independent T-test, Chi-square test, dependent T-test and the Mann-Whitney test were applied using of SPSS software. The mean age of the experimental group was 22±1.44 and in the control group 21±2.70 years. Exercise was used as intervention and results showed although, average of self-esteem score was not significant before intervention, it increased in the experimental significantly. The variation of mean self-esteem scores in the experimental group was 32.36 to 42.89.According to the results; aerobic training had a significant effect on the self-esteem of students. So the results are in line with the findings offered by (Ghaffari, 2006). We can conclude that the physical exercises can be mentally beneficial for students. Aerobic exercise is considered as an effective strategy and approach for improve self-esteem of the students.

Combined effect of mental and physical training in selected psychomotor variables on cricketers

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There are three domains of learning; they are cognitive, affective and psychomotor. Psychomotor objectives are specific to discreet physical functions, reflex actions and interpretive movements. Various studies have been conducted by Zwierko (2010), Alimohammadi (2013); Michaela (2010) and Visscher (2005) on various psychomotor abilities with the help of Vienna test system. The purpose of the present experiment was to examine the combined effect of mental and physical training on selected psychomotor variables of cricketers. The psychomotor variables of time movement anticipation, reaction time, sensomotor coordination and sustained attention were assessed by Vienna Test System (VTS). The study was conducted on 12 male cricketers (batsmen) purposively selected, in the age group of 18-25 years (Mean and SD 20.27 ± 2.61), further divided into two groups of 6 subjects each at random for experimental groups (Group 1- physical and mental training apart from regular schedule [three times a week, for duration of 8-weeks] & Group -2: regular training as per schedule). One way ANCOVA was applied as a statistical measure at 0.05 level of significance. The results revealed that the experimental group-1 had significant effect in comparison to experimental group- 2, with regard to time movement anticipation in the subvariable of mean deviation time(Mean and SD 0.52 ± 0.18) f value= 11.19, p value= .007 ; in sustained attention in the subvariable of mean time correct(Mean and SD 0.76 ± 0.14)f value= 12.36, p value= .007 and in sensomotor coordination in the subvariable of mean horizontal deviation(Mean and SD 47.58 ± 24.61) f value= 15.83,p value=.003. It is observed that for batsmen combined training is more effective for improving

psychomotor ability ,thus will help them for performance enhancement as cricket batting is performed under demanding constraints, which requires rapid and accurate decision making .This is a neglected phenomenon in Indian sport.

The association between cortisol awakening response and resilience in national level swimmers

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Sport performance is a stress eliciting environment as it involves perceived uncontrollability, unpredictability and requires ego involvement (Rohleder, Beulen, Chen, Wolf & Kirschbaum, 2007). The HPA axis produces the gluccocortisoid cortisol in response to anticipated competition stress up to a week prior to the event (Hogue, Fry, Fry & Pressman, 2013). Individual differences such as optimism and trait perfectionism have been shown to moderate the impact of cortisol upon performance. Resilience could be important in moderating the stress response given that it holds adaptive functions for individuals experiencing significant stress or adversity (Fletcher & Sarkar, 2013). For this study, 41 (male n = 27) national (n=38) and international (n=3) swimmers were recruited from North-East England and Australia. Swimmers completed a measure of resilience and also provided buccal saliva swabs from which total cortisol release prior to and during the event was calculated. Key findings included that resilience significantly predicted performance and the influence of AUC (cortisol release) upon performance was moderated by resilience. These Findings suggest that resilience can influence sport performance directly or indirectly through appraisal (interpretation of the stressor to be facilitative and non-threatening). These findings provide support for the importance of resilience on two levels (both direct and indirect via moderating the physiological response to stress). Implications for resilience training in swimming are also discussed.

Mental skills of the Brazilian wheelchair rugby national team

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Although sport psychologists have started to examine the adapted high performance sport for some time, studies of perception mental skill are rare. The study of self-perception have been main object for considerable number of theories both in the area of philosophy and in psychology. The aim of this study was identify what are the mental skills used by athletes of the Brazilian Wheelchair Rugby Team to deal with adversity or maintain concentration. Fifteen athletes with spinal cord injury between C5 and C7 have been interviewed using a semi-structured interview script. Subsequently, the interviews were transcribed and analyzed using content analysis. The results showed that athletes, even without a support of mental skills training, they use this powerful tool during competitions. 80% mentioned the importance of the concentration and focus as a mental skill purpose. Among this athletes, 27% mentioned that they use as a tool inhale and exhale on a critical moment of the game. 53% mentioned the self-talking to control stress and anxiety, focus and refocus and confidence and 20% of the athletes didn't mentioned any of that. The self-perception is a very important ability which helps to identify many roles that establish different psychological states and are responsible for the feelings that each athlete has about their capabilities. Mental skills are key to coping with adversity and stay focused.

Movement-related knowledge and chunking in the acquisition of a table tennis topspin forehand

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Analogies are often used to aid learning of movements. One possible mechanism responsible for the positive effects of analogy learning is thought to rely on a fundamental cornerstone of human memory, chunking. Research has shown that if explicit instructions or rules about how to move are substituted by an analogy, learners generally learn at the same speed, but performance remains stable under psychological pressure, in a dual-task situation or when complex decisions must be made while moving (see Masters & Poolton, 2012). Masters and Liao (2006) attributed these benefits of analogy learning to the long-standing theory of chunking (e.g., Newell & Rosenbloom, 1980), suggesting that movement-related knowledge can be chunked into resource efficient packages of information by an appropriate analogy. Consequently, motor performance tends to be controlled less consciously. Participants learned a table tennis topspin forehand and provided verbal reports of the movement knowledge that they became aware of during practice. Participants were then tested in a single and dual-task condition before and after being instructed to use an appropriate analogy for a table tennis topspin forehand. Qualitative analysis of the verbal reports was conducted to examine differences in the knowledge acquired by participants who benefited from the analogy and participants who did not benefit from the analogy. Results of the qualitative analysis suggested that participants who improved upon receiving the analogy were more likely to have reported knowledge associated with hand, arm and bat movements, whereas participants who showed no improvement were more likely to have reported less specific, generic knowledge. These findings provide some support for chunking as an explanation of the effect of analogy learning, as only movement relevant information is likely to be combined into resource efficient higher-level chunks. The work provides a starting point for future, in-depth quantitative research in the field.

Talent identification in sitting volleyball from a psychological perspective: Using the Test of Performance Strategies (TOPS)

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The purpose of the present research was to examine the expert performance approach (Williams & Ericsson, 2005) in disability sport and to see whether disabled athletes utilise more psychological skills than able-bodied elite athletes. Specifically, the aim was to (i) examine performance strategies in various sport situations used by sitting volleyball players and compare to standing volleyball and amputee soccer players; (ii) to examine whether the current performance level of athletes and the years participating in sport would show a significant difference in their application of psychological skills during practice and competition; and (iii), reflect and raise awareness of athletes with disabilities' sport skills and knowledge and recommend future directions for talent identification process from psychological perspective. The refined version of Test of Performance Strategies (TOPS) (Hardy et al., 2010) was administrated to athletes (n=309, mean age=32.46, SD=12.40) competing across a range of performance standards in volleyball (n=96), sitting volleyball (n=121) and amputee soccer (n=92). Discriminant function analyses revealed that sitting volleyball players scored higher on self-talk, goal setting, imagery than volleyball and amputee soccer players. Moreover, sitting volleyball players and amputee soccer players reported using more relaxation techniques than volleyball players in competition environment. Amputee soccer players scored higher on emotional control and negative thinking than sitting volleyball players. With regards to practice settings, sitting volleyball players reported using more self-talk, goal setting, imagery and relaxation than amputee soccer players and volleyball players. Furthermore, discriminant analyses successfully distinguished between international, national and club level players. Significant difference

was also found in years of experience. In conclusion, with the support of our findings in this study, a new sitting volleyball talent development and psychological skills list was developed and we can highly advise coaches, practitioners and sport psychologists that greater use of psychological skills can be associated with elite performance.

Implementation of sport psychology techniques to enhance performance of cadets in the Singapore military

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This presentation illustrates the implementation of a training programme developed to enhance the overall performance of the Republic of Singapore Air Force cadets. While these cadets have already been selected for leadership skills and vocational aptitude, this programme aims to further enhance their performance under stress. Through the infusion of sport psychology techniques, the programme focuses on increasing their composure, mental focus, and self-regulation abilities. The programme is implemented via (i) an education package, followed by (ii) a skills application phase in their vocational training context. The education package comprises workshops, facilitated discussions, and self-reflection exercises to introduce sport psychology knowledge and theoretical models as foundations for further training. Subsequently, the cadets are provided with challenging scenarios as opportunities to practise and apply these techniques. Individual feedback and coaching from instructors are then provided to help the cadets consolidate and internalise their learning. The cadets are systematically tracked throughout their ab-initio vocational training to monitor programme effectiveness.

The influence of manipulated quiet eye duration on motor performance of a moving-target task

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Previous research has studied quiet eye (QE, final tracking gaze within 3° visual angle for at least 100ms before the initiation of movement) in sports involving a moving-target task (Causer et al., 2011; Wilson et al., 2013). QE is argued to support the pre-programming and online control of the movement. Longer QE duration is related to better performance. Understanding the direction of this relationship will provide support to the effect of QE training (Horn et al., 2012; Klostermann, Kredel, & Hossner, 2013; Vine et al., 2012; Williams, Singer, & Frehlich, 2002). The present study aims to experimentally manipulate the duration of QE by delaying QE onset using a visual “mask” to delay the pick-up of a moving target. It’s hypothesized that shortened QE duration would lead to poorer performance. 17 participants completed the experimental task in which the three conditions (no mask, minor mask (2.6cm*4.6cm), and major mask (2.6cm*6.9cm)) were presented in a counterbalanced order. Participants had to throw a table-tennis ball to moving target (2.6cm*2.6cm) projected on a wall 2m away and moving at 30°/s. Repeated measure analysis of variance showed that QE duration was influenced by the manipulation, $F(2,15)= 52.65$, $p< .001$, $\eta p2 =.88$. There were significant differences between all three conditions (p’s< .01) with QE duration shortest in the major mask (430±159ms), compared to the minor mask (520±199ms) and no mask (708±216ms) condition. A similar effect was found for performance (radial error, recorded by an external camera and offline analyzed frame by frame), $F(2,15) =20.13$, $p <.001$, $\eta p2 =.73$. Again, performance was worst in the major mask (2.97±0.73cm) compared to minor mask (2.56±0.67cm) and no mask (2.20±0.61cm) condition. This study provides additional support for a causal role of QE in providing early information on the trajectory of a moving target that supports movement planning and control.

Principles & guidelines for ethics in dance

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Professional (stage) dance gives rise to a critical need for the establishment of ethical 'best practice' initiatives (Mainwaring, Schriel, Krasnow, Nenander & Laws, 2005). Those trained in sport psychology and its sub-fields, dance and performance psychology, are well positioned to not only promote optimal well-being in their work with dancers, but also lead the way in promoting ethical treatment of dancers. The need for guidelines for the ethical treatment of dancers during both schooling and career has been raised in many international forums. Recently, the Royal Academy of Dance formulated a draft code of conduct for its members. The need for such extends beyond teachers to rehearsal coaches, both artistic and technical managers, and researchers for enhancing the ultimate aspect of the art form--the performance--in a way that promotes well-being, dignity and respect for all. Also, guidelines for ethical treatment of professional dancers through career transitions are critical. Workable guiding principles and standards of practice are warranted for professionals such as artistic directors, choreographers, rehearsal coaches, managers, directors and teachers in dance schools, who unlike healthcare professionals and some performance psychology practitioners, are not governed by regulatory bodies. Building on continual international interest and demand, the purpose of this poster is to offer a set of principles for the development of ethical guidelines and standards of practice for working with dancers. Derived from international professional organizations' standards and guidelines, (e.g., American Psychological Association, 2002; Canadian Psychological Association, 2000; Australian Association of Occupational Therapists, 2002), five principles, or aspirational goals, are proposed for work-related conduct in dance: 1) Concern for Dancers' Welfare, 2) Relational Integrity, 3) Fairness, 4) Professional and Scientific Responsibility, and 5) Respect for Persons' Dignity and Rights. Standards consistent with these principles are suggested for guiding practices and behaviours encountered in the dance environment.

Cognitve skills in Brazilian football players

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Cognitive functions are stages of information processing and decision making that are directly linked to sport. Researches have shown that male and female have diferences in specific cognitive abilities, although there is no significant evidence of general cognitive diferences between sexes with respect to the g fator (Flores-Mendonza, 2000).This study aimed to assess cognitive function in football players and check whether gender affects the profile of these skills. 58 athletes participated: 29 female athletes, mean age of 16.4 (± 3.76) years and 29 men athletes, mean age of 22.59 (± 3.25) years. The instruments used were: Concentrated Attention Test (Teste AC), Pictorial Test of Memory (TEPIC-M), Codes and Abstract Reasoning subtests of the Wechsler Adult Intelligence Scale (WAIS), Colored Trail Making Test (TTC). Statistical analyzes obtained for the sums and averages of each dimension measured and compared between male and female groups using the Student t test. The results showed statistically significant differences between groups in all cognitive abilities measured, except abstract reasoning. The results for each skill measured in the groups were: information processing speed: female M= 18,41 and male M= 9,62 (p = <0,001); Perceptual tracking and sequencing: Form 1 – female M= 20,1 and male M= 26,02 (p = 0,003) and Form 2 – female M= 15,88 and male M= 43,10 (p = 0,01); Memory: female M= 16,86 and male M= 14,2 (p = 0,003); Attention and concentration: female M= 75,51 and male M= 88,89 (p = 0,025); Abstract reasoning: female M= 16,65 and male M= 15,65. The results show gender differences, and the female athletes performed better on tasks involving cognitive abilities of information processing speed, perceptual tracking and sequencing and memory. While male athletes performed better in the task that involved attention and

concentration. The tasks involving abstract reasoning skills showed little performance difference of sex. Note that the measured skills are important for good performance in this sport. Thus, the same should be improved and strengthened in a psychological training in partnership with physical training, technical and tactical mode to the athlete's improvement as a whole.

Multiple object tracking in sport: Attention and efficacy

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The relations of attention skills and sport performance often discussed in sport science (Kluka & Knudson, 1997; Eccles et al., 2006; Vickers, 2007; Beauchamp et al., 2012, etc.). According to Neideffer' theory (1976), we supposed that a wide focus of attention is important for ball, combat and extreme sports because efficiency of technical and tactical skills is closely related to ability of controlling different fast-moving events in visual space (personal movements, teammates or counterparts actions, etc.) Therefore, abilities to maintain focus of attention on different targets become a crucial component for sport performance (Rawat, 2014). The aim of the present study was to identify differences in multiple tracking objects ability depending on sport type. We assumed that athletes who didn't have to do specific attention tasks (for example in some cyclic sports) could show the lowest level of this ability. 125 Russian athletes participated in research: ball sports (football (N=40), basketball (N=19)), combat sports (N=19: sambo, judo & taekwondo), extreme sports (rock-climbing, N=24) and cyclic sports (swimming, track and field, N=24). We measured athletes' multiple object tracking ability via NeuroTracker (Faubert, 2012). The task was to follow 4 of the 8 moving objects in 3D-scene. Mann-Whitney test found no statistical differences in multiple object tracking ability between groups: football, basketball, rock-climbing and combat sports. In contrast, we found the significant differences between cyclic sport and a) football ($p<0,001$); b) basketball ($p<0,05$); c) combat sports ($p<0,05$); d) extreme sports ($p<0,05$). Effectiveness of visual processing is connected with sport type: athletes of ball, combat and extreme sports are more successful in multiple object tracking than cyclic sports. Thus, the hypothesis was confirmed. To date, based on the results we conducted the research was focused on development of multiple object tracking abilities of athletes.

Reference system of competence and engagement in adapted physical activities of people with recent spinal cord injury

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Although persons with spinal cord injuries might have good reasons to exercise (Fernhall et al., 2008; Martin Ginis et al., 2008), they are reluctant to practice physical activities (O'Neill & Maguire, 2004). According to achievement goal theorists (Elliot, 2005), mastery-avoidance goals might be associated with maladaptive motivational patterns for persons faced with the evidence of their loss of ability. Moreover, low levels of self-perceptions are detrimental to individuals' achievement motivation (Harter & Connell, 1989). This study tested whether persons with Recent Spinal Cord Injury (RSCI) who practice Adapted Physical Activities (APA)—i.e., activities such as wheelchair basketball, wheelchair table tennis, wheelchair archery, etc., that are adapted to the inpatients' capabilities—and those who do not differ with regard to achievement goals, physical self-perceptions, and global self-esteem. Eighteen adults (13 males, 5 females; 36.0 ± 16.1 years), who became paraplegic or tetraplegic due to RSCI, completed Elliot and McGregor's (2001) 2 × 2 achievement goal questionnaire and Fox and Corbin's (1989) physical self-perception profile. Then, based on whether they engaged or not in APA programs, they were considered participants (n = 10) or non-participants (n = 8) in APA. Compared to participants, non-participants were significantly more oriented toward mastery-avoidance goals and had lower scores of physical self-worth

and global self-esteem. No differences were found for other achievement goals and for low-level dimensions of physical self. These findings suggest that mastery-avoidance goals are associated with a maladaptive motivational pattern when intrapersonal comparison (pre- vs. post-trauma) conveys a threat for the self, whereas performance goals are not associated with maladaptive motivational patterns. Practical implications to be further tested might be that upon persons with RSCI's arrival in rehabilitation centers, physical educators might promote a friendly competitive climate in the practice of APA to help inpatients recover self-esteem as well as motivation to exercise.

Mental toughness, psychological skills and group cohesion: Positional comparisons among soccer players

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Sport psychological skill differences among team sport athletes (e.g., volleyball, rugby union, netball and field hockey) in different playing positions suggest that each playing position bears unique psychological demands. The aim was to determine if significant positional differences existed for various psycho-social variables among student soccer players. Participants of the 2012 University Sport South Africa tournament (N = 263; M age = 22.64 years, SD = 2.28; range: 17-32 years) voluntarily took part in the study. They indicated their primary playing position (goalkeeper, defender, midfielder or forward) and completed three instruments before the start of the tournament; the Sports Mental Toughness Questionnaire (Sheard et al., 2009), the Athletic Coping Skills Inventory-28 (Smith et al., 1995), and the Group Environment Questionnaire (Carron et al., 1985). A one-way analysis of variance with least significant difference post-hoc tests was performed and effect sizes were calculated. With regard to mental toughness the defenders (M = 3.53, SD = 0.44) scored significantly higher than the midfielders on constancy (M = 3.40, SD = 0.51), whilst the midfielders (M = 2.49, SD = 0.54) exerted greater control than the defenders (M = 2.31, SD = 0.55) and forwards (M = 2.29, SD = 0.56). Contrary to previous research no psychological skill differences existed. The group integration-task scores of the forwards (M = 6.62, SD = 1.68) and goalkeepers (M = 6.50, SD = 1.20) were significantly higher than that of the midfielders (M = 5.94, SD = 1.61). The results confirm the general assumption that positional differences exist for various psycho-social variables among team sport athletes. Implications for psychological skills training programmes and the development of group cohesion aimed at enhancing performance are discussed. Further validation of the three research instruments for use in African soccer settings is also recommended.

Improving health-related physical activity by using Intervention Mapping: Preparing a school-based intervention in Estonia

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Evidence suggests that school-based interventions can improve physical activity and related health markers in children. However, achievement of behavioral and physiological effects and maintenance of achieved results is difficult, implicating the necessity of sustainable multi-component actions. In Estonia there is a lack of coordinated and integrated intervention strategies to increase health-related physical activity in youth populations, and those implemented are inconsistent and ineffective. We present the systematic development of a physical activity intervention (PAI) program for implementation in Estonian schools. The PAI was developed using the Intervention Mapping protocol (IM; Bartholomew et al., 2011). Program development was informed by a literature study and supplemented by various focus group discussions with stakeholders as well as cross-sectional pilot studies of social cognitive variables in samples of children, parents, and teachers. The outcome measure of the intervention is objectively measured physical activity. PAI was designed to target attitudes, subjective norms, perceived behavioral control, self-efficacy, and self-determination

of children, parents, and school staff. Applications were clustered into six program components: in-class physical activity breaks, active recess, health-related physical education, self-management education for children, differentiated health-related education for school staff, and health-related parent education. An empirical study of the efficacy of the intervention modules is currently underway which should provide added insight and understanding into PAI. An iterative process of constructing drafts and evaluations with target groups and experts is used, modifying the intervention until a version suitable for formal evaluation is established. Intervention will then be evaluated using a randomized control design in 6 schools. Outcomes will be assessed pre- and post-intervention and at 3-month follow-up. The IM provided a useful framework to systematically plan an intervention for school-based improvement of physical activity. Further research is needed to determine to what extent the PAI contributes to sustained effects in participants of school-based physical activity.

Which goals are satisfying? Relationship between goal orientations and need satisfaction in leisure time physical activity

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Goals are part of complex motivational structures. Kuhl (2010) labeled these structures as motives and describes them as cognitive-emotional networks. Basic psychological needs shape the cores of these networks. According to this structure, the strength of the association between goals and need satisfaction determines the degree of internalization and the goal's relevance. This study is aimed to investigate the relationship between goal orientations and need satisfaction in leisure time physical activity? One hundred and fifty-three climbers (CL, 66 women,16-60 years old, M = 31.39, SD = 9.01) and 150 fitness athletes (FA, 71 women, 16-74 years old, M = 32.28, SD = 12.64) were asked to complete assessments of goal orientations by means of the German version of the Goal Content for Exercise Questionnaire (GCEQ; Sebire, Standage & Vansteenkiste, 2008) and basic need satisfaction through the contextual basic need satisfaction scale (CBANS; Kleinert, 2012). Multiple linear regression analyses tested associations between basic psychological needs (autonomy, competence, relatedness) and goal orientations (social affiliation, image, health management, social recognition, skill development). Analyzing both groups (CL, FA) separately showed that, social affiliation is predicted best by the needs for competence and relatedness (CL: R2adj = .34, $p < .001$, FA: R2adj = .29, $p < .001$). Basic needs were weaker in predicting image (R2adj = .12, $p < 0.00$) and health management goals (R2adj = .15, $p < .001$) in the CL group, and the health management goal in the FA group (R2adj = .05, $p = .012$). The goal of social affiliation is most satisfying and consequently the most internalized, independent of the type of activity. Simultaneously it is associated with high levels of well-being. Depending on the type of activity, different goal orientations are unsatisfying (CL: image, FA: health management), assuming a high externalization of these goals, which might be ascribed to social coercion.

Organizational stressors, psychological resilience, and burnout in athletes and coaches

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Emerging research has indicated that there is a relationship between organizational stressors and athlete burnout in sport. However, the role of individual differences such as psychological resilience in this relationship has been hitherto overlooked. The present study investigated the moderating effect of resilience on the organizational stressor-burnout relationship. Athletes (N=396; Study 1) and coaches (N=91; Study 2) were asked to complete a questionnaire pack including the Organizational Stressor Indicator for Sports Performers (OSI-SP), the Connor-Davidson Resilience Scale-10, and the Athlete Burnout Questionnaire or Coach Burnout Questionnaire, according to the participant's role. Using

Hayes' PROCESS macro for SPSS, moderation analysis found resilience to be a significant moderating variable in the organizational stressor-burnout relationship for both samples. Specifically, higher resilience levels significantly reduced self-reported burnout in athletes and coaches who had encountered organizational stressors. The findings indicate that the development of interventions to promote psychological resilience could buffer against the potentially adverse effects of organizational stressors and support the well-being of those employed within sport organizations. Such findings also support calls for a positive organizational psychology research agenda that aims to strike a balance between the examination of factors that inhibit and support performance and well-being in elite sport.

Genetics and environment in the developmental history of top athletes: A comparative analysis based on autobiographical memories

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Twin athletes do not always achieve the same level of competitive performance as they progress in their careers. We have previously analyzed the autobiographical memories of athletes with respect to sports-related childhood experiences (proto-experiences of athletics, as well as the indelible scenery associated with those experiences, called "proto-scenery"). Our findings suggested that awareness of the continuity formed by various experiences in the context of athletics, from childhood on, supports the athletes in their ongoing competitive careers and plays a role in their level of commitment. Against this background, the present case study examines one pair of monozygotic twins who showed a difference in competitive performance as adults and in their choice of post-retirement career despite strong similarities in their genetic and environmental histories by comparing their autobiographical memories. The subjects were a pair of twins who took up the same sport in junior high school. One twin participated in events at the national level, while the other represented Japan in international competitions. Investigative interviews were conducted to gather data concerning their autobiographical memories, particularly about proto-scenery (early childhood memories of places), proto-experiences in sport, influences of significant third parties such as parents and siblings, and the relationship between the twins when making career decisions. Similarities and differences of the above mentioned aspects in the twins' life courses as identified from the accumulated data were then mapped in a tree diagram, creating a visual representation, in order to analyze and discuss their interview records. This revealed different narratives of their proto-experiences in sport despite a surprisingly similar set of early childhood experiences. Although these twins engaged in the same athletic competitions through high school, it appears that differences in the significance assigned to autobiographical memories played a major role in creating later differences in their competitive performance and in their level of commitment to their sport.

Effects of serial choice reaction tasks on athletes' central information processing ability

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Ability to instantly recognize and assess situations is required in competitive sports that require open skills. Recent studies have frequently investigated the quick and accurate central information processing ability of athletes (Snaders, 1998). Athletes have to repeatedly make instant assessments of situations during games. It has been indicated such repetition of situational assessments accumulates mental fatigue and leads to a decline in attentiveness leading to mistakes (Summala, et al, 1994). However, changes in central information processing ability of athletes resulting from repeated situational assessment have not been investigated to date. This was designed to obtain basic information for assessing the central information processing ability of athletes, through comparing event-related potentials (ERP) and reaction times (RT) between athletes and non-athletes, when conducting serial choice reaction tasks under competitive conditions. Participants were

undergraduate and graduate students without clinical findings (N=20). Men and women from 20-year-old 26-year-old.They were divided into the athlete group and non-athlete group. The former included undergraduate students (N=10) specialized in open skill events that had been continuously taking part in events. The latter included graduate students (N=10) that did not continuously do sports. Three sets of oddball tasks using visual stimuli that required complicated assessment were conducted. During the task, ERT and RT were measured. The results indicated the following. Furthermore, central information processing ability of the athlete group showed a smaller decline, compared to the non-athlete group. It is suggested that athletes could instantly and appropriately assess situations and make the best choice of play, because they had a good central information processing ability. Furthermore, this ability did not decline through repeated situational assessments in athletes, compared to non-athletes. These findings confirmed the durability of central information processing ability of athletes. Furthermore, ERP and RT are considered useful for evaluating central information processing ability of athletes.

Mood benefits from autogenic training. Relaxing, calming and re-energising...

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Autogenic training (AT) is a relaxation technique to aid mental tranquillity as well as physical relaxation (Kanji, 1997). The benefit of AT for improving sports performance was first described by Koronkai et al. (1970), but no work has looked at the impact of a programme of AT on mood control. Therefore the aim of the study was to investigate the relationship between AT and mood. Ninety-two university sport science students (73% male; mean age = 22.2, range 20-41 years) participated. At the beginning and the end of the AT, participants completed the Brunel Mood Scale (Lane et al., 2007). A psychophysiological monitoring device (Zephyr Bioharness) was also employed to enhance the validity of our results. Two students per group volunteered to wear the Bioharness. Of the negative mood states, anger, tension, depression and confusion decreased (p=0.001), while fatigue did not change. Of the positive mood states, vigour decreased (p=0.001), while calmness increased (p=0.001). There was no effect of AT on happiness. Of somatic responses, mean heart rate decreased, especially during ‘relaxed heart beat’ self-talk. Decreased breathing frequency was noted for the influence of ‘relaxed breathing’ self-talk technique. Body core temperature remained unchanged. In conclusion, AT reduces negative mood states including anger, tension, depression and confusion, and enhances the positive mood state of calmness. However, vigour decreased which suggests cautious implementation of this procedure immediately before or during competition. It seems best to use the technique the night before or at least a few hours prior to the start of a contest, as this period provides athletes an optimal interval to refocus and re-energise. In summary, AT may contribute to young student athletes’ successful performance enhancement by positively regulating their mood states.

Safeguarding youth in sport: Sport psychologists as reflective practitioners

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Every year in Westernized countries, millions of young people participate in organized sport based upon assumptions that these sport experiences contribute in positive ways to health and development – physically, psychologically, socially, and spiritually. However, despite the well-documented potential benefits that sport participation offers, the literature is replete with examples of harm experienced by athletes, including: emotionally abusive coaching practices, physically and psychologically harmful hazing rituals, academic disengagement, sexual abuse, and serious injuries, amongst others. The high drop-out rates from sport alone indicate that many young people are not experiencing individual growth as a result of their sport participation. As professionals in the field, and frequently as the first point of contact with athletes, sport psychology consultants carry a special responsibility and moral duty to

ensure that sport contributes in beneficial ways to the holistic growth and development of young people. To help ensure young people are safeguarded from harm and instead incur growth-enhancing experiences from sport, this presentation will encourage sport psychology professionals to be reflective practitioners; to scrutinize their positionality and reflect upon the philosophical underpinnings, intended outcomes, and perhaps unintended consequences of their work. Readers will be encouraged to reflect upon such questions as: the purpose of teaching mental skills; whether `mental toughness` can be promoted without questioning the means by which to achieve this; whether by teaching athletes coping skills, sport psychologists may be inadvertently encouraging athletes to endure harmful or even abusive coaching practices. Grounded in the United Nations Rights of the Child and the tenets of athlete-centred coaching, guiding principles will be proposed to assist sport psychology consultants in ensuring their work with athletes supports the individual rights and autonomy of the young athlete, thus contributing to growth-enhancing experiences.

The relationship between the social appearance anxiety and success orientation of physical education and sport students

Gülay Yasemin Aldemir, Levent Tanyeri, Billur Yarsuvat
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The relationship between social appearance anxiety and success orientation of physical education and sports students was examined. In order to assess social appearance anxiety, the social appearance anxiety scale, developed by Hart et al. (2008), was used. This scale was translated into Turkish by Dogan (2010) and consists of 11 items. The “2x2 Success Orientations” scale was used to assess success orientation, which was developed by Elliot and McGregor (2001) and was translated into Turkish by Akin (2010). The scale consists of four subscales: Learning-Approaching Success Orientation (8 items), Learning-Avoidance Success Orientation (5 items), Performance-Approach Success Orientation (7 items) and Performance-Avoidance Success Orientation (6 items). There are 26 questions in the scale in total. Furthermore, face-to-face interviews were conducted with 95 students studying different disciplines. After the interviews’ analysis, 90 were retained for the main analysis. Out of 90 students, 42 were female and 48 were male. The internal consistency (Cronbach’s Alpha) was 0.926 and Pearson correlation factor was r= 321 for performance-approach low stage and social appearance anxiety and r= 461 for performance-avoidance success orientation. If the Pearson correlation factor lies between 0.26-0.49, the relationship is considered to be weak.

Sets of coaches on sport results of young sportsmen

Valery Malkin
Ural Federal University, Russia

According to surveys more than 45 % of Olympic school athletes emphasize the conflicts to coaches and difficult relationships with team mates as the main reasons for declines in sport performance and drop outs in sports. The current study determined within a two-year period the actuality of these results. For this reason, two types of coaches were selected. The first type has to work with insufficient sports settings and those coaches primarily focus on an early specialization and they work with an authoritarian leadership. The second type can build upon a professional pedagogical setting and these coaches mainly aim at developing the young athlete as a person. In the groups of coaches of the first type the athletes relationship to the coach deteriorated on the emotional (4,4 and 2,6, $p < 0,001$), behavioural (5,6 and 3,2, $p < 0,001$) and professional (6,4 and 3,1, $p < 0,001$) scales. At the same time for the athletes an increase in the parameters "absence of co-operation" (4,1 and 5,6 <0,01), "disagreement" (4,2 and 6,1 <0,01)" and coldness in the relations" (5,0 and 6,4 < 0.001) in sport activity was found. In the groups of coaches of the second type favourable relationships between coaches and athletes were noticed revealed by the behavioural component 6,3 and 6,2, emotional 6,4 and 6,5, professional one was improved from 6, 5 to 7,3. In addition, improvements were found in the psychological parameters on scales "warmth" (5,0 and 6,8)

and «cooperation" (4,9 and 5,3) as well as satisfaction. Results allow to consider that insufficient sports settings do not allow coaches to optimally develop their athletes.

Session 4 – Friday 17 July, 10am-11.30am

Sport and society: The athlete and violence of fans

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Football is a sport of great symbolic, economic and political representation in Brazil, established as a social phenomenon with high occurrence of acts considered violent, targeting fans of the opposing team as well as athletes. This study explored factors involved in the violence propagated in organized football and its impact on the footballers' construction of meaning, self and the world. This exploratory, descriptive and qualitative study included a literature review of books and articles available from online databases like SciELO, Medline, about football, player, fan clubs, violence. Consultation documents to the press and television writing about "violence between supporters", "violence of the fans against the players" Were also included. It was noted that the spectators who encouraged athletes currently as cheerleading, insult players and promote clashes based on hooliganism, requiring players to match the benefits they receive (Reis, 2003). For his achievements the player approaches the Gods and acquires privileges, unimaginable to the reality of the public. The fans, not rewarded as their idols, despite of the extensive work that turns them into hero, fans experience deep frustrations, reasons of violence (Rubio, 2003). Players to escape the pressures, experience the conflict between the secret desire to lose the finals of the championships and the consequences of defeat represented by the material losses and the decline in status for the family and society (Cratty, 1991).

Depressive symptoms in cricketers: The relationship with neuroticism, fear of failure, and emotional intelligence

Hannah J. H. Newman, Linda Duffy
Middlesex University, UK

Previous research on depression in sport focuses on three main risk factors: concussion, injury, and overtraining. In recent years, a number of international cricketers have publicly reported their experiences of depression that were largely not due to these three risk factors. Media coverage has led to debate on whether it is the nature of cricket, or the individuals that are attracted to cricket that has caused the seemingly high prevalence of depression. Therefore this study aimed to identify potential risk factors or predictors of depression in cricket. Participants were 36 current cricketers, ranging from club to international level. All participants completed a questionnaire pack examining depressive symptoms (BDSA; PHQ-9) and specific risk factors relating to the individual: neuroticism (IPIP), fear of failure (PFAI), emotional intelligence (SEIS), and resilience (SRS). Four participants were then interviewed to identify further potential risk factors. Results of multiple regression analysis showed neuroticism, fear of failure, and emotional intelligence to explain 62.5% of the variance in depressive symptoms. Neuroticism was found to be a significant predictor of depressive symptoms, uniquely accounting for 54% of the variance. FF and EQ were both found to have significant relationships with depressive symptoms but were not significant predictors. Resilience was found to have no relationship with depressive symptoms. Results of IPA analysis found some elements of cricket to be potential risk factors for depression, most notably the individuality within a team environment. The analysis also highlighted the importance of the individual response to these elements in the likely onset of depressive symptoms. Knowledge of the relationship between these factors and depressive symptoms could be useful in the prevention, identification, and treatment of depressive symptoms. Future research should investigate the ways in which this knowledge could be applied to both proactive and reactive intervention strategies.

Coaches´ subjective talent criteria in top level soccer

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In professional soccer, talent selection relies on the subjective judgment of scouts and coaches. To date, little is known about the nature of the subjective criteria coaches use to identify talents. Drawing on a constructivist approach (Kelly, 1991), this study explores coaches' subjective talent criteria. It is assumed that coaches are able to verbalise and specify their talent criteria, and that these are related to their talent selection decisions based on instinct. Participants were five national youth soccer coaches (Mage = 55.6; SD = 5.03) that were investigated on three occasions: talent selection decision (t1), semi-structured inductive interview to elicit each coaches' talent criteria in detail (t2), communicative validation and evaluation of the players by each coach using the repertory grid technique (Fromm, 2004) (t3). For the data analysis, each talent criterion was categorized using a bottom-up-approach. The repertory grid data was analysed using descriptive statistics and Spearman's rank correlation. For each coach, six to nine talent criteria were elicited and specified. The subjective talent criteria include aspects of personality, cognitive perceptual skills, motor abilities, development, technique, social environment and physical constitution, demonstrating that coaches use a multi-dimensional concept of talent. Indicating criterion validity, moderate to high correlations ($.57 \leq \rho \leq .81$) are found between the evaluations of the players according to the coaches' talent criteria and their talent selection decision. The study shows that coaches are able to specify their subjective talent criteria and that those criteria are strongly related to their instinctive selection decisions.

The effects of individual and team based physical activity interventions on anxiety and depression in inactive menopausal women

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Women at the menopausal age are at high risk for experiencing anxiety and depression (Terauchi et al., 2013). Recent studies have shown that participation in physical activity is related to a decrease in anxiety and depression in other target groups (Gerber, 2014; Josefson, 2014; Lindwall, 2014). Furthermore, it has been shown that participation especially in team sports has many psychological benefits (Nielsen et al., 2014). This study investigates how two different types of physical activity interventions, one based on an individual and one on a team sport activity, affects the anxiety and depression levels in pre- and post menopausal women. The two overall hypothesis were that 1) Both physical activity interventions will positively affect the women's anxiety and depression levels, and 2) A team-based intervention has a greater effect on the anxiety and depression levels than an individual based intervention. Participants (N=70, mean age 50.66, SD=3.37) were recruited through advertisements in Danish newspapers and assigned to either an individual sport based intervention (spinning) or a team sport intervention (floorball) through block randomization. The 12 week interventions were funded by the Copenhagen Women Study and the Copenhagen Centre for Team Sport and Health. The Danish version of the Hospital Anxiety Depression Scale (Snaith & Zigmond, 1994) was administered at baseline and at post intervention. A repeated measures ANOVA revealed that from before to after the interventions the levels of anxiety decreased (mean=-1,02, percent=-23.29%) ($p<0.01$) independent of training type ($p=0.185$). For depression levels only a borderline decrease was observed (mean=-0.40, percent=-20.18%) ($p=0.110$) independent of activity type ($p=0.641$). This study showed that becoming more physically active could play an important role in dealing with the psychological demands linked with undergoing the menopausal phase. Furthermore, the results indicate that participating in team sports is as beneficial as participating in individual physical activities.

Application of self-determination theory in the e-health industry - Promoting sustainable exercise motivation

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Developing tailored digital interventions for exercise motivation by applying behavioral theory into existing web services in cooperation with the e-health industry could create a mutual base for experience exchange and practical implications. It could also add higher standards to e-health business by providing a scientifically sound and trustworthy foundation for digital solutions. This project aims to design an interactive tool grounded in sport and exercise psychology and combined with the latest expertise from information technology and innovation science, considering e-health industrial requirements and user needs. A main objective is to test the efficacy of using Self-Determination Theory (SDT) in designing, constructing and evaluating an exercise intervention. The digital intervention is based on a literature review mapping exercise motivation related to self-determination theory, complemented by qualitative cross-disciplinary interaction design methodologies, such as qualitative analysis of interviews and contextual observation capturing participant goals, behaviour, preferences, attitudes and frustrations. Intervention contents are essentially autonomy supportive structures, goal-setting support and relapse prevention, self-regulation structures, health information and web links. In February 2015 the intervention prototype will be pilot tested in a randomized controlled trial (RCT), involving existing members and clients (N > 10 000) of two health service companies. Outcomes relate to self-determined exercise motivation (The Basic Psychological Needs in Exercise Scale and The Behavioral Regulation in Exercise Questionnaire-2) and exercise behaviour, measured both by self-report measures (Godin Leisure-Time Exercise Questionnaire) and step counters. The RCT contains three measure points in order to allow advanced analyses of change and mechanisms based on the SDT-process model and motivational profiles. Latent growth curve and structural equation models will primarily be used to analyse data. This pilot study will create a baseline for elaboration into a second phase, were the digital tool will be further developed and longitudinally tested and evaluated over a nine months period.

Efficacy-performance relationships within performing dyads

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Instances of dyadic athletic performance provide opportunities to examine athlete appraisals of capabilities amid the mutual influence and interdependence of group performance. Bandura's (1977, 1997) Self-Efficacy (SE) and Collective Efficacy (CE) constructs have repeatedly been identified as influential antecedents of individual and group performance. Few studies in sport have examined Lent and Lopez's (2002) Other-Efficacy (OE) construct, but individuals' beliefs concerning their partners' abilities have also emerged as influential (Beauchamp & Whinton, 2005; Dunlop, Beatty, & Beauchamp, 2011). The three efficacy beliefs, however, have not previously been considered altogether with intact performing dyads. This study included 66 cheerleading dyads competing at a university national competition. A paired-stunt task within the competitive cheerleading routines was examined with each participant completing pre-performance measures of SE, OE, and CE (α = .94 - .96). Task performance was captured digitally and subsequently evaluated using standardized behavioral assessment procedures to obtain performance scores for female partners, male partners, and dyads (ICCs = .87 - .95, $p < .001$). Actor-partner-interdependence modelling was employed to test if individual performance was predicted by SE, OE, and CE appraisals obtained from both members of the dyad while simultaneously accounting for both partners' variables. All six interactions were significant indicating the slopes associated with a particular efficacy belief and performance relationship were uniquely tied to one's role. Interestingly, among the significant slopes, male performance was positively predicted by male CE ($b = 2.82$, $p < .01$) and negatively predicted by male SE (b =

-1.60, p < .05). Overall, differences in both strength and direction were observed across the multiple efficacy-performance relationships existent within dyads. The results provide evidence that efficacy beliefs are not equally associated with the same performance outcome. Accordingly, efficacy interventions targeted towards enhancing efficacy beliefs most pertinent to one's role should provide the largest performance impacts.

An exploration of heart rate variability, saliva cortisol, mood and perceived stress measures in concussion recovery assessment

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Sport concussion is a syndrome, which is typically managed by reference to self-reported symptoms. After concussion, the body is in a state of "stress" as it attempts to restore metabolic and psychological homeostasis. Stress levels in concussed athletes may be informative for optimal recovery, safe return-to-play (RTP), and subsequent injury prevention by reducing reliance on self-reported symptoms. The purpose of the study was to investigate non-invasive stress measures during concussion recovery. Seven female and four male concussed athletes, and 11 non-injured matched-control athletes volunteered ($\bar{x}$ age = 20.1 yrs) to participate from interuniversity athletic teams (football, soccer, basketball, volleyball, rugby, hockey and lacrosse) at a Canadian university. Heart rate variability (HRV), salivary cortisol, and two self-report measures: the Profile of Mood States (POMS), and the Perceived Stress Scale (PSS) were taken at three phases of recovery in concussed athletes: 1) Symptomatic ($\bar{x}$ = 4.7 + 1.8 days post-injury); 2) Asymptomatic ($\bar{x}$ = 18.1 + 6.8 days post-injury); and 3) Post-RTP ($\bar{x}$ = 25.6 + 6.8 days post-injury). The same protocol was completed by matched-controls. A series of 2 (Group) x 3 (Phase) repeated measures ANOVAs revealed significant interactions for Depression (p=0.003), Anger (p= 0.014), Confusion (p=0.001) and Total Mood Disturbance (p=0.001). Significant differences between groups were found for AM cortisol levels post-RTP (p=0.019). In HRV, significant interactions for sitting high frequency norm (HF) (p=0.041) and low frequency norm (LF) (p=0.041), suggesting autonomic nervous system disturbances. Also significant interactions were found for the difference between sitting and standing HF (p=0.021), and LF (p=0.035), indicating diminished response to the change in state. The findings suggest immediately post-concussion there are physiological and psychological disturbances that need to be explored further. These objective stress measures may be useful for clinicians and sport psychology consultants in assessing concussion recovery and return-to-play.

A self-determination approach to the understanding of athletes' self-talk

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Although a number of studies have demonstrated the effects of self-talk on sport performance, the research literature on the antecedents of athletes' self-talk is sparse. Using self-determination theory (Deci & Ryan, 1985) as the theoretical framework, we examined potential antecedents of athlete's self-talk in a sample of 381 athletes (154 females, 227 males; mean age 16.55 years). Employing a cross-sectional design, our primary aims were to investigate the relationships between basic needs satisfaction (competence, autonomy, and relatedness), behavioral regulations, and athletes' self-talk and to examine whether self-determined motivation, as expressed by the Relative Autonomy Index (Markland, 2011), mediated the relationships between basic needs satisfaction and athletes' self-talk. Our self-determination theory derived hypotheses were largely supported. Athletes' perceptions of competence, autonomy and relatedness, as well as autonomous types of motivation (intrinsic motivation and identified regulation) were positively related to athletes' positive self-talk dimensions and negatively related to athletes' negative self-talk dimensions. In contrast, extrinsic regulation (controlled type of motivation) and amotivation were negatively related to athletes' positive self -talk dimensions and positively related to athletes' negative self-talk dimensions. The results of simple mediation analyses using Hayes (2013) method revealed

that perceived competence directly predicted athletes' positive self-talk (positively) and negative self-talk (negatively), without the mediation of self-determined motivation. Perceived relatedness and the "internal perceived locus of causality" aspect of autonomy indirectly predicted athletes' negative self-talk (negatively), through their associations with self-determined motivation. Lastly, self-determined motivation partially mediated the relationships between the "volition" aspect of autonomy and athletes' positive and negative self-talk; however, the direct effects were more prominent than the indirect effects. Overall, these correlational findings stress the importance of basic need satisfaction and self-determined motivation in relation to athletes' self-talk, and suggest that sport environments satisfying psychological needs, thus fostering more self-determined motivation, may be effective in regulating athletes' self-talk.

Goal contents as predictors of exercise motivation and outcomes among college freshmen: A self-determination theory perspective

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Self-determination theory (SDT; Deci & Ryan, 1985) is a prominent theoretical framework used to explain exercise motivation. However, limited research has examined the Goal Contents Theory (GCT; Sebire, Standage, & Vansteenkiste, 2009), a SDT mini-theory. GCT suggests that the content of a goal can be either intrinsic or extrinsic, which affects motivational outcomes respectively. The purpose of this study was to investigate the influences of psychosocial variables on exercise motivation and motivational outcomes among college freshmen. Participants were 180 college freshmen (Mage = 18.15) from a public university in the US. They answered questions on demographics, exercise behavior, well-being, and motivation constructs including the goal content, need satisfaction, and motivational regulations. Path analyses (AMOS 22.0) were used to examine the relationships among variables. Correlation analyses revealed a pattern of positive relationships among variables ($p < .05$). Path analyses indicated that the hypothesized model produces a good fit to the data with various indices: $\chi^2/df = 2.34 < 5$; CFI = .97; NFI = .95; IFI = .97; RMSEA = .087. Specifically, the model accounted for 25.8%, 16.7%, 8.3%, and 26.6% of the variances in need satisfaction, relative autonomous index, physical activity, and subjective vitality respectively. Path coefficients suggested that intrinsic goal was directly and positively associated with need satisfaction (β = .51), relative autonomy index (β = .21), physical activity (β = .23), and subjective vitality (β = .35), whereas extrinsic goal was directly and negatively associated with relative autonomy index (β = -.27) and subjective vitality (β = -.16). Partial mediation effects were found. The findings supported GCT in combination with other SDT mini-theories. As goals and cognitive-affective experiences can influence behaviors, the results facilitate the development of motivational interventions in exercise through intrinsic goal setting. Future research may further investigate individual differences (e.g. gender) in the model.

The role of "characteristic adaptations" in the stability of sporting skills execution

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An increasing amount of research in personality psychology suggests that there exists a considerable consistency in the individually habitual responses to stressful situations, referred to as "characteristic adaptations". The latter are related either to basic personality (Carver & Connor-Smith, 2010), or, more specifically, to cognitive systems of the personality, solving adaptive challenges (Matthews,2008). The objective of this presentation is to demonstrate that the personality appears to influence both: the objective skills, gained by the individual, and the subjective self-relevant cognitions about personal competence .We hypothesized that people develop, become committed to, and maintain a stable personality identity, in accordance with which they choose corresponding coping strategies in stressful situations. The hypothesis was tested on a sample of 64 female table-tennis players (aged

14-23 years). The sample was split into two opposite groups in a quasi-experimental design, made up of the players who lost more (Group 1) and less (Group 2) than 20 games during season after an equal score of 10 to 10.The participants were tested on their preferred coping style with the multidimensional Coping Inventory for Stressful Situation Scale (Endler &Parker,1990), as well as on the Big Five Personality Inventory (McCrae & Costa, 1992) . The results showed that the percentage of players who habitually choose problem-oriented coping strategy is higher in Group 1 than in Group 2 at ($p < .000$), as assessed by φ* Fisher test , while the percentage of players who habitually choose emotion-focused coping is, vice versa, lower in Group 1 than in Group 2 ($p<.05$). The differences between Group 1 and Group 2 were also registered by t-test at $p<.01$ on the variables of the three stable personality traits: conscientiousness, neuroticism and openness to experience by t-test. The results show the siginifcance of developing the adaptive coping strategies as an important personality resource of successful athletes.

Coaches' burnout, stress, and recovery over a season: A longitudinal study

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The development of burnout in the profession of sports coaching is a process that can take months or even years (Taris, Le Blanc, Schaufeli, & Schreurs, 2005).The arising might affect athlete performances. Unfortunately, there is a paucity of longitudinal examination of coaches' burnout, stress, and recovery (Altfeld & Kellmann, 2013). This study investigated burnout, stress, and recovery of full- and part-time coaches to examine possible changes during the course of the season. Twenty-five full-time and 45 part-time active German coaches of different sports and competition levels completed the German coaches' version of the MBI and the RESTQ for Coaches at three time points throughout the season. Inferential statistical analysis revealed significant changes of full-time coaches' stress and recovery scores over the course of the season. Moreover, the work hours per week were significantly higher at the end of the season. Post-hoc analysis revealed that full-time coaches whose values of perceived success decreased over the season showed increased emotional stress and decreased recovery values. Part-time coaches reported consistent stress levels. Consequently, findings suggest that full-time coaches experienced increased emotional stress, invested more time, and had insufficient recovery during the season. Moreover, the study suggested the importance of the perceived feeling of success to full-time coaches in contrast to part-time coaches. Consequently, the examination was particularly important to acquire further understandings for the coaching job and to find helpful information to plan interventions (e.g. time management skills) for coaches to prevent crucial health issues.

Assessment of sportsman's activation level by Color Association Method

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The Colour Association Method (CAM), like Lüscher's color test (Lusher, 1971), is based on a palette of eight colours and is combined with words. Association (James, 1890, Wundt, 1902) between certain words related to the competition setting and colour might provide insight into the non-conscious, subjective psychological state of an athlete. Recent neuroscience research indicates that cognitive self-control is overrated and that sportspersons might overestimate conscious capacity to control activation level in competition (Damasio, 2010; Araujo, Kaplan & Damasio, 2013; Damasio & Carvalho, 2013). CAM claims to explore mental resilience during the competition by measuring subjective sense of pain, effort, fear, injury, readiness for competition and training, ability to take a risk during the match, relying on habits in the sports context (www.camethod.com). Results on CAM vary from zero to one hundred. CAM is still not validated in sports psychology. The aim of this pilot study was to explore athletes' psychological state using CAM and CSAI-2 (Martens, Vealy & Burton, 1990). The sample included athletes members of the Serbian national canoe sprint women's K-2 team. Athletes completed the CSAI questionnaire and

CAM test every day during twenty-six days of the European and World Championships in 2014. Results of CSAI-2 tests revealed similar results for both athletes: low levels of cognitive (M=9.1) and somatic (M=10) anxiety, and relatively high levels of sports confidence (M=30.3). Results by CAM indicated differences in sports competition setting between the two athletes. One athlete manifested greater mental resilience (Competition: M=78.92; Training: M=82; Fear: M=25.62; Pain: M=28.62) than the other athlete (Competition: M=52.58; Training: M=52.58; Fear: M=67.5; Pain: M=71.75). Data collected by CAM were more congruent with information based on introspection reports and observed behavior. Future research and complex statistical analysis should examine validation of CAM.

Comparative research of the personal and social responsibility model to Improve self-efficacy during physical education classes

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Personal and Social Responsibility Model (TPSR) (Hellison, 1970) in 7th grade students with special educational needs, during physical education (PE) classes was applied. TPSR model is a positive youth development (PYD) program (Seligman and Csikszentmihalyi, 2000) organized around five levels. The school aimed to improve student's inclusion problems and risk behaviors. We assumed the hypothesis that the TPSR model teaches children responsibility behaviors to positively influence their self-efficacy (Escartí, Gutiérrez, Pascual, Llopis, 2010). The design was quasi-experimental. Intervention group (G1) with 24 students (8 females and 14 males) average age 13.6. Control group (G2) with 20 students (7 females and 12 males) average age 14.4. Families size and sociofinancial level were equivalents. Intervention period: six months. Teacher training: 20 hrs. Base line of disruptive behaviors was obtained. Instruments: Semi structured interview, and three dimensions of the Multidimensional Scales of Perceived Self-Efficacy (MSPSE; Bandura, 1990, 2001); Perceived Social Self-efficacy, Self-Assertive and Self-Regulatory scales. Pre-test was administered on November, 2014. The base-line of pre-test responses was calculated with SPSS 17 (T test for independent samples). With regard to qualitative results, the teacher perceived benefits after applying the TPSR model in physical education classes. She had previous experience with PYD programs, nevertheless encountered difficulties with TPSR structure especially with the "transference" of learning. She found an improvement on student's personal and social responsibility behaviors, which parents and classroom teachers corroborated. Social self-efficacy scale showed significant differences ($p < 0.05$) in questions 22 and 23 regarding being able to "have friends with the same or different sex" ($p < 0.05$). Question 25 of Self-assertive scale "expression of opinions when others disagree", obtained significant differences ($p < 0.05$).

An examination of body methods in the reduction of anxiety in athletes

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Success or failure in sports depends on many factors, such as athletic goals, personality characteristics, relationships with other athletes, incentives, recognition of the athlete's coach and many other social and psychological factors that have an effect on performance quality. Many studies were conducted about anxiety reduction; however these studies examined one or two methods. The aim of this study was to examine physiological methods to reduce anxiety in athletes. This study's sample included student male athletes, in single and team sports attending academic competitions preparation. Sample, which was divided into five groups (4 experimental groups and 1 control group), included student athletes aged 18 to 28 years selected randomly from basketball, handball, futsall, football, volleyball as team sports and wrestling, taekwondo, judo, badminton, ping pong, athletic sports as single sports (n=20). Variables included anxiety (dependent variable) and physiological (biofeedback, massage, relaxation, breathing) methods to reduce anxiety (independent variable). The sports personality questionnaire (SPQ20) was used for data collection. Validity of this

questionnaire based on criterion validity reached the $p<0.05$ significance level and its reliability by Cronbach's alpha 0.80 and $p<0.05$ was significant. After sample selection participants completed the questionnaire and were divided into a control (sport training only) and experimental (sport training and anxiety reduction methods) group. Experimental group athletes carried out regular sport activities for eight weeks, three sessions per week and 30 to 45 minutes per session. Results indicated that all methods in this study led to anxiety reduction and a difference between anxiety reduction methods was also observed. These methods had most effect on individual sport athletes. Relaxation and breathing techniques had the strongest effect on anxiety.

Top-down or bottom-up? Examining the directionality of athletes' team satisfaction and life satisfaction

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Both the top-down and bottom-up approaches of overall life satisfaction and domain satisfaction have been examined in different life facets across various countries with abundant empirical evidence. Currently, however, the knowledge of athletes' team satisfaction and life satisfaction is still vague. Consequently, the present study aimed to explore the relationship between overall life satisfaction and team satisfaction in the sports realm and to further examine the consistency at between- and within-subject levels to extend the comprehension of the theory. With a longitudinal design, the study included 238 adolescent athletes who were recruited from diverse sports. The results of a cross-lagged analysis and latent growth modeling indicated that the relationship between life satisfaction and team satisfaction supported a bottom-up perspective at both between- and within-subjects levels. Applications, limitations, and future studies were discussed.

The role of sport and physical activity in prevention of inadequate body image among children

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Many studies of the effect of physical activity and sport on body image in children show different results: Girls in the aesthetic sport group reported higher weight concerns than girls in the nonaesthetic and no sport groups at ages 5 and 7 years (Krahnstoever Davison et al., 2003); active children are more dissatisfied with their body image than inactive children (children 11-14 years old) (Duncan et al., 2006); high level of physical activity in children 10-17 years protects them from the body image dissatisfaction, but does not protect against distortions of perception of body image (Monteiro Gaspar et al., 2011); girls in different types of sports differ in the perception of the body, practicing any sport form an adequate body image (aged 13-18 years) (Abbott & Barber, 2011). And other studies. In our study used paper-and-pencil self-reported about body image based on a "Questionnaire measuring body image and dissatisfaction" (Mciza, 2005). Participants were 225 adolescents, 9-12 years: 110 athletes (55 girls, 55 boys) and 115 non-athletes (60 girls, 55 boys). Analysis of the results was conducted using the Pearson's $\chi 2$. Brief results of the study are: Sports protect athletes from dissatisfaction with their body. But athletes are more critical for their bodies. Girls more than boys are worried about their weight, and girls-athletes more than non athletes. In sports environment children are less teased by their peers than in the school. Among athletes formation of body image is greatly affected by coaches. Athletes for weight management often use strategies to reduce the amount of food and increasing exercise. Adolescents are not involved in sports often use depriving yourself of food during the day, and drugs for weight loss. Sport and physical activity facilitate the formation of an adequate image of the body in childhood.

Polish version of the Coaching Behaviour Scale in Sport

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Coach is the most important person in a sports team (Czajkowski, 2003). Coach can build an athlete-athlete relationship with the leadership style. Transformational leadership is one of the most inspiring leadership styles and it seems to be the most effective. Transformational leadership means individual approach to a player, taking care of good communication and a good coach-player relationship (Callow, Smith, Hardy, Arthur and Hardy, 2009). Chelladurai (1978) created the Multi-Dimensional Model of Leadership in Sport. It describes the most important behavior in managing a sports team. Cote, Yardley and Hay (1999) have done in-depth studies on the behavior of the coach, and created the Coaching Behavior Scale for Sport. It examines the behavior of the coach, but it is focused on the players point of view. The development of the polish version of the Coaching Behavior Scale in Sport proceeded in two stages. In the first stage, the scale has been translated into Polish and the content of the questions were adapted to polish realities. Polish version of the questions was further verified by two Polish players (for checking if the questions were clear and understandable). In the second stage, in total it encompassed 80 athletes, students of the Academy of Physical Education majoring in Physical Education, completed the polish version of the CBS-S. The psychometric equivalence of the Polish translation of the scale with the original has been estimated by employing the method of bilingual answers. The psychometric properties of the experimental version were also verified. The reliability coefficients (the internal consistency coefficient Cronbach's alpha and the absolute stability coefficient) and validity (content and exploratory factor analysis) of the final version of the Coaching Behavior Scale for Sport can be deemed satisfactory. The CBS-S can be widely used in the sports environment.

Efficacy of progressive muscle relaxation on competitive anxiety of Iranian gymnastic national team athletes

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Competition can cause athletes to react both physically (somatic) and mentally (cognitive) in a manner which can negatively affect their performance abilities. Stress, arousal and anxiety are terms used to describe this condition. Anxiety can be recognized on two levels (somatic and cognitive) such as increased blood pressure, Pounding heart, increased respiration rate, Sweating, Clammy hands and feet, Butterflies in the stomach, Indecision, Sense of confusion, Feeling heavy, Negative thoughts, Poor concentration, Irritability, Fear and Forgetfulness. To help the athlete, control competitive anxiety somatic techniques (relaxation) and cognitive techniques (mental imagery), can be used. In this project we used progressive muscle relaxation. 30 subjects of Gymnastic national teams athletes investigated that comprised a case group and a control group. Each group contained female between 15 to 20 years. Participants were matched based on salient demographics including age, sex, educational level and social class. The sampling was available simple in Gymnastic national team of Iran. First, all of players were studied by Competitive state anxiety inventory-2 (CSAI-2) in pre and post-test. The players in the case group were treated with 20 sessions of relaxation. The results were statistically analyzed using one-way ANOVA with post hoc test, the paired t-test, t-test for independent groups respectively (P= 0.05), showed a progressive muscle relaxation rate reduce anxiety's physical; in addition, cognitive anxiety brought down close to the border and between the players resting heart rate is significantly reduced. Findings of study in participants showed that can improve gymnast's performance especially in the age group of adolescents.

The effect of 4 weeks of isometric handgrip exercise on flow mediated dilation and BP in individuals medicated for hypertension

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Hypertension contributes significantly to worldwide cardiovascular morbidity and mortality. Hypertension appears to have a complex association with endothelial dysfunction. The augmentation of blood pressure contributes significantly with cardiovascular structure and function disorder that cause damaging of heart, kidneys, brain and vascular and other limbs causing premature death. The purpose of this study was to evaluate 4 weeks of isometric handgrip exercise on Flow mediated dilation and blood pressure on individuals medicated for hypertension. 14 woman of age 30-55 were selected on the basis of BMI and consumption medicine. All participants trained three times per week for 4 weeks. FMD brachial artery and blood pressure were assessed before and after exercise. Data were evaluated using dependent T-test(pretest-post test design) at significance level was p=0.05. According to the results, significant changes in Flow mediated dilation and systolic-diastolic blood pressure were observed(respectively p= 0.001 and p=0.006 and p= 0.001). In conclusion, the results of this study demonstrated that isometric exercise with positive effect on endothelial function can potentially reverse endothelial dysfunction in hypertensive.

Perceived prosocial and antisocial behaviors in basketball: Implications for performance and sport commitment

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Prosocial and antisocial behaviors are common in sport. Examples are helping another player off the floor or trying to injure an opponent. Most studies have examined antecedents of these behaviors focusing primarily on acts directed at opponents. However, prosocial and antisocial behaviors can also be directed at teammates (Kavussanu & Boardley, 2009); examples are encouraging, supporting, arguing, and verbally abusing a teammate. The aim of this study was to examine whether teammate behaviors during a basketball game predicted the recipients' enjoyment, anger, effort, performance, and commitment; and whether the effects of these behaviors on performance and commitment were mediated by enjoyment, anger, and effort. Participants were 281 basketball players (Mage = 25.01, SD = 6.88), who responded to questionnaires measuring the aforementioned variables. Mediation analysis (Hayes, 2013) revealed that prosocial teammate behavior had direct effects on enjoyment, effort, performance, and commitment. It also had indirect effects on performance via enjoyment and effort; and commitment via enjoyment, effort, and performance; all effects were positive. Perceived antisocial teammate behavior had direct positive effects on anger, and direct negative effects on effort and performance. However, the indirect effects on performance and commitment were non-significant. These findings suggest that it is important to encourage members of a team to engage in prosocial behaviors toward their teammates, as these behaviors could influence players' emotions, perceived performance, and commitment. Antisocial behaviors from one's teammates could lead one to become angry and try less during a game, but are unlikely to influence performance and commitment. The findings provide further evidence about the importance of creating a supportive team environment during competition.

Validation of the French Sport Motivation Scale II (SMS – II)

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The Sport Motivation Scale - II (Pelletier et al., 2013) is an 18-item questionnaire that measures the six motivation orientations described by Self-Determination Theory (SDT), in the sport context. This scale was created to address concerns related to the psychometric properties of the original scale (SMS; Pelletier et al., 1995). This study examined the

construct validity and reliability of a translated French version of the SMS-II. French-speaking athletes (n = 247) from Québec (Canada) and France completed the French SMS-II, and other questionnaires online: Global Motivation Scale (Pelletier & Dion, 2007), Task Ego Orientation in Sport Questionnaire (Chi & Duda, 1995), Satisfaction with Life Scale (Diener et al., 1985), Vitality Scale (Ryan & Frederick, 1997), Global Listing and Conflict Measurement (Emmons, 1999), Positive Affect Negative Affect Schedule (Watson et al., 1988), and Interpersonal Behaviours Scale (Pelletier et al., 2008). The SMS-II subscale correlations suggest evidence of a simplex-like pattern with stronger correlations between adjacent subscales of the SDT continuum, and weaker correlations between nonadjacent subscales. The subscales demonstrated good internal consistency (intrinsic: α = .77, integrated: α = .66, identified: α = .81, introjected: α = .71, external: α = .83, and amotivation, α = .76) and confirmatory factor analysis supported that the items loaded onto their appropriate factors ($\chi 2$ (120) = 238.48, CFI = .93, TLI = .91, RMSEA = .06). When the subscales are compared to outcome measurements, the self-determined (intrinsic, integrated, identified) and the non-self-determined (introjected, external, amotivation) regulations correlated both in the strength and direction with the outcomes, as would be expected based on previous research. This scale will allow researchers to measure motivation in the context of sports, with French-speaking athletes. Researchers should continue to investigate the validity of the scale to ensure its effectiveness.

Relationships between daily job demands-resources and burnout: The protective effect of daily level of physical activity

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In the workplace, the environment in which employees operate formulates job demands and provides ressources (Job Demands-Resources Model, Demerouti, 2001). An imbalance between both can lead to a state of stress. If it persists across time, it leads thereafter to a degradation of mental health, causing work-related diseases like burnout. Shirom (1989) has defined the burnout like the exhaustion of the three main ressources of the employee, this one is comprised of three dimensions: physical fatigue, emotional exhaustion and cognitive weariness. In view of the stress' negative consequences, it was shown that some health habits could lessen the negative impact on the stress, and notably on one of its physiological indicator the Heart Rate Variability (HRV) (Rinnie et al., 2003; Vanderlei et al., 2009). The aim of this study is to investigate how the daily within-person variations of job demands-resources, the daily level of physical activity, and the daily stress can influence the employees' daily level of burnout. We hypothesize that job resources and the daily level of physical activity mediate the relation between jo demands and the daily level of burnout. Moreover, we hypothesize that previous day's job demands have a negative lagged effect on the next day's level of burnout. Participants (N=40) were aged from 18 to 66 years old and were white-collar workers. They worn an Actigraph wristband for a week – day and night – measuring physical activity ; and completed a survey each evening measuring the daily level of job demands-resources and the daily level of burnout using single-items. They wore a heart rate monitor every night for a week measuring heart rate variability. Results are still being processed, and will be analyzed using a multilevel latent growth curve analysis and presented at the conference.

Promoting physical activity for people with spinal cord injury: What role do physiotherapists play?

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It is vital that people with spinal cord injury (SCI) maintain a physically active lifestyle to promote their lifelong health and well-being and improve their quality of life (Martin Ginis et al, 2012). Yet within hospital rehabilitation and upon discharge from this context into the community, spinal cord injured people are largely inactive (Letts et al., 2011).

Physiotherapists are well placed to promote a physically active lifestyle and have been identified by people with SCI as valued and trusted messengers of physical activity (PA) (Mulligan et al., 2011; Smith, 2013). The purpose of this study was to explore what physiotherapists in SCI rehabilitation think about PA for people with SCI and what they do in relation to promoting PA. Semi-structured interviews were completed with eighteen (13 women and 5 men) neurological physiotherapists (3-20 years' experience) from SCI centres in the UK and Ireland. Framed by ontological relativism and epistemological constructionism, an inductive thematic analysis was conducted on the interview transcripts. The process of analysis resulted in the development of three themes. These were: 1) perceived importance of physical activity in rehabilitation and the community; 2) hit and miss physical activity promotion; and 3) the unease with activity-based rehabilitation. This article makes a contribution to the literature by identifying that whilst physiotherapists do value PA, active promotion of PA remains largely absent from what they do. Based on the empirical evidence, there are several implications concerned with health and exercise psychology that emerge from this study. A number of knowledge translation practices within the macro (national policy), meso (academia) and micro (SCI centres) levels are critically discussed in order to more effectively promote a physically active lifestyle for people with SCI.

Mental competencies of Russian multiple Olympic gold medalists: A study of seven cases

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We suggested that multiple Olympic champions could have specific repertoires of mental competencies helping them to win gold. We've conducted a structured interview including questions about their best and worst competition experience, mental preparation and anxiety level. Our aim was to investigate into champions' mental competencies such as imagery, self-talk, managing emotions and anxiety, and coping skills (Lesyk, 1998) because their mental training was, on the one hand, mostly intuitive and self-invented and, on the other hand, very efficient at the same time. We based on mental skills models and approaches (Orlick, 1988; Lesyk, 1998; Hardy, 2013). The sample consisted of seven Russian multiple Olympic champions in gymnastics, speed skating, fencing and synchronized swimming (Mage = 33). The structured interview (Vealey & Walter, 1994; Orlick, 1999; Kvale, 2007) was used as a main method. Results were related to five main areas. Firstly, a confident communication with opponents: friendly attitude such as "no enemies, just colleagues who worked as hard as you". Secondly, working hard: champions showed a case of work addiction with emphasizing persistency as a constant individual streak. Thirdly, high competence of coping with stress, fatigue, fears and training monotony. Fourthly, rituals: habits and repeating acts that helped athletes to prepare themselves to perform. Fifthly, the champions pointed out very high level of anxiety that they had to cope with, they all reported resorting to self-talk and imagery during pre-competition night insomnia. Consequently, learning from Olympic champions can serve as a reminder of the importance of understanding the psychological factors related to peak performance. Their experience can be also used as a guide for young athletes who often feel skepticism towards mental training.

Demands, controls and stress perception in P.E.-teacher education

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The teaching of individual sports within practical education creates a high demand on PE teacher education students. The perception of given demands and possibilities for control represents an important predictor for stress evaluation in job settings (Karasek, 1979; Boyd, Bakker, Pignata, Winefield, Gillespie & Stough, 2011). The primary research question is: Does the perception of demands and controls explain the stress level of P.E. students in gymnastics courses? In a quasi-longitudinal study 211 students took part, who participated in a two-semester gymnastics course (PartA: N =91 (37 female), MAgePartA=22.12, SD=3.06;

PartB: N=120 (53 female), MAgePartB=22.38; SD=2.27). At the beginning and at the end of a semester students were asked for their demands, controls and stress evaluation by using an adapted inventory by Sieverding et al. (2013). While there was a reduction of perceived demands during part A (without practical exams) of the course, in part B the perception of demands increased. A significant interaction effect between the two parts ($F(1,178)=55.30$, $p<.001$, $\eta 2=.24$) was found. Stress level at the end of part B is higher than in all other points of measurement ($F(1,101)=83.04$, $p<.001$, $\eta 2=.45$). Stress level can be explained by the perception of demands ($\beta=.56$, $p<.001$), but not by the perceptions of personal control. Women reported higher stress levels than men. A buffering effect of social support can not be shown, higher social support does not lead to a reduction of stress. Results show, that the perception of demands has an effect on students' evaluation of stress. Likewise, the perception of stress increased from the first part of the course to the second part of the course. Practical implications of these findings for PE-teacher education programmes will be discussed.

Confirmatory factor analysis of the Sport Emotion Questionnaire (SEQ) in organizational environments

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Emotions have become a popular topic within sport psychology, partly due to the effects they can have on psychological-related processes, but also on performance. Although researchers have traditionally focused on competitive emotions, studies are emerging that highlight examples of a sport performer's emotional responses to organizational environments. This is important, because organizational demands are prevalent in competitive sport and theory suggests that emotions may act as a pivotal mediating factor between these events and undesirable outcomes. Regarding the measurement of emotions, the Sport Emotion Questionnaire (SEQ; Jones et al., 2005) was developed and validated to assess five categories of sport performers' emotions in relation to an upcoming competition. In view of this, of the fluctuating and dynamic nature of emotions across context and time, and the importance of measuring organization-related emotions, the purpose of this study was to test the factor structure of the SEQ in a different environment (organizational) and at a different time-point (over the past month). A further aim was to examine if the SEQ was invariant across different groups of performers. A diverse sample of athletes (n = 1277) completed the questionnaire. Participants were aged from 18-78 years, were of 25 nationalities, and represented 45 sports. A confirmatory factor analysis was used to analyze the data. Fit indices provided partial support for the hypothesized measurement model, with equal or better fit demonstrated than in initial validation. The comparative fit index values were above acceptable guidelines for all factors, and the SEQ was invariant across different groups. Overall, the findings support the reliability and validity of the measure, meaning that researchers and practitioners can now use the SEQ to accurately assess emotions experienced by sport performers in an organizational environment during the past month so that, ultimately, their impact on psychological processes and performance can be optimized.

Achievement of psychosocial developmental tasks and psychological competitive ability in Japanese college athletes

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Psychological competitive ability refers to a trait that enables an athlete to compete to the best of his or her ability (Tokunaga, 2001) and is necessary to excel in sports. Thus, the investigation of factors related to this construct is warranted. This study examined the relationship between the achievement of psychosocial developmental tasks and psychological competitive ability in Japanese college athletes (169 males and 118 females; mean age, 20.3 years). We investigated five psychosocial developmental tasks: trust, industry, identity, intimacy, and psychological weaning. Trust, industry, identity, and intimacy

were assessed using the respective subscales of the Japanese version (Nakanishi & Sakata, 2001) of the Erikson Psychosocial Stage Inventory (Rosenthal et al., 1981). Psychological weaning was assessed using seven modified items from the Parental Image Scale (Okamoto & Uechi, 1999) and the Japanese version (Kamiji & Kamiji, 2004) of the Psychological Separation Inventory (Hoffman, 1984). Psychological competitive ability was assessed using the Diagnostic Inventory of Psychological Competitive Ability for Athletes (Tokunaga & Hashimoto, 2000), which includes five factors: volition for competition, mental stability and concentration, confidence, strategic ability, and cooperation. The correlation analyses revealed that the achievement of psychosocial developmental tasks was in general, positively associated with the factors of psychological competitive ability. The multiple regression analyses revealed that a linear combination of psychosocial developmental tasks explained 47% of the variance in the total score for psychological competitive ability in males and 39% in females. The significant predictors of psychological competitive ability were industry, identity, and intimacy in males and industry in females. Our results suggest that supporting the achievement of psychosocial developmental tasks in athletes may improve their psychological competitive ability.

The mediating role of performance feedback on the within-person self-efficacy and performance relationship

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Self-efficacy is defined as an individual's belief regarding their capability to succeed and attain a given level of performance (Bandura, 1997). There is a wealth of literature that supports a positive relationship between self-efficacy and performance when analyzed at a between person level (Bandura, 1997). Nevertheless, recent research has shown that when analyzed at a within person level (across time), self-efficacy can have no or even a negative relationship with subsequent performance (e.g., Sitzman & Yeo, 2013). However, previous research has tended to ignore the role of performance feedback when testing the reciprocal effects of self-efficacy upon performance. The present study examined the role of performance feedback in a race driving simulation task where performance (race time) was assessed across seven trials (consisting of two consecutive laps of a designated racetrack per trial). Eighty-seven participants (62 men and 25 women, Mage = 22.44, SD = 3.91) with limited racing experience, completed the study. The task was split into two conditions. Before making subsequent efficacy judgements, half the participants received feedback regarding performance (race time) on their current trial only. The other received information regarding their baseline performance time and their current time before they made an efficacy judgement. Results revealed that across time (trial), self-efficacy was not significantly related to subsequent performance. However, there was a significant condition (low performance feedback vs. high performance feedback) interaction. In the low feedback condition, self-efficacy showed no significant relationship with subsequent performance. However, in the high feedback condition, self-efficacy had a positive and significant relationship with subsequent performance. Results show that task feedback moderates the within person relationship between self-efficacy and subsequent performance. On a practical note, in order to gain the most benefit from efficacy beliefs, athletes should be aware of a host of previous performance markers.

Relationship between perfectionism and athletic burnout in sport: A longitudinal investigation of the mediating role of coping

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Perfectionism in athletes is a personality disposition that is related to cognitive processes, coping, and behaviour (Crocker et al., 2014; Hall et al. 2012; Stoeber, 2014). Perfectionism

can be conceptualized as involving two global dimensions: personal standards perfectionism (PSP) and evaluative concerns perfectionism (ECP). Perfectionism has shown important relationships with athlete burnout (Hill, 2013). One mechanism that is thought to influence the perfectionism-burnout relationship is coping (Hill et al., 2010). The purpose of this study was to investigate the mediation effect of coping strategies on the relationship between dimensions of perfectionism and burnout over the course of an athletic season. A secondary purpose was to explore predictions made by the 2 x 2 model of dispositional perfectionism (Gaudreau & Thompson, 2010) in relation to burnout. University level varsity athletes (female n= 90; male n= 35) participated in a longitudinal study involving four time points, each approximately 4-5 weeks apart during the season. Growth curve modeling examined changes in variables over time. Multi-level modeling examined relationships between dimensions of perfectionism, coping, and burnout. Burnout showed a significant linear increase over time. In predicting burnout, PSP was a negative predictor whereas ECP was a positive predictor. Mediation analyses at the within- and between-individual level supported the mediation effect of disengagement oriented coping on the relationship between ECP and burnout and the mediation effect of task-oriented coping on the relationship between PSP and burnout. Finally, test of the 2 x 2 model indicated that pure PSP was associated with lower burnout than non-perfectionism, pure ECP was linked with the highest burnout level, and mixed perfectionism was associated with higher burnout than pure PSP. The study highlighted the important role of coping in the relationship between dimensions of perfectionism and athletic burnout. Theoretically, this supports coping as a mechanism in the perfectionism process.

Emotional control, anxiety and coping with stress in successful athletes, unsuccessful athletes, and non-athlete youngsters

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Sport has gained great social relevance because it results in several physical benefits and also impacts the psychological wellbeing of individuals (Buceta, 2004). Velázquez and Guillén (2007) mention emotional regulation allows top ranked athletes to cope better with stress (Letelier, 2007); however, it is unclear whether they are more self-regulated than their non-athlete peers. Therefore, the purposes of the present research were to prove if athletes have better stress coping strategies, greater emotional control and less anxiety-trait than non-athlete youngsters, and to elucidate whether successful athletes differ from unsuccessful ones. A group of 320 young people from Mexico City was assessed, with an age range between 12 and 27, divided into three groups: 160 non-athlete youngsters, 160 athletes (successful and unsuccessful). The instruments used were Methods of stress coping by Lazarus and Folkman (1985), version standardized for Mexican population (Sotelo and Maupone, 2000); Life skills by Alfaro and cols. (2010), and the STAI Anxiety Inventory – Trait by Spielberger and cols. (1970). Statistical analysis were performed via Student's t Tests for independent samples. Results indicate there are differences among groups. Even though all participants had similar anxiety levels (X=38), athletes have greater skills to face the difficulties they encounter, and are more self-regulated than non-athletes. Additionally, successful athletes have better coping and anger management skills than unsuccessful ones. These findings support that sport has a positive impact not only on physical but also on mental health in youngsters, and that self-regulation and coping strategies could be related to the success of top ranked athletes. Therefore, providing athletes with tools to handle the competitive situation better and to have greater emotional control, could improve their odds of success. Furthermore, this research highlights the importance of promoting physical activity among youngsters.

Relative timing ability on auditory model: Comparative study between low vision and total blindness

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This study was conducted to compare the low vision and total blindness in performing temporal timing tasks with an auditory model. There were 11 low vision (fixed sight: below 0.02) participants and 8 participants who were totally blind (16.37 yrs ±1.21). They were required to alternately press the J and F keys in order to make the goal pattern produced on the computer speaker as closely as possible. Goal patterns were comprised of two, four, six, and eight-segment timing sequences. The independence variables were the vision level (2: low vision, total blindness) and the number of segment (4: two, four, six, eight), and the dependent variable was the relative timing for this research design. The hypothesis of this study stated that there were significant differences on the number of segment. The results indicated that there were no significant differences in any of the segment timing sequences. However, the means of relative timing errors in totally blind people showed superior tendencies in comparison with low vision people and the two groups had a larger difference in timing tasks on six and eight-segment sequences than the two and four-segments. Specifically, people shortly after birth with low vision or total blindness represented dominant relative timing abilities as compared with people after 1 year. Thus, the data is consistent with the notion that a person who is visually impaired takes advantage of their auditory senses as a visual reward for their blindness.

Psychological and behavioral characteristics of different types of national sport lottery consumers

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Lotto, sport-betting, scratch card and video lottery are the four main types of sport lottery in China. The characteristic of each of the four types of sport lottery is different from one another. Previous studies show the lottery consumers' preference for certain specific type of sport lottery reflects their own unique psychological and behavioral characteristics. Therefore, the author analyzed what the psychological and behavioral characteristics of different types of sport lottery consumers really are in order to provide recommendations for lottery marketing pointed at each specific lottery type. A random questionnaire survey was conducted with different types of national sport lottery consumers (N=1552) from 10 provinces in China. The questionnaire that based on likert5 (α=0.838,X2/df=4.31,NFI=0.93, NNFI=0.93,RMSEA=0.060) consists of two dimensions: psychological and behavioral. Psychological dimension: purchase cognition, external influence, economic utility and risk-taking preference. Behavioral dimension includes another four factors: approach for lottery information, purchase amount, purchase capability and time involvement. Analyses were performed to assess and compare the psychological and behavioral characteristics of these four types of national sport lottery consumers. The results show: purchase cognition most significantly predicts the purchase intention of both lotto consumers and sport bettors; external influence significantly predicts the purchase intention of scratch card consumers; risk-taking preference significantly predicts the purchase intention of video lottery consumers. Most sport bettors and scratch card consumers get relevant lottery information through Internet;most lotto consumers get relevant lottery information from the advertisements in lottery stores; most video lottery consumers get relevant information from TV.The ratio of monthly purchase amount to income of sports-bettors is higher than that of other three types of consumers; sport bettors spent the maximum time for thinking before they purchase nevertheless scratch card consumers spent the minimum in the four types of consumers. Finally the discussions and recommendations are provided based on above results.

Chinese characteristic professional philosophy of SPSD

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Professional philosophy of service is the foundation of effective consulting (Poczwardowski, Sherman, & Ravizza, 2004). Some professional philosophies rooted in original culture and some of them have been learned from other cultures. Daoism, Confucianism and Buddhism are three main cultures in china and influence Chinese deeply, including sport psychology consultants (SPCs) and clients. Adapting to the Chinese culture, some SPCs developed Chinese characteristic professional philosophy of SPSD. Generally, it is better to for us to interpret and present them as coexist with adversity and prosperity. According to the research (Poczwardowski, Sherman, & Ravizza, 2004), Coexistism can be taken as the core belief and the highest level of abstraction of Chinese characteristic professional philosophy of SPSD. Some parts in lower abstract level of Chinese professional philosophy were learned from western countries and integrated into the Chinese system by SPCs. It was same in other countries. Mindfulness and Taoism interventions became popular (e.g., Mindfulness-Based Stress Reduction, MBSR; Mindfulness-Based Cognitive Therapy, MBCT; The Mindfulness-Acceptance-Commitment Approach, MAC; Taosport) in Western countries. The core belief of professional philosophy has a profound effect on lower level parts such as: theoretical paradigm, model of practice, intervention goals and intervention techniques and methods. SPCs in China have developed them to a system with combining original and Western elements. Many Chinese SPCs lacking of culture competence used these without awareness to produce poor efficiency(Si et al., 2014). This research is to clarify the system of Chinese characteristic professional philosophy and offer a model of how they can be conceptualized for self-reflective purposes and increase professional awareness.

Professional development in sport psychology practitioners: Merging PST and CBT

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Psychological skills training (PST) is the dominant model in sport psychology (SP) education and practice (Bond, 2002). A key premise of PST is that athletes are inherently mentally healthy. However, elite athletes are at the same or greater risk of developing mental health problems as non-athletes (Brewer & Petrie, 2002; Schaal et al., 2011). Based on this assumption, a cognitive behavioral therapy (CBT) counseling education for SP practitioners was introduced in Sweden in 2009. Aim of this study was to gain knowledge about the impact of this clinical counseling education on the professional development of its graduates. 13 graduates of the first CBT counseling program (eight male, five female; age in years: M = 41.15, SD = 8.28; SP work experience in years: M = 12.60, SD = 5.79) participated in semi-structured in-depth interviews inquiring their perceived professional development during and after participating in the CBT counseling education. The interview transcripts were analyzed using qualitative content analysis. All 13 graduates reported having incorporated CBT theories and methods into their SP practice. They concordantly perceived clinical counseling competencies to be essential for diagnosing and addressing frequently encountered clinical issues in their SP practice and even in their work with non-clinical SP topics. In addition, professional supervision during and after the CBT education emerged to be a major influential factor on the professional development of all 13 graduates. The present findings indicate that CBT competencies might serve as a useful addition to PST frameworks both in SP education and practice, fueling the current debate whether clinical counseling competencies are essential for SP practitioners. Moreover, professional supervision should be carefully considered in existing and emerging SP educational programs based on its reported importance in the professional development of SP practitioners.

Correlations between factors related to stage fright, self-confidence and personality in baseball players during defensive play

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A questionnaire for investigating factors related to stage fright and self-confidence in high school baseball players during defensive play was developed. Furthermore, correlations between stage fright, self-confidence and personality traits were investigated. Participants were high school baseball players (N=134). The questionnaire on stage fright consisted of 27 items and the questionnaire on self-confidence 12 items. Personality traits were assessed using the short form of the Big-Five Scale, developed by Namikawa et al. (2012). Factor analysis was conducted and the following four factors were indicated as to stage fright: “Sense of self-insufficiency” (7 items), “Self-consciousness” (7 items), “Situational awareness” (6 items), and “Consciousness of failure” (4 items). The 12 items of the self-confidence questionnaire were combined into one factor that was named “Self-confidence.” Correlation of stage fright and self-confidence indicated negative correlations between Sense of self-insufficiency and Self-consciousness with Self-confidence. Correlations with personality traits were also examined, which indicated positive correlations between certain factors of stage fright and emotional instability, integrity, and openness. Furthermore, Self-confidence was related to all the personality traits, except harmony. Previous studies have not indicated that situation awareness was a factor in the experience of stage fright, which might be characteristic of baseball players during defensive play. Additionally, the Sense of self-insufficiency and Self-consciousness, which were negatively correlated with Self-confidence, were factors expressing physical and cognitive changes in an individual. On the other hand, situational awareness and consciousness of failure, which were not correlated with self-confidence, expressed external factors, such as situations and failures. It is considered that stage fright may be related by internal factors of individuals marerelated to Self-confidence.

Effects of different intensity levels of aerobic exercise on cognitive inhibition

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Moderate acute exercise (50% – 60% of individual maximum) was shown to facilitate basic cognitive processes (for a review, see Tomporowski, 2003). Only few studies, however, have investigated how acute exercise affects higher cognitive functions like inhibition. Studies using the flanker task came to inconsistent results concerning reaction time (RT) and number of errors. Moreover, most of these studies applied the Flanker task postexercise, and not while exercising. Hence, the aim of our study was to investigate, (a) how cognitive inhibition is influenced by acute aerobic exercise, and (b) if different exercise intensity levels alter cognitive performance. Thirty three sport students (16 female, 17 male) served as volunteers. In a pre-test session, individual work load was determined by a standardized continuous incremental protocol on a cycle ergometer. An adapted Eriksen flanker task, involving three trials varying according the level of congruence (congruent, stimulus-incongruent, and neutral; 20 items per trial) was performed seven times in a resting condition (passive sitting on the ergometer). One week later, the Flanker task was performed seven times during a 21 minute lasting cycling test consisting of seven consecutive 3-minute-sections on different intensity levels (25 W - 60 – 60 - 90 – 60 – 90 percentage of maximum individual workload – 25W). Concerning reaction times, RM ANOVA on condition (rest vs. cycling) and time (Flanker tasks) and errors revealed a main effect of condition reflecting a shorter RT in the cycling condition across all levels of congruency. Numbers of error, however, increased in the cycling condition only for the incongruent stimuli at 90% of individual workload. Results suggest that peak loads during aerobic exercise might have a negative impact on cognitive inhibition errors, whereas exercise in general facilitates reaction time.

Social connectedness as an important attribute for high-quality athlete leaders

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Research has demonstrated that high-quality athlete leaders positively impact team functioning (e.g., Fransen et al., 2014). Social connectedness with team members seems an important attribute for athlete leaders to enhance their perceived leadership quality. Based on an earlier categorization (Fransen, Vanbeselaere, De Cuyper, Vande Broek & Boen, 2014), the present study distinguishes between four types of athlete leaders (i.e., task, motivational, social, and external leader) with the objective of identifying for each of these roles which structural aspects of social connectedness are most important for athletes' perceived leadership quality. In order to achieve this purpose, Social Network Analysis (SNA) was used to analyse two samples: Sample 1 (25 sports teams; N = 308) assessed athletes' general leadership quality, whereas Sample 2 (21 sports teams; N = 267) examined athletes' task, motivational, social, and external leadership quality. SNA was performed to investigate the relation between leadership quality networks and social connectedness networks, both at the individual and at the team level. Results revealed that at the team level, teams with high-quality athlete leadership were characterized by a strong social connectedness. Furthermore, at the individual level, indegree centrality, betweenness centrality, and closeness centrality emerged as significant predictors of perceived leadership quality. These findings confirm the importance of social connectedness for perceived athlete leadership quality. Importantly, this study demonstrated that high-quality leaders are not only characterized by popularity, but also function as a bridge between other team members and need to be close to all their teammates. First, these results imply that the importance of social connectedness should be addressed in potential future leadership development programs. Second, SNA provides a valuable tool for coaches and sport psychologists to identify athlete leaders and focus on connectedness structures (e.g., cliques or bridges between cliques) within teams.

Needs, interests, values and physical activity in fitness among women: A case study

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The person participation in a physical activity (PA) is not enough to receive the associated health benefits. Only 8% of all EU and 6% of Latvian citizens are involved in a vigorous and moderate PA in regular bases (Eurobarometer, 2013). Furthermore, the need to be healthy seems to be lacking component which influence the PA participation level. According to Maslow (1972) theory, the person needs are based on a personal growth. Moreover, the person has to have the concept based on intention to achieve personal goals and to overcome the present obstacles, which is the indicator of social interests (Adler, 1932). The objective of the study is to determine the needs, interests, and values in a PA in fitness among women. The semi structured interview and short version of IPAQ (Craig et.al., 2003) in latvian (Kaupuzs & Larins, 2010) were used to determine the needs, interests, values and the present amount of PA among 13 women (29 +/- 4, 7 years). Open and axial coding of the obtained data as well as grouping and cluster analysis, Jaccard similarity coefficient were carried out (QSRNVivo10). The results showed that an average time spent sitting and walking were 396,92 ± 175,8 and 21,15± 5 min per day respectively.The moderate intensity PA was performed only 2±2,3 and walking activity 3 days per week. According to the respondents opinion PA can satisfy the needs such as: to be healthy, to look good, to feel stability, to have family, to be self-confident, to be knowledgeable.The social interest was specified as cooperation likewise, coach competence and positivism as values, which has influence on women's PA. According to research results women's sedentary lifestyle is mostly related to their family, which didn't support and motivate to do PA in adolescence. Women's inactivity in adolescence contributes passivity in adulthood.

Exercise causality orientations of adults in terms of physical activity level and stage of exercise behaviour

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The causality orientations theory (Deci & Ryan, 1985) suggests that individual have different motivational orientation towards initiating and regulating behaviour. The exercise habits of individuals may be influenced by three causality orientation such as autonomy, control and impersonal. Thus the purpose of this study was to investigate whether the causality orientation of adults in exercise context differ in terms of sex, physical activity level and stages of exercise behavior (pre-contemplation, contemplation, preparation, action, maintance). Ninety three female (Mage= 27.47; SD = 7.27) and 101 male (Mage= 26.86; SD= 9.13) university staff and students voluntarily participated in this study. “Exercise Causality Orientations Scale” (Rose et al., 2001), “International Physical Activity Questionnaire” (Craig et al., 2003) and “Exercise Stages of Change Questionnaire” (Marcus and Forsyth, 2003) were administered to all participants. MANOVA analysis did not reveal sex differences in exercise causality orientation ($p > 0.05$). On the other hand, MANOVA analysis indicated a significant difference in exercise causality orientations of university staff and students with regard to physical activity level ($p < 0.01$) and stage of exercise behavior ($p < 0.01$). Follow-up univariate analysis indicated that adult in low physical activity group scored lower in autonomy and control orientations than adults in moderate and high physical activity groups ($p < 0.05$). Analysis also indicated a significant difference in autonomy orientation with regard to stage of exercise behavior. Adults in “pre-contemplation stage” had lower score on autonomy orientation than adults in “maintenance stage” ($p < 0.05$). In conclusion, physical activity level and the stage of exercise behavior of adults influence motivational orientation towards initiating and regulating exercise behaviour. Highly and regularly physical active individuals regulate their own chosen exercise behavior and their exercise behavior is regulated by controls imposed by others, by oneself or by the environment.

Fatigue in soccer and its’ effect on performance

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Fatigue as a result of prolonged task execution is common in sports. Although fatigue is known to reduce sport performance, research in this field largely neglects the role of psychological factors. Against this background, the current project aimed to (i) quantify experiences of fatigue during soccer match-play and (ii) analyse its’ perceived effects on (specific aspects of) soccer performance. 428 players from the highest four divisions in the Netherlands completed a questionnaire mainly composed of validated instruments to assess psycho-physiological fitness (sleep, worrying, recovery, and physical fitness), and fatigue experiences (feeling tired, physically exhausted, weak, not fit, mentally exhausted; 7-point scales: not at all – very much) across four periods of match-play. In addition, a self-developed part of the questionnaire assessed perceived effects of fatigue on (a) general soccer performance and (b) execution of specific soccer skills. Across match-play, fatigue experiences significantly increased from 2.2 (1.0) to 3.6 (1.1), thereby confirming objective data from match analyses (Sarmento et al, 2014). Regression analyses revealed that specific components of psycho-physiological fitness (physical fitness, recovery) predicted fatigue experiences towards the end of a match. Regarding general soccer performance, players indicated that when fatigued they perform significantly worse, act slower, and take less risk compared to a non-fatigue state. On a soccer-skill level, players indicated that they perform specific skills less frequently and that the quality of skill execution, perception, and decision making deteriorates under fatigue. Interestingly, the importance of match state (interim score) was associated with an increase in the amount of effort expended by players. In addition, preliminary analyses indicated that perceived importance of specific skills was related to better performance on those skills under fatigue. Results indicate that fatigue

negatively influences specific aspects of soccer performance, but that this effect may be partly overridden based on motivational factors (e.g., perceived importance).

Self-rating as a factor of mental readiness of athletes for competitive activity

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One of the ways of mental preparation is the work with an athlete's self-esteem. It is connected to the success of sporting activities (Volkov, 2009). Self-rating is a stable personal formation upon which the athletes form their attitude towards themselves and the others (coach, teammates, opponents). It determines the athlete's behavior in various situations. Sporting activities usually have a positive effect on the self-esteem and can be used as a feature for its correction. The link between the athletes' self-rating level and satisfaction of sports is linear, while with sports success it is nonlinear - athletes with low and too high self-esteem are unsuccessful (Strekalovskaya, 2005). Studying how self-rating of Olympic athletes influences on the success of competitive activity was carried out using the method of "Integral self-identity" Who am I in this world?"," the method "Personal differential", "Test-questionnaire to determine the level of self-esteem", the Dembo-Rubinstein technique. The study involved 2 groups of athletes: Greco-Roman wrestlers at the age of 16-25 (n=40) and athletes of competitive sports of high qualification at the age of 20-21 (n=25). More than 80% of the athletes of competitive sports have a tendency to overstate their self-esteem. They struggle for success and prefer to forget their mistakes. The study shows that the self-esteem depends on the game role. The lowest rate of self-esteem is typical for corner players. This means a lack of self-confidence and relying on the others. Highly qualified athletes have a tendency to overestimate their personal qualities. The general exaggerated claims, including the material ones, are associated with high sports successes that are achieved with enormous stress and difficulty and should be rewarded by society. Thus, the results of studying self-rating can be used for formation of self-esteem readiness for competitive activity in the process of psychological preparation of athletes.

Can we teach good competition? Priming with different aspects of competition modulates different emotional responses

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Competition is often associated with eroding of moral functioning (Coulomb & Pfister, 1998). Models that explain moral functioning in sport predominantly highlight reflective processes, assuming that a decision to misconduct is rational. However, in sport automatic processes may have a strong influence on behaviour. Drawing on contesting theory concepts (Shields 2009), mental representation of competition is viewed as associative links of metaphors learned and stored in memory that thoroughly influence behaviour. This suggests that social surroundings may communicate metaphorical meaning of competition in different modes. The present research examines whether different competitive concepts are associated with self-reported antisocial/prosocial behaviour in sport. Furthermore, we investigated how competitive mindsets are interacted with facial mimicry as a measure of friendly social interaction (immediacy behaviour). To investigate this nighty eight participants (aged from 17 to 26 years) represented individual sports (n=27) and team sports (n=71) were subliminally primed with different competition concepts. Thereafter, they needed to identify the valence of pre-selected positive or negative target stimulus as fast and accurately as possible. In a second experiment, they being primed with different competitive concepts rated happy, neutral, and sad facial expression while activity over Zygomaticus major and Corrugator supercilii were recorded. The results showed that "prosocial" athletes slowed their responses to positive targets after being primed with rivalry in contrast to priming with more productive

type of competition. However, “antisocial” athletes process positive stimuli after rivalry primes faster. In addition, priming with different types of competitive mindsets resulted in a counter mimicry phenomenon. This indicates that athletic surroundings may communicate meaning of competition in two different ways: one way associated with adaptive behaviour, whereas the other makes athletes follow maladaptive strategies. Both types are learned and stored on an automatic-associative level which activates the subsequent behaviour.

Understanding how youth athletes acquire information about concussions

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Concussions are the most frequently occurring brain injury in sports (Carroll & Rosner, 2012), and can be problematic for youth athletes due to their developing brains (Davis & Purcell, 2014). Consequently, researchers have highlighted the importance of improving youth athletes’ knowledge of concussions (McCrory et al., 2013). While there have been a growing number of formal concussion education initiatives, their reach and effectiveness are not yet fully understood. As a result, understanding how youth athletes obtain information about concussions would offer insights to advance the research and practice of concussion education. The purpose of this study was to understand how youth athletes acquire information about concussions. 18 youth (M = 16 years old) participated in individual interviews, a commonly used qualitative data collection technique in sport and exercise psychology (Sparkes & Smith, 2014). Results from the hierarchical content analysis (Sparkes & Smith, 2014) revealed that athletes in this study primarily learned about concussions informally, through sports media reports, particularly involving incidents with their favourite professional teams and players. Some also acquired concussion knowledge while doing research for school projects. Additionally, participants said their knowledge and perspectives of concussions were influenced by interactions with health professionals, coaches, family members, and teammates. Results from this study indicate that youth athletes are not learning about concussions through formal initiatives, which suggests that concussion education should be developed in concert with knowledge translation principles (e.g., Straus, Tetroe, & Graham, 2013) to improve their reach and effectiveness. Furthermore, findings from this study suggest that concussion education should also target coaches, family members, and teammates given their influence on youth athletes’ knowledge and perspectives of concussions. Concussion education initiatives must continually be adapted to meet the needs of athletes, with the ultimate goal of ensuring their health and safety while participating in sports.

Brain training games effect on concentration and memory

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The market for brain training games has reached one billion dollars annually prodding the question of whether these games are effective (Burch, 2014). Several popular press articles have questioned the value of these games (Underwood, 2014; Parker, 2014). A meta-analysis of 23 studies found short-term improvements in working memory but few sustained improvements or transfer to broader skills (Lervag & Hulme, 2013). However, some studies have shown benefits (Nouchi, et. al., 2013, 2014). More studies are needed to determine specific training benefits and the maintenance and transfer to more generalizable skills. So far, action-video games have demonstrated the greatest amount of transfer learning and encouragement of neuroplasticity (Oei & Patterson, 2013; Wu et al., 2012). However, non-action video games are preferred among those seeking to improve cognitive function. The purpose of this study was to test the Fit Brain application, not previously tested, to determine the effectiveness of two of its games on reaction time, short term memory and visual-spatial working memory. Based on previous studies, a sample size of 16 in each group (treatment, control) would yield a power of 0.80, alpha = 0.05. Thirty two college students completed two computerized cognitive tests; the Delayed Matching to Sample (DMS) and the Spatial Span

(SSP). Participants were pre-tested and randomly assigned to the control or experimental group. Participants played the Matching Pairs and Missing Pieces games for 15 minutes per day for 4 weeks. The results showed that the cognitive functions assessed did not significantly improve after training. These results are consistent with previous findings (Moreau, 2014). For future research, subjects should be monitored more closely, utilize broader age groups, and use a full training protocol to determine if there is a synergistic effect between the games. Follow-up testing after several months is needed to determine maintenance of any improvements.

Examining congruence between the observed and perceived motivational coaching environment in elite academy sport

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Duda (2013) integrated achievement goal (Nicholls, 1989) and self-determination theory (Deci & Ryan, 2000) principles to conceptualise the motivational environment as empowering and disempowering. Empowering environments are characterised by autonomy-supportive, relatedness-supportive and task-involving criteria, while disempowering environments are marked by controlling, relatedness-thwarting and ego-involving features. In elite sport, little is known about the relationship between observed and perceived reports on empowering and disempowering facets of the environment. The present study addressed this issue by examining congruence between trained observers' and elite coaches' ratings of empowering and disempowering coaching. Five professional coaches were each video-recorded during 5 training sessions. Following each session, coaches responded to questions on empowering and disempowering coaching using the Empowering and Disempowering Motivational Climate Questionnaire-Coach. Two observers rated the potency of video recordings according to empowering and disempowering criteria using the Multidimensional Motivational Climate Observation System. Coaches were observed to emphasise a moderately potent empowering and weakly potent disempowering environment. Coaches strongly believed that they were empowering and rated their coaching as low in disempowering features. The observed coaching environment varied significantly between sessions while coaches' reports of the climate were more stable, thus resulting in low congruence between observations and perceptions. Previous research has highlighted the importance of coaches emphasising an empowering motivational environment (Smith et al., 2015). In the present study variability observed in empowering and disempowering features of the coaching environment suggests that coaches may benefit from training to create consistently empowering motivational climates. Coach-education programmes that promote empowering as well as minimise disempowering behaviours, coupled with self-reflection activities are recommended.

Sources of motivation for the participation in an Antarctic expedition

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The XXIII Bulgarian Antarctic expedition on the Livingston isles, which included scientists and alpinists, began in November, 2014. Sensation Seeking is often viewed as the key for researching motivation for participation in adventurous and highly risky activities (Barlow, Woodman, Hardy, 2013). The aim of the present study is to reveal the motivation and self-control skills in highly risky, prolonged activity in extreme climatic and social environment. During the Antarctic expedition all 19 participants completed the Bulgarian versions of: Motivation sources inventory (J. Barbuto, R. Scholl, 1998); Zuckerman's Sensation Seeking Scale (Zuckerman,1979); Rosenbaum's scale for measurement of the level of self-control (1990). Our results show that internal self-concept-based motivation is the leading motivational source. This source is similar to McClelland's high need of achievement, Deci's internal motivation (Barbuto, Scholl, 1998). Instrumental motivation is the most weakly pronounced. The participants in the expedition are characterized with high level of self-control. The leading subscales of the Sensation Seeking Scale are those of sensation

seeking, followed by functional impulsiveness, and dysfunctional impulsiveness is characterized with the lowest values. The results from the regression analysis show that the high levels of self-control influence negatively dysfunctional impulsiveness. There are a number of interdependencies among the sources of motivation and the subscales of the Sensation Seeking Scale. The present study adds to the understanding of the sources of motivation and the role of self-control and sensation seeking being a motive power of human behavior, which is in the base of the desire to participate in difficult and challenging missions in extreme conditions at different places all over the world.

Comparative study of sustained and divided attention among rifle and pistol shooters

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The ability to pay attention to what is most important in any situation while ignoring distractions is a vital ingredient of successful performance in sports. Attention is one of the most crucial psychological skills that equip any sports person to face the competitive distractions and challenges of the game adequately. Research clearly suggests that lapses in attention can mean the difference between success and failure in competitive sport. The present investigation aims to study the effects of competitive exposure to high attention demanding sports such as shooting in the development of sustained and divided attention. It involves comparative study of differences among beginner and established rifle and pistol shooters on various aspects of attention using standardized computerized tests of sustained and divided attention. This study shall help to provide insight into the developmental aspects of attention among sports persons ranging from a beginner to an advanced level. The paired t-ratios are computed to determine significant difference among beginner and established shooters on attention. Results will be discussed in light of earlier findings.

Main effects of gender and assessment procedure in physical education (PE) on sport competence and PE value

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In PE, males obtain better grades than females (Cleuziou, 2000). Assessment with a grade can cause psychological damages to low-ability students (Butera et al., 2011). According to the expectancy-value theory, positive task value and perceived competence contribute to positive students' motivational patterns (Eccles & Wigfield, 2002). Studies have shown higher sport competence and PE value among males than females (Lentillon, 2006). This study's objective was to estimate the main effects of PE assessment procedure and gender on students' perceived sport competence and PE value. Data was collected by questionnaires, using a 3-item scale for perceived sport competence (Marsh, Chanal & Sarrazin, 2006) ($\propto$ = .88) and a 2-item scale for PE value ($\propto$ = .80) in three different regions of Switzerland (N = 3845): the region of Vaud where students are assessed without a grade in PE (n = 1306), the region of Geneva where students are assessed with a promotional grade (n = 1667) and the region of Jura where students are assessed with a non-promotional grade (n = 872). The 2 x 3 (gender x region) MANOVA revealed a significant main effect for gender, Wilkes Lambda = .92, ***, $\eta p2$ = .09: PE value and perceived sport competence were significantly lower among females than males (*** for both). There was a significant main effect of the region, Wilkes Lambda = .98, ***, $\eta p2$ = .01: PE value was significantly lower in the region of Geneva where PE assessment with promotional grades is used (***). There was a significant interaction between gender and region, Wilkes Lambda = .99, ***, $\eta p2$ = .002: gender differences in PE value (**) and perceived sport competence (***) were higher when students were assessed with a promotional grade. Assessment with promotional grade seems to have a negative impact on gender equity in PE.

Application of pre-performance routines for a college men's bowling team

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This pilot study developed and instructed pre-performance routines to three tenpin bowlers. Most studies that explored the effects of routines simply included demonstration of a typical routine to the participants. Given that individuals differ in their ability, sport psychologists need to help athletes prepare their own routine (Murphy & Jowdy, 1992). Thus, the routines developed by a reciprocal approach would fit into athletes. This study used an A–B design. In the A stage, the situations before throwing the ball were divided into four phases; participants were examined through interviews, observations, and experts' review. In the B stage, the investigators explained how the participants should practice each phase of the designed routine. Practicing the routine was implemented for at least 4 h a day for 9 weeks. For analysis, the content of the recorded interviews was documented by typing, and the data subjected to inductive categorical analysis. The evaluation method of Cohn et al. (1990) was modified to be appropriate for bowling to evaluate the consistency of the devised routine by measuring the routine interval and calculating standard deviation with VCR and SPSS. The authors also examined the performances in 6 competitions. Through inductive categorical analysis, the investigator categorized the interview contents into 3 topics. Participants noted that they could understand the developed routine easily and that they experienced an atmosphere similar to that at bowling competitions during training. They found it difficult to practice cognitive routines, especially the relaxation phase, but they pointed out that the phase was most helpful. Consistent implementation of the routines paralleled an improved mental state and performance. This study suggests that athletes can feel comfortable about pre-performance routines developed by a reciprocal approach, which gives them more opportunities to be stable and win medals.

Effects of children's levels of moral behavior and perceived motivational climate on peer relationships and psychological make-ups

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This study is one of a series of studies exploring peer relationships in physical domain. The first study surveyed the participation motives of children and adolescents in Taiwan (N=3321) as a basis for further studies. Six categories of participation motives were found, namely, Fitness and skill enhancement, Social expectation, Competition and challenge, Social reinforcement, Fun and friendship, and Team interaction. The second study examined the differences in psychological make-ups of children with different peer status in physical education classes (N=229). Peer status was assessed by way of peer nomination suggested by Coie and Dodge (1983) and five different types of peer status were identified, namely, the popular, the rejected, the average, the neglected, and the controversial. It was found that the popular and the controversial were not significantly different, while the neglected children had the worst psychological make-ups. Results also showed that the main reasons for popularity were sport skills, positive personality, and companionship, while the main reasons for dis-likeness were negative behaviors and bad attitudes. These findings suggested that levels of moral behaviors might be a factor of popularity and dis-likeness. According to the first and the second study, this study examined the effects of children's levels of moral behaviors and perceived motivational climates on peer relationships and psychological make-ups. Participants were 259 elementary school students (123 males and 136 females) with an average age of 11.82±.59 years. Children's levels of moral behaviors were measured by Sociomoral Reflection Measure-Short Form (SRM-SF, Gibbs, Basinger, & Fuller, 1992). Regression analysis found a positive relationship between perceived motivational climates and peer relationship as well as psychological make-ups. However, no interactions of moral behaviors and perceived motivational climates were found. Findings of these studies provided a primary knowledge basis of developing a conceptual model to describe peer relationship in physical domain.

Passion in Norwegian youth soccer: Differences in passion related to playing time, and to playing position?

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Passion for sport (Vallerand & Miquelon, 2007) can be defined as a strong inclination toward an activity (e.g. soccer) that people like, find important, and in which they invest time and energy. In this study our aim was to examine how passion in junior soccer team relates to the amount of playing time, and to playing position. 532 young Norwegian soccer players (365 boys, 167 girls) with a mean age 15.4 (SD = 1.23) reported in a questionnaire their amount of playing time, and their playing position in their team. In order to measure both types of passion, harmoniuos and obsessive, the full Passion Scale (Vallerand et al., 2003) was used to assess the players' passion (7-point Likert scale ranging 1=not agree at all to 7=very strongly agree) in soccer. Results revealed that both harmonious passion (HP) and obsessive passion (OP) were significantly higher for players playing roughly the whole match (85-100%) and players with little or no playing time (10-15%), respectively m = 5.98 (sd = 1.15) versus m = 5.56 (sd = 1.04) for HP, and m = 5.13 (sd = 1.60) versus m = 4.55 (sd = 1.82) for OP. There were no differences in passion according to playing position (i.e., goalkeepers, defenders, midfielders, strikers). Findings in this study reveal that young players in Norway are passionate in a two-folded way in their involvement with soccer. Moreover, their engagement seems to be both harmonious and obsessive, and harmonious passion can lead to either more adaptive outcomes (i.e., persistence in soccer, excellence and performance) while obsessive passion can lead to more maladaptive outcomes (i.e., dropout, burnout). Overall, the results indicate that more playing time is associated with higher levels of both harmonious and obsessive passion in soccer among youth players, irrespective of playing position.

The relation between professional football players' anxiety, imagery and motivation

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Displaying an excellent performance in sport depends on some psychological and mental factors (Loehr, 1986).Two of the most important factors affecting success in sport are the level of motivation and anxiety of athletes. On the other hand, being one of the psychologic skills affecting physical performance, imagery, is a widely used method which is preferred by athletes to enhance athletic performance (Bohan, Pharmer, & Stoke, 1999; Callow &, Hardy, 2001; Felt & Landers, 1983; Driskell, J. E., Copper, C., & Moran, A.,1994). The purpose of the study was to investigate the relation between professional football players' anxiety, imagery and motivation and to show that imagination skills and motivation influence the rate of anxiety. The data were collected from 129 professional football players whose ages were M_age: 24,23±4,32 years and experience ; Xexperience: 13,91±4,12 years. Competitive State Anxiety Inventory (CSAI-2; Martens et.al., 1990b), Sport Motivation Scale and Sport Imagery Questionnaire (SIQ; Hall et al., 1998)were used. In this study, descriptive statistical techniques and multiple regression analysis (enter) were used. Multiple regression analyses indicated that imagery skill predicted 14 percent of the variance in cognitive anxiety, 12 percent of the variance in somatic anxiety, motivation predicted 15 percent of the variance in cognitive anxiety,14 percent of the variance in somatic anxiety whereas neither imagery skill nor motivation did not predict self-confidence. Then, imagery explained 25 percent variance of motivation, 14 percent variance of extrinsic motivation, 25 percent variance of amotivation. As a result, imagery has a significant effect on motivation, cognitive and somatic anxiety, motivation level of football players is an effective variable on anxiety. Therefore, it is possible to say that motivation and anxiety which have a relationship with peak performance could be regulated by imagery skills trainings of football players. This will result in a more effective training method.

An investigation into stakeholders' perceptions of the junior-to-senior transition in sport

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Moving from junior-to-senior sport can lead to amplified levels of stress, making the transition process challenging. To advance knowledge on the junior-to-senior transition and better support athletes through this, the present study examined stakeholders' (including coaches, parents, and sport science support staff) perceptions of the transition demands, resources, and barriers athletes experience as they move from junior-to-senior professional football. Semi-structured interviews based upon Stambulova's (2003) model of transition and existing junior-to-senior transition literature were used to examine the subjective experiences of stakeholders (24 males, 4 females), aged from 25 to 71 years. The stakeholders interviewed included coaches (n = 12), parents (n = 6), sport physiologists (n = 2), sport psychologists (n = 4), physiotherapists (n = 3), and a sport therapist (n = 1). Interviews were recorded, transcribed, and thematically content analyzed. The stakeholders perceived that athletes' junior-to-senior transition process involved a number of demands with interplayed resources and barriers. Some of these facets conflicted to create a more difficult transition for athletes. For example, stakeholders were sources of both resources and demands; parents often provided emotional and tangible support but some also put pressure on their child to be successful so that they could support the rest of the family. Results also indicated that stakeholders believed athletes had experienced several within sport transitions, and that subsequently this familiarity had helped with the current change. Findings support the application of Stambulova's (2003) model in the context of the junior-to-senior transition in professional football, and highlight the importance of considering the impact of, and interplay between, multiple stakeholders when understanding and improving athlete transitions.

The mediating role of identity processes in the relationship between cohesion and performance in team sports

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Cohesion has been conceptualized as a set of social cognitions related to the individual perception of the team (Carron et al. 1998). The socio-psychological literature widely shows that cohesion has a significant impact both on the team level and on the individual performance (e.g. Carron, Colman, Wheeler, 2002). The process by which cohesion promotes performance has been instead less analyzed. This study proposes and tests a model in which two variables were hypothesized to mediate the relationship between cohesion and performance: identity motives satisfaction and identification with the team. In particular the authors state that cohesion is influential on individual performance. Other studies already tested the fundamental role of identity process in explaining the link between social cognitions and individual behaviour (e.g. Marta, Manzi, Pozzi, Vignoles, 2014), however not in the sport environment. A self-reporting questionnaire was developed, containing the following scales: Group Environment Questionnaire (Carron, 1985), the Identity Motives satisfaction Questionnaire (adapted from Vignoles et al., 2006), the Social Identity Scale (Marta et al., 2014) and a Individual Performance Scale created ad hoc. The questionnaire was submitted to 75 teams, including 817 athletes in total (90% women, average age 20.2, SD = 5.2). A multilevel regression, considering the subjects grouped by teams, was used for data analysis. The analysis of data shows that, in line with previous findings, the dimension of cohesion most relevant for the performance is the Group Integration Task. Individual Attraction to Social Group turns out to have a link with performance mediated by identity processes. These results, in line with the hypotheses, open some interesting scenarios in terms of future research and psychological intervention routes with sports teams: a set of actions keeping into accounts the high incidence of identity-related motivations on the performance processes could be implemented.

The impact of an autonomy controlling manipulation on cycling time trial performance in emotion-related ego depleted athletes

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Recent research has shown effortful emotion regulation to have a cognitive cost that is deleterious to self-regulated behaviour, such as reduced pacing effectiveness during physical endurance tasks (e.g., Wagstaff, 2014). This effect has been labelled ego depletion. This study sought to extend existing research in the area of emotion-related ego depletion in sport by examining whether a motivational manipulation influenced the harmful effects of ego depletion on endurance performance. Specifically, we examined the impact of an autonomy-controlling manipulation on ego depleted sport performers during a maximal 10km cycling time trial. Using a randomized, blinded, counterbalanced, repeated measures design, 20 male athletes completed the 10km time trial in control, depletion-only, and depletion-motivation conditions. To induce a state of ego depletion athletes were asked to suppress their emotional responses to a disgusting video before participating in the 10km time trial. The autonomy-controlling manipulation consisted of a script administered during the 10km time trial. Participants received a statement every 2 minutes regardless of performance. The script reflected five common controlling behaviours employed by coaches in sport contexts to motivate athletes (e.g., Bartholomew et al., 2009). In the depletion-only and the control conditions participants received no verbal feedback or encouragement. As expected, the findings showed that emotion-related ego depletion led to significant decrements in 10km time trial performance in the two experimental conditions when compared to the control condition. Interestingly these performance decrements were reduced when participants were exposed to the autonomy-controlling intervention. The findings indicate that despite the controlling nature of the script the motivational cues during the time trial ameliorated the deleterious effects of ego depletion. While research is required to ascertain why the autonomy-controlling manipulation reduced ego-depletion, the findings do contribute to the growing body of work pointing to the importance of motivation in self control research in sport.

The congruence between athletes' and coach's emotional profile before Olympic competition rowing races

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Emotional stability is a desirable feature of mental toughness and it is necessary for peak sport performance (Sheard, 2010). During trainings and competitions, athletes experience different emotions that affect their cognitions and behaviour and might facilitate or undermine sport performance. According to the IZOF model, four global emotion categories are derived from the hedonic tone and performance functionality: pleasant and functionally optimal emotions (P+), unpleasant functionally optimal emotions (N+) with both related to successful performance; pleasant dysfunctional (P-), and unpleasant dysfunctional (N-) emotions, that are related to poor performance (Hanin, 2000, 2003). Athletes and coaches interaction is saturated with emotions, especially before competition. Each coach has to be aware of his/her emotions before competition due to risk of transferring dysfunctional and negative emotions to athletes. The ESP 40 (Hanin, 2005) was administered aiming to investigate emotional profiles of quadruple skull rowers and their coach 15 days before Olympics and before qualification, semi-final and final races. According to descriptive analysis, the results showed stability of team emotional profiles. N+ and P+ dominated in all 7-time points followed by the less prominent N- and P- emotions; the congruence between team members was high, especially when approaching to main races. The comparison of athletes' and coach's emotional profile showed higher prevalence of P- and lower presence of N+ and N- emotions in coach's profile, that was beneficial for their interaction because the coach was relaxed and confident to team performance. The results indirectly show high emotional

control and mental toughness level because there was no emotional variations prior the races and the level of N- emotions was low. That was an aim of psychological preparation process and contributed to winning Olympic silver medal.

Players' perception of coaches' behaviors

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Coaches play an important role on children's sport participation and psychosocial development (Smith, Smoll, & Cumming, 2009). Hence, multiple interventions aimed to generate coaches' positive communication styles and motivational climates have emerged. Most of these interventions have been conducted in group sessions, but coaches' diversity in terms of experience, studies or expectations have motivated the generation of personalized intervention programs with case study designs (PAPE; Sousa, Cruz, Torregrosa, Vilches & Viladrich, 2006). Although personalized programs have shown their efficacy on coaches' behavioral change (Sousa, Smith & Cruz, 2008), their indirect main goal is that this change can be also perceived by their players and favor team's motivational climate. The purpose of our study was to conduct an individualized intervention to promote coaches' positive communication and to assess how this communication is perceived by players. The intervention consisted in three sessions: (a) enhancing motivational climate, (b) guidelines to improve communication, and (c) personalized recommendations to improve communication style based on video registered feedback. We obtained observational data of three coaches using the Coaching Behavior Assesment System (CBAS) and questionnaire data of 54 players (M age= 12.9, SD = .54) who completed the Player's Perceived Behavior Scale (CBAS-PPBS; Smith, Smoll & Curtis 1979) before and after the intervention. Observational data after intervention showed a decrease of punitiveness scores on the three coaches (CT1: 20% to 14.9%; CT2: 23.5% to 6%; CT3: 23.3% to 9.3%) suggesting the expected positive change on the communication style of the three coaches (Soriano, Ramis, Cruz & Sousa, 2014). However, the results showed that the coaches' behavioral change was not perceived by their players (PT1: Mpre= 3 to Mpost= 3.1; PT2: Mpre= 3 to Mpost= 3.2; PT3: Mpre= 2.8 to Mpost= 2.9).

Moral development in sport players

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The aim of the present study was to examine (a) if athletes' moral judgment is affected by sport type, the level of competition and regular playing position, and (b) possible relations between moral judgment and the overall years of athletic experience, self-perception of sport ability, and achievement goal orientations. The sample comprised 200 adolescent athletes from three different sports: Badminton (n = 67), football (n = 88) and volleyballl (n = 45). Three questionnaires were used the Moral Judgment Test (MJT; Lind, 1978) to assess players' moral judgment, the Task and Ego Orientation in Sports Questionnaire (TEOSQ; Duda & Nicholls, 1992) to assess players' goal orientations, and the same questionnaire adapted to assess players' perceived goal orientations of their coaches (TEOSQ-PPC). Also, players' perceived sport ability as well as demographic data was reported. The ANOVAs revealed that tennis, as compared to handball athletes, scored significantly higher in MJT C-index (Moral Competence Index) and so did the amateurs (n = 114), as compared to professionals (n = 56). Playing position did not have a significant effect on C-index. Furthermore, the C-index positively correlated with perceived sport ability and task orientation. There was a low negative correlation with ego orientation. In addition, there was a non significant negative correlation between the C-index and years of athletic experience.

Mental toughness of football players in terms of some demographic variables

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In football there can be many factors opposing players such as, physical, technical and social demands. However there has been little research into the emotional factors affecting footballers at different levels in particular, the mental toughness and hardiness of footballers. The purpose of this study was to investigate the mental toughness of amateur football players with regard to age, education, playing position and year of football experiences. Identifying the psychological and emotional traits of footballers at different levels of performance can help to devise various coaching strategies to improve mental toughness of footballers. One hundred fifty amateur football players voluntarily participated in this study. The 14-item “Sports Mental Toughness Questionnaire” (SMTQ; Sheard et al., 2009) was administered to football players for measuring their mental toughness level. Multivariate Analysis of Variance was conducted (MANOVA) to test the differences in mental toughness in terms of age, education, playing position and year of football experiences. MANOVA analysis did not reveal significant differences in mental toughness level of football players in terms of age (Wilks’ Lambda = 0.93; $F(6,288)= 1.86$; $p> 0.05$); education (Wilks’ Lambda = 0.96; $F(3,145)= 2.15$; $p> 0.05$); year of football experiences (Wilks’ Lambda = 0.98; $F(6,288)= 0.45$; $p> 0.05$) and playing position (Wilks’ Lambda = 0.95; $F(9,348)= 0.88$; $p> 0.05$). Although MANOVA did not reveal any significant differences in mental toughness, follow up univariate analysis indicated significant age differences in confidence subscale and education difference in constancy subscale ($p < 0.05$).

An experiential sport ethnography examining the experiences of professional tennis players competing on the ITF Pro Futures Tour

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The purpose of this experiential sport ethnography was to explore the experiences of entry level professional tennis players competing on the International Tennis Federation (ITF) Men’s Pro Futures Tour. Limited research has focused on the psychological and sociological challenges of players competing on this tour as they work to move up the ranks of professional tennis. The contributions of ethnographic studies have gained greater recognition in sport psychology literature (Krane & Baird, 2005), and the primary researcher conducted a year-long ethnographic study where he entered the field as a participant/researcher (Lather, 1991; Sands, 2002). He gained access to Futures tournaments and players by participating in the qualifying rounds and collecting data through a combination of ethnographic methods including participant observation, extensive field notes, and semi-structured interviews with 10 participants. The researcher combined thematic analysis with co-participant narratives to capture the complexity of experiences and psychological processes players went through as they transitioned to and competed on the ITF Pro Futures Tour. Findings indicated the crucial importance of players learning to deal with loss at many levels, structuring networks of support, managing financial, emotional, and psychological insecurities, and dealing with the pressures and urgency to move up the ranks of professional tennis. Those players who adopted a process focus, maintained motivation in practice and matches, and learned from their losses had the most success and ultimately persisted in pursuing professional tennis as a career. This study provides important insights for consultants working with this and similar populations of individual sport athletes transitioning into the professional ranks of sport and facing the challenges of professional competition. This study also provides important insights for tennis players, coaches, and those wanting to gain a better understanding of the experiences of Futures-level tennis players and the sport sub-culture of the ITF Pro Futures Tour.

The effects of valence and style of feedback provision on need satisfaction, self-talk and persistence among tennis players

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Self-Determination Theory (SDT; Deci & Ryan, 2000; Vansteenkiste, Niemiec, & Soenens, 2010) assumes that athletes will be optimally motivated when their psychological needs for autonomy (experience of volition), competence (experience of effectiveness), and relatedness (experience of closeness) are fulfilled. Although there is abundant correlational research providing evidence for this claim (e.g., Carpentier & Mageau, 2013; Mouratidis, Lens, & Vansteenkiste, 2010), experimental research is more scarce. Grounded in SDT, we aimed to examine whether the valence (i.e., positive versus negative) and style (i.e., autonomy-supportive versus controlling) of providing normative feedback would impact on tennis players' self-talk, achievement goal pursuit, motivational experiences, and continued persistence. Tennis players (N = 120; Mean age = 24,5, SD = 9,86) participated in a three-phase experimental study, in which valence and style of feedback were manipulated by the experimenter. Negative, relative to positive, feedback was found to decrease feelings of autonomy and competence, elicit negative self-talk and hamper both intrinsic motivation and persistence in tennis players. Controlling, relative to autonomy-supportive, communication further diminished feelings of autonomy, intrinsic motivation and persistence and increased performance-avoidance goal pursuit. In addition, some evidence was found for the buffering role of tennis players' own coach, as the perception of autonomy-supportive coaching cancelled out some of the detrimental effect of negative feedback and controlling communication in the experimental task. Finally, mediation analyses indicated that the effects of both valence and style of feedback provision on negative self-talk, intrinsic motivation, and persistence could be accounted for by, respectively, tennis players' need for competence and need for autonomy. Overall, this study points to the importance of need-supportive feedback whereby positive feedback is delivered in conjunction with autonomy-supportive communication style.

Physical activity as an adjunct treatment for opiate addiction: Preliminary results of the PHAST study

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Addiction to opiates is a devastating disease, and particularly difficult to treat, with relapse rate estimates at between 50 and 80% (Fuchs, Lasseter, Ramirez, & Xie, 2008). Switzerland has been a pioneer of heroin assisted treatment (HAT), the prescription of pharmaceutical-grade heroin (Uchtenhagen, 2010). Aimed at stabilising individuals for whom other forms of therapy have failed, it must nevertheless be recognised that this population frequently suffers from severe physical and psychological complaints, and may continue to consume illegal substances, thereby negatively affecting their ability to lead a stable life (Darke & Ross, 1997; Staiger, Richardson, Long, Carr, & Marlatt, 2013). Physical activity is well-documented form of treatment for numerous physical and psychological problems (Penedo & Dahn, 2005), however, to date, research into its use in treating addictive disorders is sparse (Zschucke, Heinz, & Strohle, 2012). The aim of the current study is to assess the feasibility and effects of an exercise programme in conjunction with HAT. A randomised controlled trial was carried out at a HAT clinic in Basel, Switzerland. Participants receive 12 weeks of either twice-weekly group exercise training, or twice-weekly non-exercise activities as a control condition, with assessment at baseline, and 6, 12 and 24 weeks thereafter. Compliance with the programme, retention in the study and feedback on the programme were assessed. From 160 patients receiving HAT at the clinic, 25 agreed to take part, and 23 completed baseline measurements and were randomised to the intention-to-treat population. Rates of compliance between 30% and 50% with low drop-out suggest such a programme is a feasible adjunct treatment. The PHAST (Physical Activity in Substitution Therapy) study will

provide unique data on the impact of an exercise programme for those receiving HAT, and the feasibility of the long-term implementation of such a programme in HAT clinics.

The mediating role of goal orientation on the coach-athlete relationship on collective efficacy in Brazilian volleyball players

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Coach-Athlete Relationship (CAR) has been considered a key element for the development of several psychological variables in the sporting context. However, there is still controversy uncertainty regarding how the quality of the CAR could can impact the athletes' goal orientation (GO) and collective efficacy (CE). Thus, this study was guided by Social Learning Theory and investigated the mediating role of GO on the effect of CAR on CE among young Brazilian volleyball players through the framework of the Social Learning Theory. Participants (n=185 male and female athletes) completed the CART-Q, the TEOSQ and the Collective Efficacy Questionnaire for Sports to assess the targeted variables. Structural Equation Modeling analysis revealed that CAR had a moderate effect over on task orientation (TO), explaining 30% its of variancebility. In addition; in addition, TO had a moderate effect on CE. CAR had a positive effect over on ego orientation (EO), although low prediction (6%). The EO showed no significant path toward CE. Therefore, when mediated by TO, CAR explained 27% of the CE variabilityvariance. It is concluded that the focus on TO emerged aswas a mediating factor and capable to transfer the effects of on the relationship between the CAR and on CE. This results highlight that harmonious CARs can help athletes focus on , indicating that as better as the CAR, the athlete will be more focused on the team 's goals and, consequentlyin turn, the enhance athletes' perceived collective efficacy will be higher. These results support the notion that the CAR has implications for both the CE of athletes participating in team sports as well as athletes' the importance of the TO.

Assessment of psychological characteristics in a professional youth football academy – Implications from psychological diagnostic

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It is a common belief among top level football coaches that players` personality contributes to success. In talent models psychological characteristics cover motor-technical and perceptual-cognitive skills as well as personality traits (Williams & Reilley, 2000). Since 2006, German football youth academies have started to systematically care for personality and psychological development of talents and to include psychosocial items in scouting sheets. In the present study we evaluated such scouting sheets used by a youth academy of a professional German Premier League club. The aim was to test whether the assessment of psychological characteristics was concurrently and predictively valid, therefore enabling the prediction of success in football. Data of 125 young players from seven teams (age 11–19) were analysed. Coaches who were not explicitly trained assessed players` achievement motivation, conscientiousness, agreeableness, autonomy, responsibility-taking and conflict management (1 not at all–6 totally) and ranked takeover-chance (0 very unlikely – 3 very likely). Results showed that all psychological characteristics correlated significantly in a middle to high degree among one another (τ = .44–.77). While correlations with the tendency to take players over were significant but small (τ = .16– -.34), none of the parameters predicted actual take-over, $\chi^2(6) = 6.13$, $p = .409$, $R^2 = .05$ (Cox & Snell). Results imply that psychological characteristics assessed by coaches are not predictively valid for talent selection. Feichtinger and Höner (2014) came to a similar conclusion by adapting personality questionnaires in the talent development programme of the German Football Association. Future research in talent selection and development should rather focus on theory-based assessment of psychological mechanisms explaining the route to expertise in football (deOliveira et al., 2014).

Psychometric properties of Profile of Mood States (POMS) in volleyball athletes

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Since its adaptation to sport (Morgan, 1980), the POMS (Profile of Mood States) test has been adapted to many languages and generated several other versions. In Brazil there are few studies that address deeply the psychometric properties of the instrument. The objective of this research is to analyze the psychometric properties of the Brazilian version of the POMS test (Brandão, 2000) in female volleyball players. The test was applied to 200 athletes of female volleyball to the State of São Paulo, with an avarege age of 15.49±1.37. The psychometric properties were analyzed by exploratory factor analysis, parallel analysis and confirmatory factor analysis. The results demonstrated that despite the KMO = 0.843 and Cronbach's alpha (0.896) showed satisfactory values, the results showed no adjustment of the instrument in any of the 6 factors, by exploratory factor analysis and parallel analysis as original model. The parallel analysis indicated that the best solution is with only two factors. Confirmatory factor analysis also showed no model fit in the 6 factors, with results far below the proposed limits of the model fit: X2/df = 2.51; SRMR = 0.10; GFI = 0.482; AGFI = 0.449; TLI = 0.468; CFI = 0.485 and RMSEA = 0.087. Thus, these results indicate model adjustment problems with 6 factors for the Brazilian version of POMS, depending on the sample. Nevertheless, these early results may indicate the need for a thorough review of the instrument by studies that go beyond the sample population, as well as the review of the processes of adaptation and content validity.

Mindfulness meditation practice intervention with collegiate athletes: Impact on stress levels, quality of life and athletic copi

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In sport today, more and more resources are being allocated towards providing athletes with a number of psychological training techniques with the goal of helping them achieve their full athletic potential. In addition, college athletes' personal and athletic worlds have become heavily entwined due to the high expectations to perform. Athletes face these additional pressures that are above and beyond regular students' challenges, during a major developmental time in their life. Thus, it is important to find interventions that can help them function effectively both in and outside of their sport. One such technique that has recently gained interest in the field of sport psychology is mindfulness (Gardner & Moore, 2012). The essential elements of mindfulness, awareness and nonjudgmental acceptance, have been identified as effective remedies to psychological distress, anxiety, worry, fear and anger (Keng, Smoski & Robins, 2011). This study conducted mindfulness-based interventions with a collegiate women's basketball athletic team in the United States over the course of 10 weeks. The study attempted to investigate the effects of a mindfulness-based intervention on athletes' perceived stress, quality of life and personal athletic coping resources (i.e., peaking under pressure, coping with adversity, concentration, goal-setting and mental preparation, coachability, freedom from worry, and confidence and achievement motivation). Participants completed pre-, mid- and post-test measurements of the Perception of Stress Scale (PSS), the Perception of Life Questionnaire (PoLQ) and the Athletic Skills Coping Inventory (ACSI-28), as well as journals from which qualitative data was obtained. Both quantitative and qualitative results demonstrated significant, positive effects, and clear benefits and applications of mindfulness practice to both sport and life. Overall, the research indicates that systematic mindfulness training can be an effective approach to assisting athletes enhance their performances in sport settings and to derive positive benefits in life in general.

Leisure consumer satisfactions of individuals participating in fitness centers

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The construct of satisfaction is a widely used measure of recreational quality. The origins of recreation satisfaction are discussed in this study including major resource factors that appeared to influence satisfaction (Williams, 1989). This study aimed to compare the perceptions of participants affiliated to different fitness centers in the Central Anatolian region in Turkey about their leisure satisfaction and about fitness centers and quality of fitness centers. A 26-item scale consisting of two parts was distributed to the 200 participants attending fitness center activities. The scale "Consumer Satisfaction Scale" was developed by Ko et. al. (2011) and a Turkish version of the scale was adapted by Şimşek (2013). The first section of the scale consists of demographics and the second includes statements about leisure satisfaction and quality of the fitness centers. The scale's items were compared in relation to the demographic characteristics of the sample identify the participants' perceptions of the fitness centers' quality and their leisure satisfaction in relation to fitness centers. Results showed statistically significant differences on most of the scale's items used to identify leisure satisfaction about fitness centers and their quality according in relation to demographic characteristics. To conclude, this study's findings contribute to helping the fitness center's employees and recreation experts with providing quality service.

Looking at how coaches learn to teach life skills

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Sport participation should not only promote an active lifestyle and develop motor skills in adolescent athletes, it should also foster life skills development (Côté & Fraser-Thomas, 2007). Researchers largely agree that the coach is the most significant shaper of values and life skills in adolescent athletes (McCallister, Blinde, & Weiss, 2000; Petitpas et al., 2005). Although many studies have examined how coaches learn to coach, little is known about how coaches learn to teach life skills. The purpose of this study was to explore how coaches in two different sport contexts gain their knowledge about life skills and the strategies to teach them in adolescent athletes. The authors conducted a qualitative multiple-case study (Yin, 2009). Semi-structured interviews were held with 24 coaches working in school sport (12 basketball coaches) and amateur sport (12 swimming coaches). All coaches followed a holistic, athlete-centered approach. In the interviews, coaches described how they learned to teach life skills. The discussions were guided by Werthner and Trudel's (2006) model, such that the coaches' learning processes are categorized into three types of learning situations: (a) mediated, (b) unmediated, and (c) internal. The authors transcribed the interviews, analyzed them deductively and inductively and conducted cross-case analyses (Miles & Huberman, 1994; Yin, 2009). The data analysis sheds light on the diverse learning situations in which coaches have gained their knowledge. The results reveal that coaches in the two sport contexts learn principally through internal learning situations, specifically through retrospective reflection-on-action. Generally, the coaches in this study seek learning proactively, following an individualized learning process. The main results are discussed in light of the literature on life skills in sport, positive youth development, and coaching education. These new findings extend the discussion on coaching development.

The association between mental toughness and field positions in basketball

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Mental toughness has been regarded as a crucial ability in sports by athletes, trainers and sport psychologists and will always claim to be a relevant predictor for success in tough situations on and off the field. The description of mental toughness and its structural components comprises the attitudes and focused mental processes within the terms of

training, performing and the general lifestyle. Basketball as a team sport requires a team of highly specialized players working together and according to their different roles and functions on the field. The five different field positions in Basketball (Point Guard, Shooting Guard, Small Forward, Power Forward, Center) clearly demand players of different anthropometry and physical predisposition. Furthermore coaches are interested to chose (have options) which player suits best for a certain position (defined function) in the team due to his psychological player profile among the roster. The study examined this question used 98 Austrian Basketball players by assigning them into four different position classes (PG/SG(36), SG/SF(26), SF/PF(17), PF/C(19). Besides sociodemographic and anthropometric, psychological variables (BIG5 dimensions, mental toughness (SMTQ, MT48), self-esteem (RSES), stability of self-confidence (TROSCI) were investigated. ANOVAs were used to analyze the data and the planned contrast as well as post hoc tests were conducted to show the significant differences. Players' psychological profiles (mental toughness, extraversion, self-esteem) and anthropometric performances (jumping height, handgrip strength) were able to differentiate the players by class of field positions. Results indicate, that players who are performing on field positions that are preliminary regarded as offensive (PG/SG/SF), may have a more focused mind regarding the mental toughness components (self-confidence and control), a higher overall self-esteem and a more pronounced outgoing personality dimension (extraversion). Trainers are advised to select players for defined field positions also upon their mental abilities and personality profiles.

Bullying in female adolescent sport teams

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Peer relationships have been recognized as a critical social agent throughout psychosocial development in youth. Previous sport research has highlighted the influence of peers on the development of attitudes (e.g., self-esteem), life skills (e.g., conflict resolution), and sport related behaviours (e.g., motivation, commitment; Holt et al., 2008; Ullrich-French & Smith, 2006). Despite significant attention towards positive peer relationships in sport in recent years, a paucity of research remains on negative interactions amongst youth and the potential consequences of these interactions on psychosocial development. This dearth of research on negative interactions in youth sport is perplexing given the attention that these interactions have received in other youth domains, including school environments worldwide (e.g., Mishna, 2012; Olweus, 1993; Pepler & Craig, 2000). This presentation will review and critique the existing bullying literature conducted in education settings, including the consistencies in terminology and the predominance of particular research methods, and discuss findings of a recent study exploring peer relations in female adolescent sport teams. This study was conducted through a social constructivist lens and employed two phases of data collection: photo-voice and semi-structured interviews. Findings include positive peer relations, such as development of the self (e.g., perseverance, confidence) and negative peer relations, such as bullying (e.g., social exclusion, spreading rumours). Emphasis will be placed on negative peer relations, as this area has received less attention in sport. Future research directions relevant to the sport environment will be posed, including the value of using unique qualitative methodologies (e.g., phenomenology, narrative analysis) and methods for enhancing our understanding of bullying behaviours in the sport context. Finally, the relevance of increased scholarship in this area for sport psychology consultants will be discussed, including the role sport psychology consultants have in facilitating positive peer relationships through the prompt recognition and intervention of these behaviours in youth athletes.

Acute exercise-cognition relationship: Testing the moderators

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Regular exercise benefits cognition (Chang, Labban, Gapin, & Etnier, 2012). Nevertheless, the effects of acute exercise on cognition remain unresolved (Chang et al., 2012). The moderators of the acute exercise-cognition relationship include exercise intensity, type of cognitive task and its timing, the study design, and the type of exercise performed (Chang et al., 2012; Lambourne & Tomporowski, 2010). In an effort to further clarify the link between acute exercise and its cognitive effects, the purpose of the present study was to test the role of these moderators within the realm of acute exercise and executive functions. Forty-one female and forty-two male participants (Mage = 22.71 years, SD = 4.13 years) were randomly assigned to either a strength-endurance (i.e., handgrip squeezing at 30% of maximum volume contraction), aerobic task (i.e., stepping at the cadence of a metronome) or control condition (i.e., sitting at rest). Participants in the strength-endurance and aerobic conditions were also randomly assigned to either a moderate (RPE = 6) or vigorous (RPE = 9) workload intensity condition. A number of executive function tests including the Trail Making Test, tests of working memory, visual scanning, and reaction time were administered at baseline, at exercise completion, and 15 minutes post-exercise. RM ANOVA analyses revealed that participants were significantly faster across all cognitive tests at exercise completion and those effects lasted 15 minutes following exercise completion ($p < .05$). There were no significant differences across the strength-endurance, aerobic, and control conditions on cognitive performance. These results are consistent with previous work suggesting faster mental processes at exercise completion (Lambourne & Tomporowski, 2010). The role of the various moderators tested in determining the cognitive effects of acute exercise will be discussed. Recommendations for maximizing the cognitive benefits of exercise prescriptions will be provided.

Predicting flow experience: The role of athletes' goal orientation and motivation

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Flow experience refers to a positive psychological state characterized by clearly defined goals, absorption of the task at hand, and total immersion in performing the activity. Athletes' type of orientation is linked to flow experience, while intrinsic motivation shares similar characteristics to flow (Kimiecik & Stein, 1992). The purpose of the study was to predict flow experience based on athletes' goal orientation and types of motivation. Two hundred and seventy two (272) athletes volunteered to participate in the study. The athletes ranged in age from 19 to 25 years old (M = 20.49, SD = 1.09), with approximately 7 years (M = 6.95, SD = 3.11) of competitive experience. The athletes completed the Perception of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998), the Sport Motivation Scale (SMS; Pelletier, Fortier, Vallerand, Briere, Tuson, & Blais, 1995), based on how they usually felt, and the Flow State Scale-2 (Jackson & Eklund, 2002) based on how they felt during a competition in the near past. The results indicated that flow experience is negatively related to ego orientation and amotivation. On the other hand, flow revealed positive correlations to task orientation and types of intrinsic motivation. The hierarchical regression analysis (1st step: POSQ subscales, 2nd step: SMS subscales) showed that ego ($\beta = -.165$, $p<.01$) and task ($\beta = .126$, $p<.05$) orientation serve as significant predictors of the total flow experience ($R2 = .05$, $F\ 2,255 = 6.942$, $p<.001$). In the second step, intrinsic motivation to experience stimulation ($\beta = .219$, $p<.01$) and external regulation ($\beta = -1.985$, $p<.05$) appeared as significant predictors of flow experience ($R2 = .20$, $F\ 9,248 = 7.067$, $p<.001$). The results indicated that task-orientation and intrinsic motivation may facilitate flow experience during

competition, whereas ego orientation and amotivation may have a detrimental influence of flow states.

The relationship between organizational stressor and athlete burnout: The moderating effect of perceived social support

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Organizational stress has emerged as an important issue in sport performers' preparation for and performance in competition. Fletcher et al. (2006) defined organizational stress as "an ongoing transaction between an individual and the environmental demands associated primarily and directly with the organization within which he or she is operating" and highlighted organizational-related demands as a salient component of the stress process in sport. Surprisingly, although researchers have begun to uncover the causes of the organizational stress process in sport, little was known about the potential consequences and outcomes, including burnout. In this study, we examined the relationship between organizational stressor in sport and athlete burnout plus the extent to which social support moderates the relationship. A sample of 692 Chinese elite athletes (46.5% female, mean age=18.77 years, SD=4.09) was recruited to complete the organizational stressor indicator for sport performers, the perceived available support in sport questionnaire, and the athlete burnout questionnaire. Correlation analysis indicates that organizational stressor is significantly positively related to athlete burnout ($r=.39$, $p<.001$). Regression analysis indicates that organizational stressor positively predicts athlete burnout ($\beta=.38$, $t=8.82$, $p<.001$). The analysis of moderating effect indicates that social support moderates the effect of organizational stressor on athlete burnout. What's more, the moderating roles of social support between different kinds of organizational stressor and athlete burnout are different. This suggests that social support has different importance in buffering the effect of different kinds of organizational stressor. Finally, we posit that there is a need for psychologists to develop and acquire specific abilities to manage the potential impact of organizational stress on athletes. Athletes have little power to effect organizational changes in sport. Thus, for effective and long-term alleviation of athlete burnout, increasing social support may be essential.

Mindfulness training improves beginners' skill acquisition? A randomized controlled trial

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During the past decade, mindfulness has been integrated into cognitive behavioural training in the sport context for improving athletes' performance, mental status, and general well-being (Gardner & Moore, 2012). The mindfulness-acceptance-commitment approach (MAC; Gardner & Moore, 2007) is one of the most popular mindfulness training programs in sport. Although research has showed that the MAC training in various sports has an acute enhancing effect on athletes' performance, its application to beginners has not been researched. Taken as a pilot study, the present study examined whether or not mindfulness training based on the MAC can improve beginners' skill acquisition of dart throwing. A total of 43 first-year college students who have not played darts competitively prior to the study took part in an eight-week dart training program. Alongside the dart training, participants were randomly assigned to either a mindfulness training group (n = 22) who received mindfulness training, or an attention control group (n = 21) who attended sport psychology lectures. Dart throwing and psychological variables (i.e., mindfulness, experiential acceptance, and flow) were assessed at pre-intervention (Week 1), post-intervention (Week 8), and two-week follow-up (Week 10). Two-way repeated measures ANOVA showed that the mindfulness group had significant ($p<.05$) improvements in mindfulness, experiential acceptance, and

flow at post-intervention and follow-up, but that of the attention control group were not significant (p >.05). Although both groups improved dart throwing performance after the intervention (p<.05), significant the interaction (p<.05) between group and time revealed that the improvement of the mindfulness group was statistically higher than the attention control group. It is concluded that the MAC is an effective mindfulness training that could facilitate the performance and adaptive sport experience of beginners in dart throwing.

Changes in self-reported behaviors among intervention coaches across the youth soccer season: A mixed-methods approach

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Previous coach education research has focused on a range of athlete outcomes, such as self-esteem, anxiety, and attrition (for a review, see Langan, Blake, & Lonsdale, 2013). To our knowledge, no studies have collected data on both pre- and post-training coach behaviors, and then examined behavior change across the youth sport season. Also, no studies have combined quantitative and qualitative methods in order to more effectively gain insight into what coaches consider to be the merit and worth of participating in a coach education intervention. Therefore, the purpose of this study was to use a theoretical framework, specifically achievement goal theory (Nicholls, 1989) and self-determination theory (Deci & Ryan, 2012), to examine changes in self-reported empowering and dis-empowering behaviors among youth soccer coaches and their evaluative reactions to participation in the Norwegian arm of the Empowering CoachingTM training program (the PAPA project; Duda, 2013). 169 coaches (152 males; 17 females; M = 41.99; SD = 6.32) completed a questionnaire about their use of empowering and dis-empowering behaviors at the beginning and end of the youth soccer season. Additionally, 12 of these coaches (M = 41.67; SD = 5.68) were interviewed at the end of the season. Using factorially invariant constructs in SEM (Little, 2013), findings showed that the empowering and dis-empowering behaviors did not differ from the pre- to the post-test. However, the interviews revealed that the intervention made coaches reflect on their own coaching practices, which led to an increased focus on enabling autonomy and involvement for the athletes as well as paying more attention to the athletes' feelings of mastery. Thus, mixing methods in coach education research may provide more nuanced inferences concerning outcomes of coach education initiatives.

PE teachers' personal and relational predictors for job satisfaction

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Physical education (PE) is an essential entry point to learn positive patterns of behaviour such as a lifelong engagement in physical activity. Hence, it is crucial that PE teachers are able to create an enjoyable and active environment for their students. However, many PE teachers express dissatisfaction in their work life, with almost half reporting an intention to leave PE teaching (Mäkelä & Whipp, 2013). This is a major concern, given that disenfranchised PE teachers are more inclined to simply 'roll the ball out', thus minimising PE student outcomes. In terms of promoting teacher engagement, autonomy-supportive superiors and colleagues have been shown to contribute to work satisfaction (Moreau & Mageau, 2012). With this in mind, the focus of the study was to investigate relationship factors that may shape PE teachers' self-determined motivation and work satisfaction. The research was grounded in Self-Determination Theory (SDT; Deci & Ryan, 1985) and Relationship Motivation Theory (RMT), a mini-theory emerging from SDT (Deci & Ryan, 2014). In line with the tenets of RMT, a major focus of the work was directed toward understanding how teachers' motivation may be predicted by the quality of their relationships within school. Aside from relational processes, personal factors such as teachers' self-

compassion and emotional intelligence were also assessed as potential predictors of job satisfaction. Approximately 500 West-Australian PE high school teachers, recruited in representative numbers from public, catholic and independent schools, completed an online questionnaire consisting of questions about their perceived relationship quality with students, colleagues, and the school principal, their perceived self-compassion, emotional intelligence, job satisfaction, job quitting intentions, job motivation, and absent days. Structural equation modelling will be used for data analysis purposes. This research will further our understanding of the conditions that may facilitate workplace satisfaction among PE teachers.

What happens when the coach is replaced by another in professional football teams? A group process perspective

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The aim of this study was to determine the effect of changing the coach during the season on different group processes such as team cohesion, team conflict and collective efficacy, in a sample size of professional football teams. We consider that this research might be interesting because although there were studies which tested the relationship between changing the coach with team performance, up to now there are none works which showed how these group processes are changing. This is a longitudinal study which took measurements to all players from 18 Spanish Second Division "B" football teams at the beginning, the middle, and at the end of the season. In accordance to these teams, four of them changed to coach between the first and second assessment, three teams replaced coach between second and final measurement, and eleven teams remained the coach during the whole season. Football players who did not fill the questionnaires in the three measurements were excluded. Multilevel modeling analysis showed that perceptions in function of time concerning cohesion and collective efficacy was lower in teams that had changed their coach compared to teams with the same coach. However, it seems that there was a medium-term positive impact of the coaching change. Specifically, teams that replaced their coach earlier in the season had greater perceptions of team cohesion and collective efficacy, while having a reduction in team conflict compared to teams that kept their coach or changed later on in the season. Moreover, teams which changed the coach had lower values in cohesion and collective efficacy at the beginning of the season, revealing greater conflicts that teams which had the same coach. These results are interesting in order to understand whether is necessary to change the coach, as well as to know what happens when a coach is replaced.

Team cohesion and soccer performance: A comparative study

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The cohesion-performance relationship in team sports is well established (Carron et al., 2002), however, it has not received much attention within the African soccer context. This study compared successful and less successful soccer teams based on the final log position of a tournament involving 16 South African tertiary institution teams in an attempt to share light on contributing factors to team success. A cross-sectional design was used with 263 male student soccer players (M age = 22.64 years, SD = 2.28; range: 17-32 years) taking part voluntarily. Information regarding previous tournament experience and the period players had been part of their respective teams were gathered. The participants also completed the Group Environmental Questionnaire (GEQ) of Carron et al. (1985) before the start of the 2012 University Sport South Africa tournament. The GEQ measures group attraction (on both task and social levels) as well as group integration (on both task and

social levels). Previous tournament experience accounted for the biggest difference between the successful and less successful teams. Players in the successful teams reported greater attraction to the group (on both task and social levels) than their less successful counterparts. However, the less successful teams scored higher than their successful counterparts on group integration (on both task and social levels). Collectively, these results indicate the important role of experience, as well as addressing the task and social dimensions of cohesion to enhance team efficacy and performance. It adds to the current knowledge base regarding the influence of group factors on sport performance within the African soccer context. Further validation of the instrument for use in African sport settings is warranted.

Personal activity and talent development in sport

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In the last few years, in the specialized literature the issue of talent development in sport has been widely discussed. Systematic research has been done, aimed at the development of the skills in one or more areas of human activity (Gagné, 2009). In sports context this issue has gained much more significance. The elite sport offers an early revealing and development of a complex of characteristics – anthropometrical, physical, physiological, technical, tactical, and psychological (Elferink-Gemser, Visscher, Lemmink, & Milder, 2004). The diversity and the complexity of the factors, affecting the development of the talent in sport require an overall and dynamic monitoring. The aim of the present research is to summarize and analyze the major methods, approaches and models for talent development in sport, and on this base to offer a model for talents development in sport with an emphasis on the stimulation of personal activity. The bio-ecological theory of Bronfenbrenner is taken as a starting point. The talent development is viewed, the competitive realization and the overall sports career, in the context of the ongoing processes in the inner and the outer environment. A work model is proposed, which emphasizes on the inter-ego system, according to our adopted conceptual frame for talents development in sport. The results from the research and the analysis of the sports career of a number of elite Bulgarian athletes reveals some possibilities for optimization of the talents development in sport through purposeful management and self-regulation of the competitive behavior within “potential-actual”. The results reveal the increased role and significance of the inter-ego system as a basic and integrating mechanism in the sports environment and outline the necessity of its adequate building.

Developmental tasks and wellbeing in elite athletes compared to non-athletes

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The adolescent years are the most important years for personality development. Young elite athletes have to solve the same developmental tasks (DTs) as non-athletes even though they spend a lot of time with their sports and also have to solve certain sports related DTs in addition (Ohlert & Kleinert, 2014). Therefore the aim of our study was to find out if this situation leads to a shortfall in certain DTs and furthermore to reduced wellbeing in elite athletes. In total, 213 adolescents aged between 16 and 17 years (32% male) participated in our survey. Almost half of the participants (n = 98) were elite athletes from handball, football, triathlon and canoe racing; the other participants were students who were divided into a group of non-athletes (n = 65) and (recreational) athletes (n = 50). They answered questions regarding the relevance of different DTs, their actual progression, satisfaction with their actual progression, and the WHO5 measure for wellbeing. MANOVAs show that the three groups differ significantly regarding relevance, actual progression, and satisfaction with progression of different DTs. Elite athletes report lower relevance in DTs like friendship and independence from parents, but higher relevance for planning the future and behaviour in society than the two other groups. For progression and satisfaction, only few differences

between the groups were evident. Additionally, in a multiple regression, satisfaction with progression for the DTs friendship, planning the future, and accepting the own body was significantly predicting well-being in all participants. Our results indicate that indeed, elite athletes report different relevance of DTs compared to recreational athletes and non-athletes which may be a first hint for shortfalls regarding certain DTs. Furthermore, as satisfaction with certain tasks showed links to wellbeing, it would be useful for sport federations to keep an eye on the DTs of their athletes.

Propensity to consciously control movements predicts foot placement and quiet standing performance in older adults

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The higher propensity to consciously control movements (i.e., reinvestment) has been suggested to be related to higher risk of falling in the elderly (Wong, Masters, Maxwell, & Abernethy, 2008). One of the most common causes of elderly falls is loss of balance. Foot placements have been shown to play an influential role in postural control during stance (Day, Steiger, Thompson, & Marsden, 1993). The aim of this study was to examine whether the propensity to reinvest is related to foot placement during assumption of comfortable stance in older adults. Furthermore, the relationship between reinvestment and balance performance was measured. Fifty-six older adults (Mean age=69.88, SD=4.07) were asked to fill in the Movement-Specific Reinvestment Scale (MSRS; Masters, Eves, & Maxwell, 2005). They were then required to step on a force platform and take their most comfortable stance. Stance width, foot angle, and number of adjustments were measured. Finally, participants' quiet standing performance during one minute was assessed using four center of pressure measures of postural stability: path length, area of sway, sway variability in anterior-posterior and medio-lateral directions. Pearson's correlation coefficient showed significant positive correlation between MSRS scores and the number of adjustments (r=.36, p=.006). Linear regression showed that movement-specific reinvestment predicted 13% of the variance in the number of adjustments (F(1,54)=8.026, p=.006). Furthermore, a significant positive correlation was found between MSRS scores and sway variability in anterior-posterior directions (r=.29, p=.031). Linear regression showed that movement-specific reinvestment predicted 8.5% of the variance in sway variability (F(1,54)=4.912, p=.031). These preliminary results suggest that the propensity to reinvest could be a contributing factor to foot placement during assumption of comfortable stance, and also to postural control during quiet standing. These findings contribute to our emerging understanding of the relationship between reinvestment and falling in older adults.

Coaches' attitudes and practices concerning the use of placebo interventions in sport for increasing athletic performance

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The placebo effect is a belief-generated favourable response elicited by expectations or conditioning associated with an agent or intervention that has no known physiological effect on a target response. Placebo-induced performance enhancement is a new controversial issue in competitive sports. While coaches have control over the use of placebos, their practices concerning placebo intervention, and beliefs about its administration to athletes, are unclear in the sport psychology literature. In this anonymous survey, we examined placebo-use habits and beliefs about placebos in 96 coaches referred to the study-website by their national associations. Coacher were from regional, national, and international levels. Our results revealed that 90% of the coaches are familiar with the placebo effect. Many (44%) of them provide a placebo to their athletes. Those working at the international level appear to administer placebos more often than the others (P=.02). Two-thirds of the coaches

agree to a wider application of placebos in sport. Respondents who already used placebos reported improved athletic performance. These coaches also agree more to the increased adoption of placebos than the coaches who previously did not give a placebo to their athletes (P=.001). Team sport coaches use more often placebos than coaches in individual sports (P=.05). Only 10% of the respondents think that their athletes would refuse a hypothetical performance enhancer supplied by them. After a successful placebo intervention, only 15% of the coaches would administer it again without consulting the athlete. Overall, the coaches are keen about placebo use in sports. Close to half of them, especially those coaching at higher levels of competition, may use it regularly while achieving positive results. The ethical issue concerning placebo use is sports revolves around deception. However, a previous study (Bérdi et al., 2014) showed that athletes don't mind being deceived as long as the intervention is effective.

Session 5 – Saturday 18 July, 10am-11.30am

An intergenerational study of active free play in rural settings

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Children's engagement in active free play has declined significantly (Gray, 2011). The purpose of this study was to examine perceptions of intergenerational changes in children's active free play. A total of 22 people from 8 families (6 children, 8 parents, 8 grandparents) from rural towns in Alberta (Canada) participated in individual semi-structured interviews. Interviews were transcribed verbatim and subjected to a thematic analysis guided by an ecological model (Bronfenbrenner, 2005). This model was selected based on results of previous research showing ecological models are effective for examining the various levels of 'social ecology' (from more proximal to more distal) that influence active free play (Holt et al., 2015). Adults reported numerous factors that may account for changing active free play patterns, which we coded around levels of social complexity ranging from more proximal (to the child) to more distal. Adults reported children had 'less imagination' because of the predominance of screens in their lives. There was a lack of parental involvement in children's active free play, and an increased focus on organized/supervised forms of sport and physical activity. At a social level, adults reported fewer people for their children to play with in the neighbourhood and a reduced sense of community. Many of these factors seemed to reflect or contribute to increased adult concerns over children's safety. Interestingly, children did not share the same safety concerns as those reported by adults. Furthermore, while adults recognized various constraints on their children's active free play, they did not feel empowered to create change at a broader social level. We suggest that, to revive active free play, social level initiatives are required to re-build a sense of community which will foster social ties between neighbours.

Strength training and no limits: Psychological components and the construct of Learned Carelessness

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The current body image postulates that for men there is a high need of a muscular body. This perception drives men to train their bodies extensively with the danger of exercise addiction and drug abuse. A psychological construct which describes the attribution strategies that justify one's hard training is Learned Carelessness (LC, "Everything is fine and will (automatically) stay that way", Frey & Schulz-Hardt, 1996). The present study aims at creating and testing a questionnaire that measures the construct of LC with athletes performing in high intensive strength training. The pretest (n=66) uses a modified version of the carelessness inventory (Wegner, Hartmann & Steiner, 2013). Dimensions include hedonism, carelessness symptoms, defensive strategies, social factors and consequence expectations showing acceptable internal consistencies (α=.75-.85). The main study (n=380) examines the inventory's construct validity of locus of control (α=.79), risk behavior (.62), neuroticism (.70), concientiousness (.76), body image (.76), and exercise addiction (.89). Afterwards, the item structure of the model following Frey and Schulz-Hardt (1996) is tested via CFA. Risk behavior and conscientiousness (both r<.18, n.s.) are not significant, whereas locus of control and neuroticism (both r<.36, p<.05) are significant with all dimensions of LC. Exercise addiction (r<.64) and body image (r<.57) indicate high significant coefficients. Item structure analysis reveals the following fit indices: $\chi^2(462)=1506.9$, Bollen-Stine bootstrap p=.001; CFI=.66; RMSEA=.08; CMIN/DF=3.2; SRMR=.10. Especially neuroticism, body image and exercise addiction show consistent results with the model of LC. The CFA reveals no good fit. Suggestions are made for further investigations on more com-plex relations

within the model of Frey and Schulz-Hardt and to specify the construct of LC in varying sport settings and samples.

The career change-event experiences of israeli soccer referees: An exploratory study

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Soccer referees cope with a variety of demands on and off the field (e.g., Helsen & Bultynck, 2004; Mascarenhas, O'Hare, & Plessner, 2006). They should be regarded, therefore, as sport performers on their own merit (Slack, Maynard, Butt, & Olusoga, 2013). This study applied the Scheme of Change for Sport Psychology Practice (SCSPP; Samuel & Tenenbaum, 2011a) to examine the experiences of soccer referees' career "change-events," and the referees' responses to them. A cross-sectional design was applied. One hundred and fifty four Israeli adult head soccer referees and assistant referees completed the Change-Event Inventory (CEI: Samuel & Tenenbaum, 2011b), the brief COPE (Carver, 1997), and an adapted referee version of the Athletic Identity Measurement Scale (AIMS; Brewer & Cornelius, 2001). The referees reported experiencing various and multiple change-events in their careers; the most common ones were a transition to a higher league (97%), excelling in a big match (86%), and a very poor performance or a decision error (74%). The referees' professional level and role affected change-events frequency rates. Refereeing identity and the nature of the change-event were two factors associated with its perceived significance. The referees tended to make two associated decisions in the change process: a strategic decision to consult with others in response to experiencing change-events, and a subsequent decision to change (i.e., effectively cope). Soccer referees experience a dynamic career which consists of various types of change-events that require attention and effective coping efforts. Practitioners should be aware of these change-events, educate referees regarding them, and provide referees with adequate support in their change-processes.

Psychometric properties of Future Work Self Salience Scale for Chinese student athletes

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The purpose of this study was to examine the psychometric properties of the Chinese version of Future Work Self Salience Scale across two samples of Chinese college students (n = 228) and a sample of Chinese Student athletes (n = 225). Exploratory and confirmatory factor analyses were conducted respectively with the participants. The results of exploratory and factor analyses supported the existence of a unidimensional construct of Future Work Self Salience Scale. Confirmatory factor analyses provided further empirical evidence for one factor structure model and retained five items. Adequate internal consistency reliability for Chinese version of Future Work Self Salience Scale revealed satisfactory reliability and validity in the present study. Moreover, Chinese version of Future Work Self Salience Scale, suggesting good construct validity, were positively correlated with proactive personality, future orientation, and career planning. In conclusion, results of this study indicated that the Chinese version of Future Work Self Salience Scale would be useful for assessing individual's career motivation in sport and proactive research and context.

The effects of social support and mental toughness on athlete engagement

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In recent years, psychologists have argued strongly for a more positive focus within psychology. In line with positive psychology principles, sport psychologists have become increasingly interested in the negative issue of athlete burnout, namely, athlete engagement (AE). AE was defined as a persistent, positive, cognitive-affective experience in sport that

was characterized by confidence, dedication, enthusiasm, and vigor. Given that AE was new to the field of sport psychology, little was known about its potential antecedents. In sport, social support might influence performance in a main effect model by providing advice about tactics and game plans, or by increasing positive effects, leading to a greater likelihood of experiencing flow states. Numerous studies have confirmed mental toughness as a positive psychological construct, linked to successful outcomes such as flow, subjective performance. What's more, researchers have identified social support as crucial to the development of mental toughness. In this study, we examined the effects of social support and mental toughness on AE plus the extent to which mental toughness mediates the relationship between social support and AE. A sample of 483 Chinese elite athletes (47.2% female, mean age=19.24 years, SD=3.99) was recruited to complete athlete engagement questionnaire, perceived available support in sport questionnaire, and sports mental toughness questionnaire. Regression analysis indicates that social support and mental toughness could positively predict AE (β=.23, t=10.83, p<.001; β=.62, t=4.31, p<.001). Structural equation modeling has been used to analyze the mediating effect of mental toughness, indicating that mental toughness partially mediates the relationship between social support and AE. The mediating effect size of mental toughness is 0.26. The ratio of the mediating effect to total effect is 55%. Lastly, practical suggestions are offered for intervention programs designed to increase social support and improve mental toughness.

Using a unique tag game to improve self-efficacy in helping behavior of children

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Helping behavior is influenced by many factors, including past experiences in helping others (Nagai, 2011) and the feeling when one could help others (Senoo, 2001). Both these factors can be promoted by physical activities. For instance, team sports and physical education can promote not only athletic ability but also personal growth. Accordingly, this study investigates the effect of participation in a game of tag, which focused on helping others, on children's self-efficacy in helping behavior—defined as the belief about one's ability to help others (Ueno, 2014). Fifty-two elementary school students (eight to ten years old) played one round of two types of tag. In the first (i.e., regular tag), students had to run around and avoid being caught by a catcher. In the other, which was developed by the author and named "Nakama-oni," the catcher could touch only students running alone and not those holding hands with each other (a student could hold hands with only one other student at a time). This feature of the game was intended to trigger helping behavior. Students were told before the game that there is significant value in helping others avoid the catcher without regard for personal safety. Self-efficacy in helping behavior was assessed before and after the game with a scale developed by Ueno (2014). The results showed no significant difference in self-efficacy before and after the regular game, $t(29) = .17$, $p = .86$ (two-tailed), but a significant difference before and after Nakama-oni, $t(48) = 2.42$, $p < .05$ (two-tailed). These findings suggest that experiences of helping others, even in a game of tag, may enhance helping behavior in daily life by increasing self-efficacy.

Athlete leaders' use of transformational behaviours and its effect on trust in the leader

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Leaders are one of the most crucial factors determining whether a group succeeds or fails (Bass, 1990). Furthermore, leaders displaying transformational behaviours are thought to lift followers to higher levels of motivation to get them to perform beyond expectations (Bass, 1985), and they tend to have followers who are more committed and satisfied (Bass & Riggio, 2006). Another outcome of transformational leadership in organizations is that followers are more willing to trust leaders who show care and concern for the follower (Dirks & Ferrin, 2002). The purpose of the present study was to determine if the use of transformational behaviours by formal peer leaders on youth sport teams relates to trust in

the leader. Data were collected using questionnaires, including the Multifactor Leadership Questionnaire-5X (MLQ-5X; Bass & Avolio, 2004) and a trust in leadership scale (Dirks, 2000; McAllister, 1995). Participants included 173 athletes (104 females, 69 males; mean age = 16.35) from 14 interdependent sport teams. It was found that perceptions of full-range leadership behaviours were related to affect-based trust, R2adj = .50, F(7,163) = 43.08, p = .006. Specifically, inspirational motivation (β = .22), idealized influence attributed (β = .31), and laissez-faire (β = -.22) contributed to this relationship. Cognitive-based trust, R2adj = .514, F(7,161) = 45.07, p = .011, was also related to perceived leadership behaviours; specifically, idealized influence attributed (β = .56), and laissez-faire (β = -.19). The results lead to the suggestion that peer leaders who are consistent with standards so they are perceived to have idealized influence, avoid being absent when needed, as well as motivate and provide meaning, will instill trust in their followers. Continued research will be conducted to test the longitudinal nature of these variables and will probe other outcomes such as extra effort.

Magnetic resonance spectroscopy study of brain circuits in patients with first-episode obsessive-compulsive disorder

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We intent to discover the substance metabolism abnormalities of brain circuits in patients with first-episode obsessive-compulsive disorder by magnetic resonance spectroscopy (1H-MRS), and study the mechanism of obsessive-compulsive disorder. We selected twenty patients with first-episode obsessive-compulsive disorder and twenty gender and age-matched normal controls for the study. The neurochemical abnormalities includes the ratios of N-acetyl aspartate (NAA) / creatine (Cr) and choline (Cho) / Cr were measured respectively in prefrontal lobe, anterior cingutate, orbital frontal lobe, caudate nucleus and thalamus with three-dimension 1H-proton magnetic resonance spectroscopy (3D 1H-MRS). We analyzed the data of the ratios in the two groups by t test of independent samples. The values of Cho/Cr ratios in thalamus were significantly higher in first-episode obsessive-compulsive disorder than that in controls (P<0.01), and the values of NAA/Cr in caudate nucleus, thalamus were significantly lower in first-episode obsessive-compulsive disorder than that in controls (P<0.01), but the values of NAA/Cr in anterior cingutate, orbital frontal lobe were higher than that in controls (P<0.01). Therefore, we conclude that there are some special neurochemical and histological structure changes (cortico-striatal-thalamic-cortical cycle) in patients with first-episode obsessive-compulsive disorder. 1H-MRS can find these changes through assessing the metabolic abnormalities.

Attachment, competitive anxiety and self-confidence among competitive swimmers in Sweden

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Attachment refers to an affectionate long-lasting bond that connects one person to another across time and space (Ainsworth, 1978; Bolwby 1969). According to Bolwby (1969), author of this theory, attachment behavior is manifested in order to increase individuals' sense of security, especially in times of need and stress. This psychological construct has been strongly related with the way individuals adjust themselves in various contexts. The relationship between attachment and sports performance, has not yet received much attention from the scientific sport psychology community and remains one of the most unexplored topics in this area (Carr, 2012). Thus, the aim of this study was to examine possible relationships between attachment styles, competitive anxiety, self-confidence and performance, among competitive swimmers aged 17-20. The participants were 44 swimmers from all over Sweden, classified into two groups; high-competitive elite athletes (N=24) and sub-elite athletes (N=20), based on the annual performance results according to Swedish

Swimming Federation Database. It was hypothesized that high-elite swimmers differ significantly from sub-elite swimmers in their attachment styles, competitive anxiety and self-confidence scores. Attachment styles were measured by both a narrative based assessment (SBST: Psouni & Apetroaia, in press) and a self-reported measure of attachment (ASQ; Feeney et al., 1994). Whereas, performance anxiety and self-confidence were measured through the Competitive State Anxiety Inventory-2 (Martens et al., 1990). T-test, correlations and multiple regressions were subsequently performed to evaluate differences between groups (elite versus sub-elite) and to explore relationships and correlation among different variables. The hypotheses were partially supported by the findings. The study found one significant result, which stated that insecure anxious attachment style combined with young age predicted lower performance results among swimmers. Interestingly this style was found to be prevalent among sub-elite swimmers. The findings should be treated in a very careful way and ethical considerations should be considered.

Effect of mental practice on learning motor skills in volleyball

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Performing at the highest level puts great demands on the individual. The ability to be mentally and physically prepared to perform in an important competition is an additional pressure the individual has to cope with alongside his/her own expectations and desires. Franke et. al. (1995) studied the effect of mental training programme on several psychological variables and field hockey performance (penalty stroke) was evaluated. The hockey performance of the experimental group was significantly better on the third test occasion than that of both control groups. To find out the significance of mean differences between pre and post tests and adjusted mean, analysis of covariance technique was employed. The analysis of data revealed that mental practice method was found to be significantly better method in improving learning motor skills i.e., volleying, serving, passing, and Setup in comparison to control group. The findings also revealed that there was no significant improvement in learning of motor skills of volleyball neither over a period of twelve weeks duration nor at a periodic interval of two weeks duration in the case of control group. Within the limitations of the present study, the following conclusions were drawn: 1. The twelve weeks of mental practice was effective method to improve performance and learning rate in motor skills of volleyball namely volleying, serving, passing, and setup. 2. The mental practice method is comparatively a better method to improve performance and skill acquisition of motor skills in volleyball namely volleying, serving, passing, and Setup than the control group.

Cognitive strategies' effects on muscular force production: A systematic review

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Researchers have tested sportspeople's and sports medicine specialists' beliefs that cognitive strategies influence muscular force, but few investigators have synthesized the literature. The specific objectives of the current study were to review evidence regarding (a) the cognitive strategy-force production relationship, (b) participant skill level as a moderator, and (c) cognitive, motivational, biomechanical/physiological, and emotional mediators. Studies were sourced via electronic databases, retrieved articles' reference lists, and manual searches of relevant journals. Studies had to be randomised or counterbalanced experiments with a control group or condition, repeated measures, and a quality control score of above .5 (out of 1). The search resulted in the inclusion of 53 studies, representing 129 observations, gathered from 3695 participants (55% male). Cognitive strategies included goal setting, imagery, self-talk, preparatory arousal, and free choice. Dependent variables included maximal strength, local muscular endurance, and power. We employed Sallis et al.'s (2000) analysis procedures to obtain results. Globally, cognitive strategies were reliably associated

with increased force production (results ranged from 61-65%). Results were mixed when examining specific strategies' effects on particular dependent variables, although no intervention had an overall negative influence (results ranged from 50-100%). Indeterminate and mixed relationships emerged regarding hypothesised mediators and participant skill level as a moderator (results ranged from 47-100%). Although cognitive strategies influence force production, there are knowledge gaps regarding specific types of strength, especially muscular power. Cognitive variables, such as concentration, show promise as possible mediators.

Effect anticipation and contextual priming in experts

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Research suggests that the anticipation of an action's effect (e.g., perceptual consequences) plays a fundamental role in the initiation and control of human movement (Elsner & Hommel, 2001). Less clear, however, is the extent to which anticipation of an action's effect may also prime the accompanying domain-relevant knowledge associated with the skill. Such contextual priming would aid the cognitive system in adapting to changing task demands, potentially through quicker identification and assimilation of relevant environmental information. Thus, the primary purpose of the present study was to examine the extent to which anticipation of an action's perceptual effect influences task-relevant stimulus discriminations. Specifically, skilled (n = 16) and novice (n = 26) tennis players performed a choice-reaction time (CRT) test in which participants identified as quickly as possible whether the presented stimulus was a picture of a baseball bat or tennis racket. Upon giving the response, auditory feedback of either the sound of a baseball bat hitting a baseball or a tennis racket hitting a tennis ball was presented. Participants performed the CRT trials under blocks in which the auditory feedback always consisted of the baseball sound or tennis sound feedback irrespective of which stimulus picture or response was given. This allowed the participants to expect a given auditory feedback following the choice response. Results indicated that the skilled tennis players were significantly faster in responding to the tennis picture during blocks in which all trials were followed by the tennis sound as compared to the baseball sound (441ms vs. 457ms, respectively). These findings suggest that anticipation of an action's effect primes domain-relevant knowledge, thus allowing the cognitive system to more quickly identify and assimilate environmental information. As hypothesized, no differences were found for the novice participants (baseball: 490ms vs tennis: 490ms).

Effect of four weeks isometric handgrip training (IHG) on peripheral resitstance & hypertension among hypertensive women

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Today hypertension is a major risk factor for healthiness. The most studies have been shown that hypertension is the second cause for cardiovascular disease (CAD) and infraction after smoking. We assessed the effect of four weeks Isometric Handgrip training (IHG) on peripheral resistance & hypertension among hypertensive women. Data collected from 14 middle aged women (40-55 years) who medicated for hypertension. Training was completed 3days/week for four weeks that it was included four sets of 2minutes IHG with 1minute resting. Pre and post training systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial pressure (MAP) and peripheral resistance was measured via sphygmomanometer and ultrasound. Data were analyzed using paired t-test. SBP, DBP and MAP were changed significantly ($p<0.05$). However there was no interchange effect for peripheral resistance. These results provide further lowers resting blood pressure among persons medicated for hypertension; therefore probably the effect of such training depends on intensity and duration of exercise.

A pilot study using an Implicit Association Test (IAT) to examine athletes' mental experience

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In the previous studies, athlete burnout is a situational phenomenon because it could be stimulated in sport context while being alleviated in the non-sport environment (Liu, 2005; Bi, 2013). Based on this assumption, we attempted to use the Implicit Association Test (Greenwald, 2001) by measuring athletes' unconscious attitude toward sport context to represent the level of athlete burnout, which functioned by assessing associations of training words/ pictures (vs. daily-life words/ pictures) with negative (vs. positive) status words. In the first study, the correlations between word and picture IAT-Burnout with explicit burnout measures (ABQ, Raedeke, 2001) and the relevant indicators (Sport Motivation Scale, Zhang, 2001; Training and Competition Satisfaction Scale, Zhang & Liang, 2002) were examined. The correlation matrix showed that the IAT-Burnout was unrelated with explicit burnout measures statistically(r=. 15, p>.05), yet it correlated with athletes' sport motivation(r=-.33, p=. 00). The deviation of implicit and explicit measures complied with the results of existing IAT studies. However, as it was claimed that implicit measures could predict non-verbal behaviors better than explicit measures (Egloff & Schmukle, 2002). In the second study, we invited 9 national elite athletes completed IAT-Burnout and ABQ before they competed in the 2013 Moscow World Championship. Then the two head coaches judged their performances. The result of regression analysis showed that the coach-rated scores were predicted by both the IAT (R2=. 37, p=. 04) and explicit burnout (R2=. 41, p=. 06). Taken together, the results of these studies suggested that the IAT–Burnout is a reliable measure and it is able to predict some indicators of burnout. Even though, it is different from the existing explicit burnout measures, neither could replace them.

Eye movement training: The exploration of reducing competition state anxiety of divers

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Based on the views of "multidimensional anxiety theory" and "eye movements play functional role in imagery construction", this research selects divers of high level and adapts experimental method to explore the feasibility of gaining different effects of image to reduce the competitive state anxiety by controlling the eye movements. The results show that: Gaze training and follow track training can reduce divers' competitive state anxiety separately depending on disrupting negative image and constructing positive clear image. Eye movement training directly points to the disruption and construction of "forming process of image". This research provides a new operable method for reducing divers' competitive state anxiety.

Shame proneness and humiliation experiences in sports

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Shame rarely occurs as a clear, distinct emotion. At least it can be hard to tell whether the given intensity means shame or something else to a certain person. According to Scheff (2003, based on Tomkins's theory) there is a shame-spectrum, at one end with the affect of embarrassment, on the other, humiliation. We investigated athletes' shame and guilt proneness, fear of humiliation and their training and performance experiences related to these emotions. TOSCA-3 and Humiliation Inventory were administered, and the athletes were asked about their past experiences regarding these emotions in a written format. 42% of them report experiences of being humiliated and/or ashamed in sports context, in most of the cases by the coach. The most frequent situations were: being laughed at (29%), being

labeled as incompetent (29%), negative remarks on physical appearence/sexuality (24%) and active behavioral shaming or humiliation (like physical abuse or favoritism). 53% of them considered the problem as still unsolved, 20% reported real problem-solving. We did not analize guilt, as shame and guilt were not separable on the level of experiences. Even though previous research indicate that shame contributes to fear of failure and debilitative anxiety (Conroy el al., 2004; Conroy, 2001; Partridge & Wiggins, 2008), the shame-spectrum emotions are relatively wide-spread in sports. Results indicate that many coaches are still not aware of the problem or they underestimate its consequences. Athletes and coaches often consider these experiences and emotions as inherent parts of sporting carrier and they do not invest in resolving the painful and destructive interactional pattern.

Thinking style, cognitive anxiety, coping with stress

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The way of thinking, the perception of oneself and others is a significant factor related to athletes' effectiveness and coping with stress. The positive way of thinking about oneself and others is considered to be a predictor of effective coping strategies (Peterson, 2000, Haskell, 2008, Ceran, 2013). The aim of the study was to present the relation between the style of thinking, the pre-start cognitive anxiety, and the coping with stress strategies in students - athletes (males and females). The following problems were formulated 1) What is the relation between the style of thinking, and the style of coping with stress in men and women athletes? 2) Is there any relation between the style of thinking in men and women athletes, and the cognitive and somatic anxiety? Participants (N=151, 87 males, 64 females) were students - athletes representing individual and team disciplines. The Coping Inventory for Stressful Situations, Questionnaire of Attitudes towards World, Others and Self, Sport Anxiety Scale were used. Moderation analysis together with planned comparisons yielded six statistically significant results. They showed that in men the increase in hostility against other people was related to the decrease in worry. At the same time the increase of aggressiveness in men was related to the decreased use of emotional coping style. Similarly, with the overall increase of self-esteem and physical self-esteem in men the task-oriented coping style was applied more often. In women the relationships were not significant. However, it was showed that with the increase of self-esteem in cognitive-intellectual field and with higher feeling that others pose a threat, the evasive coping style (via social relations seeking) was more frequently applied. The results will allow to better understand the determinants of coping with stress in athletes.

Athletes' metaphors of physical pain and recovery

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This study examined injured athletes' metaphors of pain and recovery. Understanding such metaphors can help coaches and psychologists to solve some problems of athletes' recovery such as loosing self-confidence and excessive "self-bewaring". Our research was aimed at identifying the differences between metaphoric representations of injury and recovery experiences of athletes vs. non-athletes. The study of the professional athletes' injury and recovery metaphors, was based on Conceptual Metaphor Theory (Lakoff & Johnson, 1980) and modern narrative approach (White, 2000), which show how cognitive constructs influence behavior. The sample consisted of 50 Russian professional athletes doing different sports and 50 non-athletes, all of them had injury experiences. Both samples were randomized at sex and age (Mage=21.5). The participants were asked to describe their sense of pain and recovery, and were responding to how they felt about their injury experiences. The structured interview (Vealey & Walter, 1994; Orlick, 1999; Kvale, 2007) was used as a main method. The data was analyzed by three experts with pattern coding method (Saldaña, 2012). While discussing physical pain, the athletes emphasized limitations

caused by pain, while non-athletes considered it a source of discomfort. Athletes' pain metaphors were mostly laconic and straight ("broken neck, fixed body", opposite "poor foot in the fire" by non-athlete). In addition to physical pain, athletes described heartache as well. Athletes' recovery metaphors showed happiness induced by return to sport practice. Non-athletes felt happiness too, but they didn't connect their recovery with any kinds of activity, just with well-being. Recovering athletes normally prepare themselves to continue with sport, therefore it is important to understand, which aspects of trauma and recovery are perceived by them as the hardest ones and what can be used as imagery resources to cope with the stress (Andersen & Williams, 1998) and prevent the fear of repeated injuries.

Validation of Chinese version of the Revised Sport Motivation Scale (SMS – II)

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Perhaps Sport Motivation Scale (SMS, Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995) is the most wildly used motivational instrument, in which an extensive knowledge base regarding why athletes participate in sporting activities from the perspectives of self-determination theory has been created. Recently, this scale has faced some challenges and criticisms about its psychometric properties, Pelletier, Rocchi, Vallerand, Deci, and Ryan (2013) provided concrete solutions to deal with the potential problems existed in SMS and developed a valid and reliable measurement, SMS-II. The purpose of this study was to examine the construct validity and reliability of Chinese version of the Revised Sport Motivation Scale (SMS-II, Pelletier, et al., 2013) with Taiwanese adolescent athletes. In Study 1, two hundred and nineteen junior high school student athletes completed SMS-II. In Study 2, two hundred and eleven senior high school student athletes not only completed SMS-II but the need for autonomy (Sheldon, Elliot, Kim, & Kasser, 2001), perceived competence subscale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989), the acceptance subscale of the Need for Relatedness Scale (Richer & Vallerand, 1998), Subjective Vitality Scale (Ryan & Frederick, 1997), and the emotional and physical exhaustion subscale of the Athlete Burnout Questionnaire (Raedeke & Smith, 2001). The results of confirmatory factor analyses showed that the hypothesized model demonstrated a good fit to the data and the better fit than the alternative models. In addition, the discriminant and the convergent validity of the hypothesized model were also supported. Regarding the nomological validity, correlational results showed the simplex pattern of the relations of SMS-II subscales with each other and with subjective vitality, emotional and physical exhaustion, and the basic needs for competence, autonomy, and relatedness. These findings suggest that SMS-II is suitable to measure adolescent athletes' multiple types of sport motivation in eastern culture.

Impulsiveness and talented athletes' development: Is low frustration tolerance always a risk factor of resignation from sport?

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Success in sport is related to self-regulation (Jonker et al., 2011) which involves processes that enable individuals to control their thoughts, feelings, and actions (Baumeister & Vohs, 2004). Research has shown that talented athletes outscore their mainstream peers on the basis of self-regulation (Gagné & Gulbin, 2010; Jonker et al., 2010). Nevertheless, research has also revealed that the most successful athletes scored significantly higher in impulsiveness when compared with athletes less successful but representing the same sports level, and impulsiveness was positively correlated with the duration of the proficiency stage (Siekanska, 2013). The aim of the study was to determine the factors moderating the relationship between impulsiveness and sports career. Participants (N=124, 70 males and 54 females; age M=26.93) representing 23 disciplines and identified as talents in the past, were divided in four subgroups differing in their level of competence confirmed by achievements. The research was retrospective in character. The data was collected using semi-structured

interview (realization of one's potential out-of-sport and duration of sports career stages), Self-actualization Scale, and NEO-PI-R. Quantitative strategies were used in the analysis of the results. Moderation analysis together with planned comparisons yielded four statistically significant results and two trends (results with p<.10). They showed that higher modesty, lower assertiveness and weaker sense of realization of one's potential out-of-sport cause positive impact of impulsiveness on the duration of sports career stage III (years of proficiency). Analysis also showed that lower sensitivity and decrease in positive attitude to other people , as well as lower openness to emotions cause destructive impact of impulsiveness on sports career. The obtained results can help in better understanding of the psychological factors that influence athletes' development. They also provide information for sport practitioners – how to recognize when impulsivity can be a risk factor or prevent from premature resignation from sport.

Coach John Wooden's Pyramid of Success: A comparison to the sport psychology literature

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Basketball coach John Wooden – named the greatest collegiate coach of the 20th century by ESPN, for his record-setting career at UCLA – created his Pyramid of Success (see Wooden & Tobin, 1988) as a diagram of 15 attitudes and values demonstrating how an athlete may achieve success. Researchers Tharp and Gallimore (1976) have previously coded Wooden's methods of coaching; however, the connections between the blocks of the Pyramid have not previously been studied empirically, and/or explicitly linked to existing research in psychology literature. Thus, the rationale for the current theoretical study was to review these connections in an attempt to find support for Wooden's framework. By first comparing each block's definition to those seen in literature, existing links (e.g., correlations) were then explored between adjacent blocks, row-by-row. For example, at the foundation of the Pyramid is cooperation, which leads upward to intentness. Similar in concept, Widmeyer and Williams (1991) found that greater team cohesion significantly predicted commitment to team goals. Because Wooden defined intentness as concentration on the team objective, commitment to team goals may be considered an operational definition here. For another example, "condition", or strength of character, led to upward in the Pyramid greater poise, and ultimately "competitive greatness" – performing at your best when your best is required. Such performance is reminiscent of that which has been defined in the journals as a clutch performance under pressure (Otten, 2009), and/or the state of "flow" as defined by Csikszentmihalyi (1990). Connections between each remaining aspect of the Pyramid and existing literature were explored similarly within, in large part suggesting support for Wooden's theory. Results imply that the Pyramid may be useful for coaches, athletes and sport psychologists in their pursuit of success both on and off the basketball court.

Follower perceptions of "dark" leaders in elite sport: A qualitative study

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Leadership research in sport (cf. Cruickshank & Collins, 2014; Fletcher & Arnold, 2011) has identified the presence of "dark" traits in leaders, which are typically deemed socially undesirable and negatively-valenced (e.g., Narcissism, Hubris, Machiavellianism). Indeed, extant organizational literature has found that leaders exhibiting such "dark" leadership might seek control over followers, motivate through fear, and maximize opportunities to craft personal power. Interestingly, research also suggests that "dark" leadership can be beneficial, to draw attention to and achieve a vision, innovate, command the attention and respect of others, and navigate power dynamics. As a result of these outcomes, it seems surprising that the countervailing or paradoxical effects of "dark" leadership, although alluded to by leaders themselves (Cruickshank & Collins, 2014; Fletcher & Arnold, 2011), have received little explicit investigation in sport from followers' perspectives. It is important for

leadership research in sport to move beyond that of leader self-perceptions to also focus on the, arguably, less-biased perceptions of followers, since they are co-creators in determining effective outcomes. The purpose of the present study was to examine followers' perceptions of "dark" leadership in sport as well as its positive/negative effects. Eleven male Olympic medallists, aged 28-60 from a range of sports, were interviewed regarding their experiences of working with a "dark" leader (e.g., coach, performance director). To identify a "dark" leader, individuals were provided with a list of associated traits. A thematic interpretational content analysis revealed five main "dark" leader characteristics in sport: self-focused, haughty self-belief, inauthentic, manipulative, and success-orientated. Results also illustrate the costs (e.g., career threats, reduced confidence, heightened anxiety) and benefits (e.g., motivation, resilience, opportunities) of working with such a leader. Overall, this study has advanced theoretical, empirical, and practical knowledge of "dark" leadership in sport, as well as the positive/negative impact it can have on outcomes.

Expert approaches to mental toughness development in the high risk sport of diving

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Research focusing on mental toughness development and high risk sport is limited to an examination of elite gymnasts' perceptions (Thelwell, Such, Weston, Such, & Greenlees, 2010). Coaches acknowledge that mental toughness is important to performance success (Gould, Hodge, Peterson, and Petlichkoff, 1987). The current research will employ a grounded theory approach to ascertain elite diving coaches' definition and perceptions of mental toughness development. Seven diving coaches (33-64 years, average age 48) volunteered and were interviewed for an average of 49 minutes, the ten item open-ended interview guide was presented in person or via Skype. Participants' average years of coaching was 22 ranging from 7-36 years, coaching 39 world championship divers, and 12 Olympians. Interview analysis was inductive, participant quotes created data units. Data units were grouped into meaning units, which were examined and formed lower order themes; when available higher order themes were created (Creswell, 2007). The data was audited by the second researcher, the results were scrutinized, and meaning units were presented to support themes. The mentally tough diver performed in crucial moments that required being out of their comfort zone, the ability to overcome fear, and focus. A participant reported that mental toughness has a masculine stereotype, this is interesting since mental toughness is exhibited by athletes from many races, genders and creeds. This stereotype does not help athletes succeed or be mentally tough. Coaches can develop mental toughness by helping divers accept fear, and reflect on experiences. Divers can develop mental toughness by developing the ability to have control in uncontrollable situations, and increasing self awareness. Mental toughness can be developed by fostering an environment where the diver experiences success and failure, and difficult training situations are presented and overcome. Research should be conducted to determine if these concepts can be generalized to other high risk sports.

Mechanisms underlying the role of Acceptance and Commitment Therapy for enhancement of sport performance among collegiate athletes

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Previous researches have shown that the Acceptance and Commitment Therapy (ACT) has been adopted for performance enhancement among competitive athletes (Little & Simpson, 2000; Ruiz & Luciano, 2012). However, the mechanisms underlying the role of ACT for sport performance are not clear. The present study examined the direct and indirect effects of ACT processes on "Psychological competitive ability"(Diagnostic Inventory of Psychological Competitive Ability for Athletes 3;Tokunaga, 2011) as performance among collegiate athletes. The participants were Japanese collegiate athletes who participate in various competitive sports (n=233). The mean age of the sample was 19.7 years and 54.1% of

participants were male. ACT processes were measured "Experimential avoidance" (Japanese version of Acceptance and Action Questionnaire-Ⅱ; Shima et al., 2013), "Mindfulness" (Japanese version of Five Facet Mindfulness Questionnaire; Sugiura et al., 2012), "Values" and "Committed action"(Japanese version of Personal Values Questionnaire-Ⅱ; Doi et al., 2014). Some ACT processes and "Psychological competitive ability" were significantly correlated. The mechanisms underlying the role of ACT were analyzed using the Structural Equation Modeling. The results showed that model fit was good (GFI =.924, AGFI= .900, RMSEA= .021）. “Experimential avoidance” had a significant direct effect on “Mindfulness” (β = -.47, $p < .01$), and “Mindfulness” had a significant direct effect on “Values” (β = .22, $p < .01$) and “Committed action” (β = .22, $p < .01$). “Values” was a strong predictor of psychological competitive ability (β = .55, $p < .05$). These results suggest that the ACT may enhance collegiate athletes’ "Psychological competitive ability" by improving ACT processes. Especially, high path coefficient from “Values” and “Committed action” to "Psychological competitive ability" was observed. Previous study (Ciarrochi et al., 2010) showed that people who clarified their values may have strong motivation for action, and the present study supported these findings.

Agentic self-presentation motives and physical activity task performance: An investigation using Bayesian path analysis

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We conducted two studies with the aim of examining direct and indirect associations between self-presentation motives and physical activity task performance. Although previous researchers have focused on trait- rather than state-based self-presentation motives when investigating associations with physical activity behavioral outcomes, we assessed context-specific agentic self-presentation motives instead of (i.e., study 1) and alongside (i.e., study 2) trait-based self-presentation motivation. Second, whereas the focus of previous studies has been predominately on understanding the magnitude of the direct association between self-presentation motivation and physical activity behavior, we considered a number of cognitive mechanisms that may support indirect associations between self-presentation motivation and task performance. In study 1, prior to performing a physical endurance (i.e., ‘human bridge’) task, undergraduate participants (n = 133) reported their acquisitive-agentic and protective-agentic self-presentation motives, and completed measures of task self-efficacy, self-presentational efficacy, and their task goal time. In study 2, prior to completing a different endurance (i.e., ‘wall sit’) task, a second group of undergraduates (n = 150) reported their trait self-presentation motivation alongside the variables assessed in study 1. The results of Bayesian path analyses revealed indirect associations between agentic self-presentation motives and performance that occurred via goal time, and that agentic self-presentation motives supported associations from dispositional self-presentation motivation and self-efficacy beliefs to task performance. Our findings (a) supported an understanding of physical activity task performance that accounts for context-specific self-presentation motives, and (b) provided some insight into the cognitive constructs (i.e., self-efficacy beliefs, goal setting) that may support indirect pathways between self-presentation motivation and performance.

Measuring collective efficacy in athletic teams: The preliminary validation of sport-specific measurements

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Collective efficacy, a shared belief in group’s capability to succeed in specific tasks, is considered as a significant determinant for social interaction, coordination, and performance in athletic teams. Being featured by its domain-specific and non-static construct in nature, efficacy belief in sports should be measured according to the specific task demands of the

sport in question. However, collective efficacy was measured mostly in a general rather than a sport-specific approach in previous research in the literature. In this study, we aimed at four popular team sports (i.e., baseball, basketball, volleyball, and soccer), and identified the specific task demands of each sport and provided preliminary evidence for the construct validity of sport-specific measurements of collective efficacy in sports. We first conducted a task analysis of the four sports via interviewing 5 athletes and 3 coaches. Approximate 20 tasks for each sport were identified and were used as items in the collective efficacy scale for respective sports. A total of 381 elite collegiate athletes filled in the scales (272 males, 109 females; Mage = 20.43 years old, SD=2.04). A series of principal component analyses were conducted to examine the factor structure of the scale for each sport. Two components were extracted for baseball (offense- and defense-related tasks; factor loadings ranged from .43 to .96, total R2=78.27%) and basketball (strategy- and score-related tasks; factor loadings ranged from .49 to .93, total R2=75.73%). Single component was extracted for soccer (factor loadings ranged from .80 to .94, total R2=78.70%) and volleyball (factor loadings ranged from .70 to .93, total R2=74.40%). Item analysis supported item discrimination (critical values ranged from 5.87 to 18.30), and revealed high reliabilities (Cronbach's α ranged from .94 to .99). In general, our data provided preliminary evidence for the construct validity of the sport-specific collective efficacy scales for these four sports.

Evaluating online physical activity information for people with schizophrenia: A UK perspective

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Many people with schizophrenia are physically inactive. Accessing online physical activity information can help individuals with schizophrenia strengthen physical activity self-efficacy and understand the benefits of and ways to overcome barriers to being active (Gorczynski et al., 2013). No research has examined online physical activity information quality available to people living with schizophrenia in the UK. The purpose of this study was to evaluate the availability, accessibility, theoretical quality, and readability of online physical activity information for people with schizophrenia being accessed in the UK. Using a standardized protocol by Gorczynski et al., websites were identified using GOOGLE.CO.UK and evaluated independently by two raters. Websites were included in the review if they: discussed physical activity, exercise, or sport; and provided information in English for people with schizophrenia. Websites were evaluated on their characteristics (e.g., number of clicks to reach content, links to other physical activity sites), information accuracy (e.g., providing UK aerobic and anaerobic recommendations), technical quality (e.g., American Medical Association authorship benchmarks), theoretical quality (e.g., presence of psychological constructs from the Transtheoretical Model, Theory of Planned Behaviour, and Social Cognitive Theory), and reading level. Fifteen websites were identified and reviewed for this study. On average it took one click to access information on each site. Eight websites provided guidelines for aerobic exercise, however, no websites listed information about resistance training. Eleven websites scored highly for technical quality. All websites scored poorly for theoretical quality as information was void of behavioural, cognitive, and knowledge dissemination constructs. The websites had an average Flesch-Kincaid Grade Reading Level of 15.5, well above recommended grades of 6-8. Online physical activity information available to people with schizophrenia in the UK needs to be more readable, cover aerobic and anaerobic activity, and be theoretically based covering elements of self-efficacy, motivational readiness, social support, goal-setting, and self-monitoring.

Cognitive functioning of elite Zimbabwean soccer referees before and after the Yo-Yo intermittent recovery test

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Soccer referees are under pressure to apply the laws of the game effectively whilst increasing fatigue levels could reduce their ability to make correct decisions, thereby affecting the match outcome. The study compared the cognitive functioning of referees before and after a fatigue-inducing protocol to determine the influence of strenuous physical activity on cognitive functioning. Elite male Zimbabwean referees (n = 20) and assistant referees (n = 18) participated in the study. The participants (M age = 34.94, SD = 5.16, range: 22.69 – 45.06 years) were familiarized with the computerized Modified Stroop Colour-Word Test (Stroop, 1935) to reduce a possible learning effect. They also completed the test before and directly after a 10-minute warm-up and maximal effort on the Yo-Yo Intermittent Recovery Test Level 1 (Bangsbo et al., 2008). Indirect VO2max levels of 44.38 ml/min/kg (SD = 2.35) were recorded. Maximal hart rate (HRmax) expressed as a function of the participants age-predicted HRmax ranged between 93.72 % and 111.12% (M: 101.26, SD = 4.04%), indicating near-maximal effort. Significant pre- to post-test decreases in total time (indicating improvements) were observed for each of the four Stroop Conditions: C1: M = 12.73%, SD = 13.51%, p = .01; C2: M = 5.48%, SD = 8.20%, p = .01; C3: M = 9.15%, SD = 15.20%, p = .04; C4: M = 8.42%, SD = 18.01%, p = .06). There were no pre- to post-test changes for the percentage correct answers nor were there any interaction effects. The improvements in the total time for completion of each of the four conditions imply that high-intensity physical activity of moderate duration had a positive influence on the processing and decision-making speed. Future studies should consider using fatigue-inducing protocols that simulate the actual match demands of referees and assistant referees respectively.

The differences in physical and verbal athletic aggression among the Egyptian sport teams players

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Aggression has long been a part of the sport domain, and in recent years, however, aggression in sport, both on and off the field has come to be perceived as a social problem (Allawy, 2004). A variety of studies have investigated the relationship between aggressive behavior and direct participation in various forms of sport activity (Widmeyer, 2000). The findings of these studies showed several contradictory results. In this study, athletic aggression is defined as any attempt to harm an opponent by physical or verbal means. The present study is an attempt to investigate if differences in physical or verbal athletic aggression existed among the Egyptian sport team players. 120 Egyptian sport team male players representing 4 groups served as subjects for the investigation. They are distributed as 30 players in each of the following sport teams: handball, football, basketball and hockey. They were administrated the Athletic Aggression Scale which was developed to assess 2 different dimensions: physical and verbal athletic aggression (Allawy, 2008). Results showed that handball scored significantly higher than the other 3 sport team groups, and football sport team group scored significantly higher than the other 2 sport team groups in physical aggression. Football and basketball sport team groups scored significantly higher than the other two sport team groups in verbal aggression. These findings are consistent with some other researches (Russell, 2008). The physical aggression among handball and football sport team groups may be due to the occurrence of many individual encounters, as well as the space in which they occur (Bakker et al., 2002). It can be seen that athletic aggression comes from a variety of sources and it is important to understand where the sources stem from. In summary, athletic aggression can be controlled through a number of methods, such as cognitive and somatic techniques.

Social comparison processes and pupil outcomes in physical education

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Evidence suggests that different forms of social comparison in physical education (PE) can co-exist and singly, or in combination, lead to important consequences (Barnes & Spray, 2013). However, little is known regarding potential contextual moderators of comparison effects. The purpose of the present study was to determine whether consequences of different social comparisons were moderated by pupils' perceptions of the extant motivational climate in their PE classes. Five hundred and eighty-one adolescents (n= 271 males; n = 310 females, Mage = 14.30, SD = 1.05 years) from two schools in England took part in the study. Participants were asked to rate how good they were in relation to both generalised others (i.e., their PE class) and a specific chosen individual in the same class with whom they typically compared. In addition, measures were taken of the perceived task and ego motivational climate in PE, along with three pupil outcomes: physical self-concept, positive affect and self-efficacy. Multi-level regression analyses showed that perceived relative standing in class positively predicted all outcomes. Perceived ability compared to a chosen individual predicted self-efficacy. Task climate positively predicted self-efficacy and positive affect, whereas ego climate negatively predicted physical self-concept. In terms of the moderating influence of climate, perceptions of a prevailing ego climate interacted with ability compared to the chosen individual to influence physical self-concept. Specifically, higher perceived ability in relation to the individual was linked with greater self-concept at higher, but not lower, levels of perceived ego climate. Findings from the current study suggest that class comparisons may be more important than individual comparisons for pupil outcomes in PE.

Is there symmetry in motor imagery?

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Motor imagery is supposed to rely on similar processes as overt execution (Jeannerod, 1995). Imagined and executed movements have similar durations and show similar brain activations (Guillot & Collet, 2005). Due to bimanual coordination constraints, homologous movements are performed slower than non-homologous movements (Swinnen et al., 1997). We investigated whether these constraints are also present in motor imagery. 23 Participants performed repetitive bimanual movements which were either executed or imagined. Four buttons were horizontally aligned in front of the participants. The buttons were pressed repetitively which resulted in either homologous (symmetric pattern) or non-homologous movements (parallel pattern). In number task a certain number of repetitions was performed and we measured movement duration. In duration task movements were performed for a fixed duration and we participants reported the number of repetitions. In synchronization task movements were performed in synchrony with a metronome and participants rated their perceived accuracy. Inter response intervals (IRI) were calculated in number and duration task. IRI of imagined movements (M=466ms) were longer than IRI of executed movements (M=357ms), $F(1, 22)=26.9$, $p<.001$, $\eta^2p=.55$, and imagined movements (M=49%) were rated less accurate than executed movements (M=57%) in the synchronization task, $F(1, 22)=21.5$, $p<.001$, $\eta^2p=.49$. However, in both imagination and execution IRI of parallel movements (M=419ms) were longer than symmetric movements (M=406ms), $F(1, 22)=10.7$, $p=.004$, $\eta^2p=.33$, and parallel movements (M=49%) were rated less accurate than symmetric movements (M=57%), $F(1, 22)=50.1$, $p<.001$, $\eta^2p=.7$. Thus, in spite of different IRI and accuracy ratings, imagined and executed movements were similarly affected by the coordination constraint. This gives further support to the assumption of functional equivalence of executed and imagined movements (Jeannerod, 1995). Nevertheless the need to inhibit overt execution during imagination may decrease perceived accuracy of imagination or slow down the imagination of fast movements (see also Guillot & Collet, 2005).

Understanding the role of need thwarting in the association between athlete attachment and well/ill-being

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The application of attachment theory in sport research is relatively new. The limited research conducted over the past 6 years has highlighted the importance of attachment theory in explaining complex interpersonal and intrapersonal phenomena concerning peer (Carr, 2009; Carr & Fitzpatrick, 2011) and coaching relationships (Davis & Jowett, 2010; Davis, Jowett, & Lafrenière, 2013), as well as eating psychopathology (Shanmugam, Jowett, & Meyer, 2012) and well-being (Felton & Jowett, 2013). Grounded in attachment theory and basic psychological needs theory, the current study aimed to examine the mediating role of basic psychological need thwarting between perceptions of athlete attachment to the coach and indexes of athlete well/ill-being. A sample of athletes (N = 241) participating in various organised sports completed a multi-section questionnaire assessing the main study variables. Bootstrap mediation analysis revealed that the perceived psychological needs of thwarted autonomy and competence within the coach relational context mediated the associations between athletes' perceptions of insecure attachments to the coach and experiences of life satisfaction and negative affect. Analysis also revealed that the perceived psychological needs of thwarted competence and relatedness within the sport context mediated the associations between athletes' attachment style and experiences of performance satisfaction, life satisfaction, depression, and negative affect. Overall, the findings of this study advance knowledge and understanding by demonstrating how insecure athletes' perceptions of psychological needs thwarting within the coach relational and wider sport contexts influence their experiences of well/ill-being. The findings also demonstrate that the examination of negative aspects of sport participation may facilitate a more complete understanding of athletes' psychological functioning. These findings have practical significance by identifying that coach's, and other individuals within the sport environment, that thwart their athletes basic psychological needs risk harming the athletes well-being by increasing experiences of ill-being.

Promotion of self-compassion and mindfulness in adolescent swimmers: A pilot study and considerations for future efforts

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Self-compassion and mindfulness have shown potential as beneficial resources in sport (Gardner & Moore, 2012; Mosewich et al., 2011, 2013), but approaches to developing mindfulness and self-compassion among adolescent athletes have not been empirically examined. Additionally, it is unknown whether mindfulness and self-compassion provide additional benefit beyond traditional mental skills. The present research served as a pilot study to explore these issues. Australian adolescent age-group and national level swimmers were randomly assigned to a self-compassion and mindfulness mental skills (experimental) group (nmale=5, Mage=15.40yrs, SD=2.30yrs; nfemale=5, Mage=14.60yrs, SD=1.34yrs) or traditional mental skills group (nmale=4, Mage=15.75yrs, SD=2.06yrs; nfemale=4, Mage=14.50yrs, SD=1.29yrs). Athletes participated in a 3 week mental skills intervention consisting of group psycho-education sessions and online self-guided activities. Both groups learned traditional mental skills (e.g., imagery, goal setting, self-talk), and the experimental group also received mindfulness and self-compassion training. ANCOVA, accounting for baseline values, revealed no significant differences between the groups after the intervention on self-compassion, fear of failure, rumination, self-criticism, emotion regulation, or affect. Accounting for gender did not produce significant results. Small sample size contributed to low statistical power and adherence was low; thus, these preliminary findings are inconclusive and further research is needed to examine potential effects of mindfulness and self-compassion training in this population. However, the pilot process provides direction for

future intervention efforts with adolescent athletes, including the need to assist with adoption of practice and application of skills, identification of barriers that negatively impact adherence, and strengths and challenges surrounding online, self-guided activities. Implications for future research will be discussed. Expanding understanding surrounding promotion of mindfulness and self-compassion skills in adolescent athletes will advance knowledge of intervention effectiveness in a population known to face stressors related to participation as well as unique pressures related to appearance, performance, and societal ideals (Botta, 2003; Fraser-Thomas & Côté, 2009).

How active and inactive are children in the Pacific: Accelerometer estimates from the Children's Healthy Living Project

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Moderate-vigorous physical activity (MVPA) and sedentary behavior (SB) are related to chronic diseases. Chronic disease disparities exist especially for Pacific populations. However these data are not available for young Pacific jurisdiction children. We examined objectively measured MVPA and SB across 5 Pacific jurisdictions (Alaska, American Samoa, CNMI, Guam and Hawaii). Activity was assessed by wearing wrist-mounted Actical accelerometers collecting data at 1-second epochs for 6 days. Weighted averages in minutes per day (m/d) of MVPA and SB were used to examine differences in child's activity level by sex, age, and location. The sample's (n=1,822, 2-8 year old) average MVPA was 76 m/d (sd=85.9); MVPA was 18.5 m/d higher in boys than girls (p<.001). MVPA in American Samoan children (118.7 m/d) was significantly higher than all other jurisdictions with Alaska being the lowest (52 m/d). A significant positive linear slope of age (b=26.9, p<.001) and negative quadratic slope of age (b=-2.4, p<.001) was found. Compared to 2 year olds, MVPA was significantly higher in 5 and 6 year olds, but no longer significantly higher in 7 and 8 year olds. SB was 691 m/d (SD=135.8). SB was 19.7 m/d higher in boys than girls (p<.001). Alaska (770 m/d) was significantly higher than all other jurisdictions (p<.001) with American Samoa being the lowest (622.6 m/d). A significant negative linear slope of age (b=-48.2, p<.001) and positive quadratic slope of age (b=4.1, p<.001) was found. Compared to 2 year olds, SB was significantly lower in the 4, 5, 6, and 7 but no longer in the 8 year olds. The sample spent over 1 h/d in MVPA but also over 11 h in SB with boys doing more of both. Age comparisons support efforts to promote MVPA in early childhood across Pacific jurisdictions.

Interpersonal neuroscience in action: An exemplar case of interprofessional collaboration in sport injury rehabilitation

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Commentators (e.g., Clements & Arvinen-Barrow, 2013) have encouraged practitioners to collaborate in athletes' injury rehabilitations to enable optimal, holistic, and quality care. Such authors also offer ideas on how to develop multidisciplinary systems around athletes. Beyond this commentary, little discussion on interprofessional collaboration in sport injury rehabilitation exists. Sport physiotherapists and psychologists can be some of the closest members of injured athletes' support networks and are likely to influence athletes' brains in their rehabilitation processes. In this study, we explored the on going, 12-year-long collaborative relationship between a physiotherapist (Anna) and a psychologist (Jane). Their collaboration developed from their work together within a sport club and now spans their private work with (mainly) with injured athletes in rehabilitation. From interviewing both professionals (once) individually, and completing interpretive phenomenological analysis (IPA; Smith, Flowers, & Larkin, 2009) of the data, we told each participant's story about their interprofessional relationship and how they collaborate. From the participants' tales, some

key results emerged. The psychologist shared her knowledge about relationship processes (e.g., transference and countertransference) and interpersonal neuroscience with her physiotherapist colleague. Consequently, Anna developed an awareness of transferential processes that occurred within her relationships and an understanding of mirror neurons and the neurobiology of interpersonal mindfulness. Anna said she understood the importance of being present with her clients, and she appeared to attune to her clients' internal states. Also, Anna and Jane used a common language with their shared clients to help downregulate these athletes' anxieties about their injuries. The participants' stories together provide an exemplar case of interprofessional collaboration within sport injury rehabilitation. The results of this study have implications for applied healthcare practitioners who work within interprofessional teams in rehabilitations and specifically highlight several ways in which sport-science personnel can foster quality relationships with colleagues and injured athletes.

Implementation of apparatus methods for mental training with sambo athletes

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A number of methods for mental training have been developed and approved in the sports practice - progressive muscle relaxation, autogenic training, visualization, mental imagery, and different forms of meditation. In the recent years, the efforts of the mental training specialists have been aimed at the development and implementation of apparatus methods, which prove to have more powerful effects and accelerate the processes of mental training. The aim of the present study is to research the impact of mental training through machine instrumentation methods: (1) Thoughtstream Stand-Alone System - personal biofeedback training system, based on skin-galvanic reaction. (2) Procyon Light & Sound Mind Machine - full spectrum audio-visual synthesizer. Three groups were included in the experiment - 56 sambo athletes (44 men, 12 women), average age 19,9. Different machine instrumentation methods were applied to the two experimental groups. The first group (experimental one – 16 athletes) undertook 10 sessions of mixed program of 15-minute duration with Procyon Light & Sound Mind Machine. The second group (experimental one – 18 athletes) undertook 8 mental training sessions with The Thought Stream Personal Biofeedback System. The third group (control one – 22 athletes) used autogenous training as a relaxation method. Two measurements were made in order to evaluate the results from the experiment – before and after the impact. The variables sensomotor coordination, time-movement anticipation, reaction test, risk choice behaviour were measured with the help of Vienna test system. The analysis of the results proves that the applied machine instrumentation methods for mental training lead to the improvement of some of the researched variables. The comparative analysis (Mann-Whitney) shows significant differences between the first and the second testing of the two experimental groups regarding anticipation (U=2,17*) and sensomotor coordination (U=2,58**). There are no differences in the testing of the control group.

The mental state of a "loss of spirit" in competition

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Japanese athletes often say "I lost spirit" when they describe negative feelings during competition. Although many athletes use this phrase, it is undetermined exactly what it means and how this phenomenon occurs. The purpose of this study was to clarify the usage of the phrase "loss of spirit" and the mechanism of this phenomenon during competition using a qualitative analysis. This inquiry used the qualitative method because it can inductively interpret human's thought, action and event which we haven't revealed in the past. Semi-structured interviews were conducted with 14 athletes (M=8, F=6; mean age=20.43 years, SD=1.40; mean competitive career=11.64 years, SD=4.62). Seventeen cases of this phenomenon were reported. The KJ method (Kawakita, 1967) was used to qualitatively analyze the transcript of each case of "loss of spirit." The procedure for analysis was (a) extracting meaning units from the transcripts, (b) categorizing meaning units, (c)

illustrating the mechanism of phenomenon and (d) description. Sixteen cases were classified into four types depending on causes of this feeling. The four types were “opponent characteristics,” “low motivation,” “tide of the game” and “unexpected event.” Although multiple mental states were identified from all the cases, it was impossible to classify the cases based on the mental states because many of the mental states existed simultaneously across the cases and the types of causes. It is, therefore, suggested that athletes use “loss of spirit” because it is easier to express their complicated mental states with this short phrase. It is important to understand words used by athletes in order to provide them with a good psychological support.

The mediating effect of exercsise on the relationship between social support, depression and self-esteem

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Depression is one of the most common public health problems in the world, affecting millions of individuals throughout their lifetime (Ferrari et al., 2013; Lépine & Briley, 2011). Low self-esteem has also been found to lead to negative affective states, such as, eating disorders, suicidal tendencies, anxiety, and depression (Davis, 1997; Frost & McKelvie, 2005). Thus, improving self-esteem and reducing depression are critical to personal well-being, quality of life, positive health behaviors and health outcomes (Cohen & Shamus, 2009; Sowislo & Orth, 2012). Research also suggests that social support has a beneficial effect on health through direct means, including cognitive, emotional, behavioral, or biological pathways (Holt-Lunstad, Smith, & Layton, 2010). The limitations and rising costs of mainstream treatments prompt the need to identify cost-effective treatments that can be utilized by large segments of the population, with the possibility of reducing, or eliminating the symptoms of depression and improving self-esteem. A growing body of research points to the psychological benefits of exercise on depression and self-esteem, and potential advantages of physical activity over existing treatment modalities (Babyak et al., 2000; Cohen & Shamus, 2009). The present study examined the mediating effect of exercise on the relationships between social support, depression, and self-esteem. The study consisted of 115 participants (mean age=21-30 years) from San Diego, CA assessed by self-report questionnaire. Correlation analysis revealed social support was positively related to exercise frequency ($r = .206$, $p < .05$) and self-esteem ($r = .391$, $p < .01$), but negatively related to depression ($r = -.595$, $p < .01$). Exercise was a partial mediator of the effect of social support on self-esteem (change in $R2 = .101$; $p < .01$) but not a mediator of the relationship between social support and depression. Results indicate that adding physical activity might enhance the effects of social support on self-esteem, but not depression.

Psycho-physiological changes in exercise participants induced by alterations in the physical environment

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The purpose of this study is to understand the feeling changes of exercise participants varying depending on physical environment (artificial space / natural environment) and before, during, after exercise based on interest in natural sports. 4 participants were purposively sampled on the basis of criteria selected in this study and target heart rate was calculated through a maximum exercise test to identify the exercise ability of each participant. Psychological and physiological changes were measured while conducting aerobic exercise (jogging) with 70~80% strength of individuals 2 times for 30 minutes (Indoor track / forest). For psychological measurement, Feeling scale and Felt arousal scale before, during, after exercise were measured every 5 minutes and then marked in two-dimensional circumplex model and in-depth interviews were carried out after the end of each experiment. For physiological measurement, serotonin was analyzed through blood collection at 10 minutes before exercise, 20 minutes during exercise and 10 minutes after exercise. As a

result, feelings during exercise changed negatively compared to those before exercise and then a positive changing pattern was shown after the exercise was over in a gymnasium, while exercise in the forest showed a positive pattern in both feelings and active status from the start of exercise to the end. The results of interviews showed that participants experience more positive feelings through exercise in the forest than that in the gymnasium. In addition, serotonin levels were found to be generally high when exercising in the forest than in the gymnasium, and levels during exercise were found to be relatively high depending on before, during, after exercise. In sum, this research showed that feeling changes during exercise of each individual are all different, and exercise in the natural environment has a more positive effect on the feelings of the participants than indoor exercise could be obtained.

Acute exercise improves task-switching performance in children with Attention-Deficit/Hyperactivity Disorder

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The purpose of this investigation was to assess the influence of acute bouts of aerobic exercise on the executive control in children with attention-deficit/hyperactivity disorder (ADHD). 18 children with ADHD performed a task switching paradigm after 20 min of moderate aerobic exercise on a treadmill, and control (seated watching video) conditions, using a within-participants design during 2 separate, counterbalanced sessions. Task switching paradigm include a repeatedly or switched between two different tasks. Task performance measures of reaction times (RTs), response accuracy, and global and local switch cost on RT. The results revealed that following a single 20-minute bout of exercise, children with ADHD exhibited smaller global switch cost on RT compared with after a similar duration of control condition. These findings suggest that single bouts of moderately intense aerobic exercise may have positive implications for aspects of working memory in children with ADHD, especially when the task requires greater amounts of executive control. Additionally, these findings extend the current knowledge by indicating that these cognitive improvements in specific aspects of executive function could also be obtained from single bout of exercises in children with ADHD.

Emotion regulation and the process of psychologically accepting athletic injuries

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Causal relationships between emotion regulation and the process of psychologically accepting athletic injuries, which consists of psychosocial recovery factor (PSRF) and athletic injury psychological acceptance (AIPA) described by Tatsumi and Takenouchi (2014) was investigated. Athletes (N = 180) that had experienced an orthopedic athletic injury (mean age = 20.27 years, SD = 1.02; mean days required for complete cure = 30.62 days, SD = 22.43 days) participated in the study. Participants were asked to respond to four scales assessing emotion regulation behaviors (ERB scales): Emotional Suppression (ESP) Scale, which is a modified version of the Emotional Suppression Tendency Scale (Kashimura & Iwamitsu, 2007), the Positive Reappraisal (PR) Scale, the Distraction (D) Scale and the Emotional Expression (EE) Scale developed by Nozaki (2013). Participants also responded to the Psychosocial Recovery Factor (PSRF) Scale (Tatsumi & Takenouchi, 2014), which consist of four subscales: emotional stability (ES), temporal perspective (TP), social competence (SC) and communication with teammate (CT), as well as the Athletic Injury Psychological Acceptance (AIPA) Scale (Tatsumi, 2013). Exploratory factor analysis identified four factors related to ERB. Then, a causal relationship model in which ERB variables are mediated by PSRF, and influence AIPA was examined by using structural equation modeling (SEM). The final model indicated a goodness of fit index of GFI = 0.981, AGFI = 0.953, CFI = 1.000, and RMSEA = 0.000. All the path coefficients were significant. The results of SEM indicated that the ESP negatively mediated ES, which positively influenced AIPA. On the other hand, PR was positively mediated by TP and SC, which positively influenced AIPA. These results

confirmed that the causal relationship model was valid. The results suggest the need for mental support that does not suppress negative emotions and promotes PR, which is expected to facilitate ES and TP respectively and promote AIPA.

A randomized controlled trial of exercise for students with (study-related) fatigue

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A substantial amount of university students experience high levels of (study-related) fatigue. The prevalence of (study-related) fatigue, and the negative impact on health and academic performance, call for prevention and reduction strategies of these complaints. The primary aim of the current study was to investigate to what extent an exercise intervention is effective in reducing several indicators of (study-related) fatigue. Effects on secondary outcomes (sleep quality, self-efficacy, and cognitive functioning) were also investigated. Students who reported high levels of (study-related) fatigue (above norm scores on two validated measures), currently not exercising or receiving other psychological or pharmacological treatments, and no medical cause for fatigue, were randomly assigned to either a six-week exercise intervention (low-intensity running three times a week, n= 49) or waiting list (no intervention, n= 48). Participants in the exercise intervention condition showed a larger reduction in two out of the three indicators of (study-related) fatigue than participants in the waiting list condition. Additionally, participants in the exercise condition improved with regard to sleep quality, and self-reported cognitive functioning compared to participants on the waiting list. No effects were found for self-efficacy. At follow up after 12 weeks, 80% of the participants in the exercise condition kept exercising. Moreover, the initial effects of the exercise intervention lasted at follow-up, and further enhancements were seen for two indicators of (study-related) fatigue, and sleep quality. We showed that an easy to implement six-week exercise intervention is beneficial for university student's well-being. The found follow-up effects implicate that a relatively short exercise intervention is a potential to promote exercise behaviours and accompanying beneficial effects in the longer run among sedentary students. All in all, the findings highlight the importance of regular exercise for the protection of student health and well-being.

Coaching interpersonal styles in youth soccer: Relations to players' need satisfaction and emotional states

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Coaches may help facilitate both positive and negative emotions among athletes in organized youth sport (Sallis & Patrick, 1994; Larson, 2000). Less is known about such differential emotional outcomes and their relationship with coach behavior and need satisfaction when they are modelled simultaneously. The current cross-sectional study examined the motivational process in youth soccer, grounded in Self-Determination Theory (Deci & Ryan, 2000). Specifically, we examined the mediating role of need satisfaction in the relations between both autonomy-supportive and controlling interpersonal styles to enjoyment and anxiety. Included were 1084 (627 male, 453 female, 4 unspecified) youth soccer players (M = 12.93, SD = 0.86) from the Norwegian arm of project PAPA (Duda, 2013). Participants completed a questionnaire containing soccer-contextualized measures, and latent variables of interest were included in path analysis using SEM. Generally, supporting theory, autonomy support influenced enjoyment positively, partly mediated by need for competence, and anxiety negatively, fully mediated by competence. On the other hand, autonomy support positively and fully influenced need for autonomy, which in turn surprisingly related negatively to enjoyment and positively to anxiety. Moreover, in the model using controlling interpersonal style as predictor, controlling behaviors related negatively to enjoyment and positively to anxiety partly mediated by need for competence and relatedness. Whereas controlling behavior was unrelated to autonomy, the need unexpectedly emerged as positively related to anxiety. The pattern of findings suggests that

the basic needs operate uniquely as mediators in relationships between coach behaviors and emotional outcomes. Moreover, need satisfaction acts differentially as mediators dependent on whether autonomy supportive or controlling interpersonal styles are used as predictor. Results generally support the importance of being autonomy supportive, and avoiding a controlling interpersonal style, as a coach. Findings also implicate potential pitfalls of satisfying the need for autonomy for youth footballers.

Measuring the self efficacy: A new scale to study the possibility to succeed in tennis

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The purpose of the following poster is to present a new measure, designed to evaluate the efficacy beliefs in tennis. According to Bandura (1986) Self-efficacy as the beliefs about ones's capabilities to organize and execute the sequences of actions necessary to produce certain results. From this point of view it's clear that in sports the sense of self efficacy is critical both during training, where it promotes the construction and improvement of the performance of high standard, but also in the match, because it optimizes the choice of strategies, the delivery of efforts, and the execution of the different activities (Militello, 2010). The measure's development involved over 900 Italian athletes (Mean age = 30.33), Men (772) and Women (156), and levels (from NC to Second Category), that filled a questionnaire both paper and pencil and online (posted on various websites tennis). Specifically, the questionnaire was aimed to analyze the perceptions of self efficacy of the athletes for the general aspects of the sport and for specific shots (forehand, backhand, volley, serve and return); the test also measured other variables such as the playing experienze, the hours of training, the ranking of the player and his type of game. The results of this research led to the creation of a new scale of self-efficacy specifically designed for tennis. The preliminary analysis showed high factorial validity as well as scale reliability. The new scale is intended to provide the athlete and coaches a new tool to assess self-efficacy beliefs of the athlete and his mental skills, that could help to schedule custom workouts designed to encourage improvements in the performance and well-being of the player, with strengths and weaknesses (Steca et al., 2010).

Preventing motor skill failure through hemisphere-specific priming: Effects and mechanisms

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When well-learned motor skills fail, such as when athletes choke under pressure, it is assumed that actors turn their attention inward and consciously control the skill execution (Beilock & Carr, 2001). Research findings suggest that this controlled execution and subsequent inferior performance depend on a dominant left-hemispheric activation (Crews, 2004; Salazar et al., 1990). In a series of experiments, we tested whether increasing right-hemispheric activation by the use of hemisphere-specific priming extenuates motor skill failure. The motor task included penalty shots in soccer (Study 1), a compilation of kicks in taekwondo (Study 2), serves in badminton (Study 3), and routines in artistic gymnastics (Study 4). We sampled experienced athletes and compared their baseline performance with that under pressure. The induction of pressure included competition, the presence of audience, and reward contingency. Prior to performing under pressure, experimental participants squeezed a soft ball in their left hand, therewith "priming" the contralateral, right hemisphere, whereas control participants squeezed their right hand or did not hand squeeze. As expected, experimental participants showed a relatively stable performance under pressure whereas control participants choked (Beckmann, Gröpel, & Ehrlenspiel, 2013; Gröpel & Beckmann, 2015). In a follow-up EEG experiment, we tested whether the effectiveness of hemisphere-specific priming was due to enhanced right-hemispheric activity after hand contractions or due to suppressed left-hemispheric activity. The amplitude of the

EEG broad alpha band and its asymmetry between hemispheres before, during and after hand contractions was analyzed. We found a bilateral activation over motor areas during contractions with any hand, but a reduction of cortical activity over the whole scalp only after left hand contractions (Cross-Villasana, Gröpel, Doppelmayr, & Beckmann, 2015). These results suggest that hemisphere-specific priming may become a useful choking intervention because it reduces cortical overactivity, thereby preventing interference from brain regions nonessential for skilled motor performance.

Do psychological factors play a crucial role in sport performance?

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Contemporary research aims to investigate background factors that contribute to successful sport performance. Of these factors the psychological well-being and mental health status should be underlined that have gained a significant role, particularly in the frames of sport psychological counseling. The aim of the present study is to seek for interrelations of psychological variables and sport performance of young athletes, and to reveal what advantages might be utilized in younger ages to strengthen sport performance. Questionnaire survey was conducted among athletes (N=185) applying for sport psychological counseling and therapy. The present research focused on the starting point of counseling, where psychological profile was detected and analysed in light of sport performance, which was actually followed by sport psychological counseling itself. Sociodemographic variables of the participants, such as age, gender and education, and sport-related variables, such as field of sport, best achievment, ranking, time ever spent in psychological preparation were assessed in the introduction part. A set of measurement tools were introduced concerning mental health, psychological status. Personality variables were measured by the instrument of California Personality Inventory (CPI-21). Athletic Coping Skills Inventory (ACSI-28) was used to measure the athletes' psychological skills. Competitive State Anxiety Inventory (CSAI-2), which consists of statements to describe athletes' feelings before competition, was used to measure levels of anxiety. No gender differences were found in sport performance, while age showed significant difference. The findings indicated differences of the investigated psychological variables by age and gender. Regression analyses were employed to test how psychological factors predict successful sport performance. The analyses strengthened the role of age and gender specific factors that should be considered during sport psychological counseling. The benefits should be highlighted in young age in order to ensure more successful performance in adulthood.

Self-regulatory resources replenish faster after MVPA compared to sedentary activities, but only if sport motivation is high

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Self-control (or self-regulation) has been described as one of the most important and beneficial processes in the human personality structure (Tangney, Baumeister, & Boone, 2004). Therefore, the purpose of the present study was to examine whether self-regulatory resources replenish faster after moderate to vigorous physical activity compared to sedentary activities, dependent on participants' sport motivation. An experiment was conducted with 152 vocational students (16-20 years; 18 females, 134 males). 69 participants were in the experimental group, 83 participants in the control group. Using a dual-task paradigm, the participants had to accomplish two tasks that require self-control: (a) letter recogniton test, (b) d2-test. Inbetween, the experimental group engaged in 15 min running; the control group performed sedentary activities. A median split was used to compare students with high versus low sport motivation. No baseline group differences existed in dispositional self-control and performance in the first self-control task. Mood similarly decreased during the first self-control task and increased during recess across all groups. In the second self-control task, the experimental group with high sport motivation achieved the highest scores in

the d2-test, followed by the participants of the control group and the participants of the experimental group with low sport motivation. The findings reveal that physical activity between two cognitively demanding tasks can contribute to the replenishment of self-regulatory resources, but that this relationship is moderated by participants' sport motivation. Students with low sport motivation scored even lower than participants of the control group, most likely because participating in physical activity further taxed their self-regulatory resources.

Physical activity as a component of psychosocial rehabilitation in mental health

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Roeder (1999) says that physical activity as the body's response to a stimulus generates answers derived from a complex network of bioenergetics reactions improving performance in activities of daily living. The motor cortex, which enables a person to exercises, is located near to the area of the brain that controls feelings, bringing benefits to the emotional state, cognitive, social and psychomotor. According to Leontiev's (1978) activity theory, the individual is taken as a unit and integrated into the environment through work, represented by any vital activity, which measured the relationship between man and nature. Oppositely, institutionalization causes restrictions that make difficult to return their own lives. The objective was evaluate the contribution of Qi Gong as a complementary therapy in psychosocial rehabilitation at the psychiatric hospital. The study included bibliographic search on: physical activity in psychosocial rehabilitation, interviews; workshop: Qi Gong; drawings and makeup. Authors used the method of analysis qualitative of the discursive practices of Spink (2003), considering the whole production of the workshops as language. The 16 patients with schizophrenia, bipolar disorder , major depression and dependence on substances who participated in the workshops, had difficulties to exercise the postures of Qi Gong due the cognitive deficits as a consequence of the diseases and excess drugs. However, the activities carried out, patients got encouragement to realize the others workshop modules, demonstrating that Qi Gong is an appropriate exercise to increase the neurologic system, proven through the evolution of the drawings, the speech and the body language. The Chinese movement is beyond the body and brings the desire to resumption the social roles and the reconquer of autonomy, revealing the patient as protagonist of his own intervention.

Adaptation of motor control strategies to environmental cues in a pursuit-tracking task

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Visually guided tracking paradigms can provide insight into the interaction of visual information and preferred motor control strategies (Weir, Stein & Miall, 1989). For instance, it is known that additional information may be detrimental (de Oliveira & Wann, 2010). In this study we describe how and when environmental cues have task-dependent benefits. We used a pursuit-tracking task with an invisible sinusoidal path with a central repeated segment (Wulf & Schmidt, 1997) and three crosses that were either visible or invisible. The crosses were the participant's cursor C, the target T, and an additional cross A, which appeared on the next bend and reduced its size constantly until the target passed it. We added, removed, or replaced cues to investigate the control strategies. Participants performed six blocks of trials in six conditions. We measured root mean square error of T and C paths. Performance was only maintained when a cue was added (TC vs. TCA; $F(1, 20) = 0.30$, $p > .05$), and performance decreased when a cue was removed (TC vs. T vs. C; $F(2, 40) = 246.37$, $p < .001$, $\eta 2 = .93$). When cues were replaced they interacted with block (TC vs. TA vs. CA;

F(10, 200) = 187.16, p < .001, η2 = .16) because performance improved in CA to the level of TC (F(1, 20) = 8.88, p < .05, η2 = .31). This suggests that participants adapted their motor control strategies to exploit the cues and path under CA but not under TC and TA. Participants only learned to use new cues if the previous one was removed and there was a valid replacement. Participants did not learn to use the additional cue otherwise, although it was valid. This means that the sensorimotor system adapts only if forced instead, of constantly exploiting optimization strategies.

Social and individual reference norm orientation and physical self concept of primary school children

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Studies on the relation between motor abilities and physical self-concept of children mostly concentrate on direct interrelations between performance and self-evaluation. Only few studies deal with the impact of the internal and external frame of reference in terms preferred reference norm orientation (social or individual). The aim of the study is to analyze the differences in physical self-concept, preferred reference norm orientation and motor performance in respect to age, gender, and sports club membership, as well as the relationship between these constructs. 128 (girls 44.5%; Mage = 11,57; SD=.622) fifth and six graders had to fill in a questionnaire comprising the physical self-concept (PSC-C, Dreiskämper et al., 2015, strength, speed, coordination, endurance, flexibility, attractiveness, sports competence, self-worth), and the preferred reference norm orientation (RNO, individual and social). Afterwards a motor performance test (DMT 6-18, Bös et al., 2008) was conducted in class room setting. MANOVA and structural equation modeling (SEM) were conducted. With regard to the PSC significant gender differences (F(8, 103)=3.32, p<.001 η^2=.205) are confirmed in favor of boys on strength and endurance, of girls on attractiveness as well as significant advantage for club membership (F(8, 104)=3.32, p=.006 η^2=.181) in almost all scales (except strength, coordination and self-worth). RNO and PSC correlate significantly between r=.19 and r=.44. SEM shows that individual RNO (β= .40) and social RNO (β = .30) moderate the intercorrelation between motor abilities and physical self-concept, but with an insufficient model fit (χ^2/df =5.9, p < .001 TLI = .57 CFI = .89, RMSEA = .20). Results show hardly differences between girls and boys but in regard to club-membership. The social and individual RNO are important for the self-evaluation, but further evidence is needed. As the physical self is an important motivation antecendent this has to be concidered in teaching process to promote sport activity.

Mental skills training - much ado about nothing? An experimental study on imagery and self-talk

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Mental skills training is widely used in sport psychology and shows positive effects on sport performance (e.g., Driskell, Copper & Moran, 1994). Over the last 30 years, a substantial amount of research on mental skills training has been conducted (Schuster et al., 2011). For instance, the content of self-talk during sport activities affects performance (Hatzigeorgiadis, Zourbanos, Galanis & Theodorakis, 2011). Despite much research on imagery perspective, results remain inconsistent (e.g., Morris, Spittle & Watts, 2005). The present experimental study focuses on visual imagery and self-talk. We examined the influence of visual imagery and self-talk on the performance of a golf putting task. Participants (N = 99) were randomly assigned to 1 of 3 groups, each including 33 participants: (a) an imagery group, (b) a self-talk group, and (c) a control group. Each participant performed 10 golf putts on an indoor putting mat. Task was to put the golf balls as accurately as possible to a target. Participants in the 2 experimental groups received a brief (30 s) and group-specific instruction. The 2 instructions were standardized and verbally provided: In the imagery group, participants were instructed

to visualize a goal-oriented imagery before each stroke. Participants in the self-talk group were instructed to vocalize a goal-oriented self-talk before each stroke. No specific instruction was assigned to the control group. Additionally, participants had to report their general level of experience in ball sport (no, middle or much experience). Overall, performance did not differ between the 3 groups. Results also showed that participants reporting a higher level of ball sport experience performed better than other participants. We conclude that a brief imagery instruction or rather a brief self-talk instruction does not lead to a better performance in a golf putting task, but even seems to hamper the performance.

Basic psychological needs, motivation and life satisfaction in ederly mexican soccer players

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The Self-Determination Theory (Deci & Ryan, 1985) supports the idea that human behaviors are voluntary or self-determined. Human behavior is motivated by three basic and innate psychological needs: autonomy, competence and relatedness. These needs influence motivation, so that the satisfaction of these promotes the subjective well-being (Ryan & Deci, 2001) while the frustration of them will be associated with low levels of self-determination (Deci & Ryan, 2000) as extrinsic motivation or amotivation. The objective of this research is to analyze the relationship between basic psychological needs for autonomy, competence and relatedness, levels of self-determination and life satisfaction in elderly Mexican soccer players. The study involved 89 male Mexican soccer players, aged between 51 and 76 years (M = 62.4, SD = 3.24). Data collection was performed collectively, self-administered and without the presence of the coach. As for the instruments we used the Mexican version of the Perceived Competence Scale, Scale of Perceived Autonomy in Sport, Acceptance subscale of the Relationship Needs Scale Need Relationship, the Satisfaction with Life scale and, finally, the Sport Motivation Scale. The results indicate a positive and significant relationship between the three basic needs and satisfaction with life, with the need for competence the strongest predictor. As for the level of self-determination there is a significant positive relationship between higher levels of self-determination and life satisfaction was found. Note that the results also indicate a positive and significant relationship between different types of extrinsic motivation and satisfaction with life. We can conclude that those elderly players who have satisfied their basic psychological needs, report higher level of self-determination and greater satisfaction with their lives. Stressing the need to feel competent. Finally it should be noted the importance of external motivators such as performing a sport for prestige or any other external factor that impacts significantly to construct life satisfaction.

Possible effects of concussive and sub-concussive blows on cognition

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The frequency of concussions or mild traumatic brain injuries (MTBI) has been described as an epidemic (Ellemberg et al., 2009).Researchers and clinicians have expressed concern regarding the long term effect of MTBI on various cognitive functions (Daneshvar et al., 2011; Valasek & McCambridge, 2011) and the need for more accurate early detection methods has been highlighted (see for example Ellemberg et al., 2009; Thatcher, 2006; Lovell, 2009 and Valasek & McCambridge, 2011) in order for early intervention and rehabilitation. Forty seven males, aged 18-28 from athletic and non-athletic backgrounds, were recruited to estimate: a) their awareness of their concussion history, and b) the effects of mild head blows to their cognitive function. Participants filled out the Think First concussion questionnaire (which includes questions about headblows and effects such as headaches), Trail Making Test (TMT) to assess visual attention and task switching abilities, the Digit Symbol Test (DST) to

assess cognitive processing speed, and the SART attention and inhibition task. Eight participants reported diagnosed concussions. An additional five participants reported dizziness, six reported headaches, after receiving headblows, all symptoms of concussions. Differences in completion time were found between participants that reported headaches (M = 62.1s) and those that did not (M = 48.2s) on part B of the TMT (p = .028). No differences were found in DST performance or SART reaction times. Differences were found between the SART inhibition accuracy scores between concussed (87.8%) and non-concussed (95.9%) participants (p = .007). Results indicate that participants underestimate their rates of concussions, reporting numerous symptoms of concussions but not that they suffered concussions, and that a relatively low number of blows to the head can influence attention and inhibition. The results indicate the need for greater awareness of concussions, and the possible long term effects of mild concussive blows among young athletes.

Psychology of injury research translated into art

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Physical healing is only one part of the recovery process for injured athletes and dancers. Injury, a stressful event, affects all aspects of life and performance. Research reveals that elite performers continue working through pain and injury hiding their trauma and overlooking psychological consequences (Mainwaring, Krasnow, & Ashton, 2010). The purpose of this poster is to transform research findings of psychological implications of injury and recovery into clear and compelling messages for a public audience. Results from research on stress markers in concussed athletes (Senthinathan, 2013), athletic injury reporting (McClemont, 2013), and dance injury (Mainwaring & Ashton, 2010) informed the rendering of images and words that portray personal struggles and triumphs to restore the self (Mainwaring, 1999). For example, quotes from injured athletes accompany images that represent distress and coping. Artists were inspired to highlight empirical findings such as the following: post-concussion athletes display elevated total mood disturbance as measured by the Profile of Mood States (Grove & Prapavessis, 1992) and elevated perceived stress as measured by the Perceived Stress Scale (PSS: Cohen, 1983), concussed female athletes show elevated heart rate compared to matched female controls and males (concussed and healthy) (Mainwaring et al., 2014), and history of concussion is a risk factor for subsequent concussion (Mylabathula, 2014). This unique juxtaposition of science and art, created through an international collaboration among three diverse institutions (University of Toronto, Ontario, Canada, University of Arts Belgrade, Serbia and the award winning Ontario Science Centre), explores cognitive and emotional responses to injury, recovery strategies, and provides key messages for the public. Film, photography, and costume symbolize findings from both quantitative and qualitative studies of recovery from dance and athletic injury. Showcasing these injury findings through an artist lens provides a fresh medium for powerful knowledge translation about the impact of injury and recovery.

Vulnerability in sport: An analysis of sport environment

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Vulnerability in sport has been rarely studied. Studies have focused on the issue of injuries and concussions (Randolph, 2011). Several aspects of the sport environment can expose athletes, coaches and other participants in vulnerable areas exposed to the risk and the temporary or permanent damage (Rebustini, 2012). Thus, the aim of this study is to identify what factors in the sports environment can initiate and develop vulnerability in this scenario. Therefore, an extensive survey of sports literature aiming at identifying agents / factors that may trigger vulnerabilities, whether they are individual, structural and / or

environment/context related. The survey resulted in the identification of 34 primary factors with different nuances that can affect the athlete and other members of the sports environment. In order to do a better analysis, the factors were adjusted in 6 categories: Training (Ex: overtraining, doping, early specialization and injuries); Social (eg family, racism, Fans and education); Management and Infrastructure (management, training resources and preparation, corruption); Psychological (shame, alexithymia, career transition, fear, aggression, psychopathology); Communication (media, sports journalism and marketing) and policies (leaders, sports policy and school sport). This mapping allowed the identification of a large number of factors that can be understood as vulnerability triggers, depending on its interaction with the athlete and other members. The intensity, duration and extent of the damage caused by factor may even cause the dropout in sports and in more extreme cases: death. It is a huge challenge entering the vulnerability studies in sport, because the image of the athlete can not be associated with their weaknesses. The application of the concept of vulnerability in sports is complex because its effects are multidirectional, so the effect on a variable reaches several other variables that are interconnected, in a secondary way, but not least important.

Analysis of coach competency and players satisfaction in professional female football and basketball teams

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The current work aims to examine football and basketball players' perception of competence of their coaches, and how this perception is related with their work satisfaction. Coaches' competence developing their work has been considered as a fundamental variable associated with athletes' performance and their satisfaction (Myers et al., 2012). Participants were 96 basketball players and 185 football players that participated in Spanish female competitive leagues. Coaching competency was measured with an adaptation of the Athletes' Perceptions of Coaching Competency Scale II- High Scholl Teams (Myers et al., 2010), formed by four factors: Motivation, Game Strategy, Technique and Character Building. Scale Satisfaction with the head coach was assessed by an adaptation of the instrument developed by Myers et al., (2011), which was formed by an only factor. Analysis of variance showed that there are significant differences between football and basketball players regarding our study variables, revealing greater mean scores in Satisfaction and Motivational, Game Strategy and Technique competency in basketball than football players. Furthermore, a regression analysis was conducted to determine the strongest predictor of satisfaction with the head coach. The results showed that basketball players perceived that the development of appropriate technique instructions was the strongest predictor of satisfaction with head coach. Nevertheless, football players indicated that coaches' game strategy competence was the strongest predictor of satisfaction with head coach, followed by his/her competency to build their athletes character. Therefore, despite there are differences between coaches` competency and satisfaction regarding type of sport, results provide proximity about coaching competency and satisfaction between football and basketball players. Thus, coaches from female football and basketball teams might take this issue into account to develop their work and achieve greater satisfaction levels, as well as their benefits. Finally, further researches are needed to set a constant behavioral line in both sports.

Transfering business games into diagnostic tools in a team sports setting

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Games are commonly used in business as an effective method of learning through experience (Oosterbeek, 2010). Contemporary research (Faria, 2009) has suggested that such games can support the development of mental training and has a potential to be used

as a diagnostic tool by showing dynamics of, and processes within a team. In this study, a board game "Saboteur" was transferred into a sport environment. The goal was to use it as a diagnostic tool to verify team performance. The study was conducted on a female football team,(N= 12; age M= 17,3). The team was selected purposive sampling, due to reported problems with communication between athletes. The goal of the"Saboteur" is to collaborate as a team and get to the treasure. During the game different types of characters emerge and can be observed within the team. The team played two rounds. During the first one, the participants were to complete a task without communication, and the coach was only an observer. Whereas in the second round the coach also participated and the athletes were introduced with additional goals, i.e. identification with the characters and effective communication. Sports psychologist observed and fulfilled the diagnostic chart that focused on: communication, leadership behaviours, cooperation vs. competition and group roles (Boudewijn, 2014). The team realized that achieving their goal focusing on competition and without possibilitiy to communicate, to develop a common strategy, agree on a leader and analyze the situation was impossible. The results of the study support that using the game as a diagnostic tool of team performance can be effective and creative method (Adl, 2010). Games can be also used as an introduction to team building. In conclusion, application of such games seems promising; however, further research is necessary to obtain more knowledge and validate the usefulness of this method.

An examination of athletes' experiences of the talent transfer process

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Talent transfer is a process occurring when an athlete ceases or reduces their involvement in a sport in which they have invested significant time and concentrates their efforts in a sport that is new to them, but involving similar movement skills and/or physiological/psychological requirements. The process involves athletes who might be able to perform if fast tracked into other sports with home institutes seeing the benefits of this alternative Talent Identification system with very specific examples of success. Therefore, we explored the talent transfer process from the athlete's perspective. 10 athletes (from the UK) were interviewed: 5 from an established talent transfer programme (3 currently still being supported) and 5 that went through the process of their own accord. Inductive content analysis indicated that: support services through a formal programme National Governing bodies coaching and sport Institute support) and informal programme (families, coaches, team mates) were utilised; similarities within the sport (physically and transference with psychological skills i.e. perseverance) were evident; and their degree of success (not achieving selection criteria) were factors that the athletes perceived as important for a successful transfer into another sport and being competitive within their new sport. These findings offer a unique examination into the athlete's experiences through the talent transfer process and could be used for future support by Home Institutes/NGB's.

MutRep: A group processes and intergroup relations diagnostic tool, illustrations in the field of sport and physical activity

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While social identity theory (SIT, Tajfel & Turner, 1979) and self-categorization theory (SC, Turner et al., 1987) implicitly state that, in an intergroup comparison, social positions are admitted by individuals, the paradigm of social partitions (Castel & Lacassagne, 2011) demonstrates the existence of not merely one but rather three types of intergroup positioning (based on status difference or values attribution or community membership). Based on this advancement, MutRept (mutual representations) was created to measure the identity processes and intergroup relations between two groups in a given context (like sport). The methodology is based on the use of a specific questionnaire that explores 36 types of co-

constructed representations and the relations between them (ego-representations, in-group/outgroup representations, meta-representations, ...). The results are automatically generated by MutRep (more than 500 indexes of group processes and intergroup relations, the researcher can take from them the measures he needs). To illustrate the functioning of MutRep, we will present two studies. The first one deals with the relationship between men and women in the field of football among 108 French students in physical activity and shows that both men and women attribute physical qualities to men and mental qualities to women and that men under-attribute mental qualities to women, while women over-attribute these qualities to themselves. The second study was carried among 50 white basketball male players. It deals with the black-white players' relationship. The results reveal a particular way to assign positions on the basketball court (white players for central positions and black players for non-central positions). They also show that racial stereotypes underpin this assignment (mental and physical skills are differently attributed according to the skin color). The discussion will deal with the contribution of MutRep to decision-making in the field of physical activity, by integrating the psychosocial dynamics of the relationshis between sportsmen.

A review of flow in sports: Measurement and evaluation

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In recent years, the research in mental skills has been accepted and recognized making sports excellence a multi-dimensional process. This makes measurement and enhancement of psychological skills along with the physical training an indispensable part of the training regime for any sports person aspiring to perform at his or her best potential at any level. Flow has always played a crucial role in the field of applied sports psychology by providing an edge to few sports persons, despite their similar physical capabilities. Due to a lack of empirical research, flow is seen as one of the most overused and least understood term in the area of sports psychology. While there has been much research focusing on trying to define flow, more work needs to be conducted around the observational analysis of flow so that sport psychologists can intervene and identify how to improve flow states. The present paper provides a review of research in the area of measurement and evaluation of flow in sports. It is argued that the vast theoretical research in the area of flow demands increased practical implications in the field of sports psychology and mental skills training to bridge the gap between theoretical and practical aspects of flow states.

Experimental research on the features of searching for points of fixation in smashing movement graph by volleyballers

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The ASL Eye Tracker 6000 eye movement recorder is used for experimental research on the visual search of point of fixation and eye movement features in smashing movement graph of volleyballers of different skill levels. It is found that (1) during take-off, high-level volleyballers fix more points in the trunk zone than low-level volleyballers do; while throwing the ball the high-level volleyballers also fix less points in the trunk zone than low-level ones do; but while preparing to hit the ball, the high-level volleyballers fix more points in the trunk zone than low level ones do, and the difference above is very significant; (2) during the three phases, the frequency for high-level volleyballers to fix the upper limbs tends to slightly rise, however, the number of points of fixation in the trunk zone tends to decrease. (3) High level athletes' invalid points of fixation and back fixation points are significantly less than those of low level athletes with significant difference. (4) The judgment correctness of high-level volleyballers is significantly higher than that of low-level ones with very significant difference. It means that high-level volleyballers have acquired the ability to visually search for movement information stably, accurately, and effectively and the ability to quickly process information and make correct decisions.

Decision making in beach volleyball attack: Do attackers follow the call?

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The call is a tactical component of beach volleyball strategies for attacking. By a call the setter indicates her or his team mate an uncovered spot in the opponent's court. If the attacker hits the ball in the direction that has been called it is indistinguishable whether the attacker actually follows the call or not. We used a twofold strategy to find out if the attacker actually followed the call on purpose. First, we experimentally identified the minimal interval between the call and the ball-hand contact ("call shot interval", CSI). 16 members of the German national beach volleyball squad (8 women) had to play a crosscourt spike. In 2/3 of the attacks a call ("line", "cut", "no-one") was given unpredictably. The timing of the call varied, which therefore resulted in different CSIs. On average, a 50% probability to follow a call was given if the call preceded the attack by 539 ms. Secondly, we analysed the rate of calls that have been followed in competition. It can be assumed that differences in the rates of followed calls between attacks with calls on time (CSI >539 ms) and calls out of time (CSI < 539 ms) should be caused by the call. We analysed 1302 attacks in the Swiss Championship 2011 and 319 attacks in the European Championship 2013. More than half of the calls were too late (< 539 ms) to be followed. However, the rate of followed calls did not differ between belated calls compared with calls on time. Consequently, we conclude that the call does not influence the attacker on making his or her decision. This explains a recent finding of Schläppi-Lienhard and Hossner (2015) that defence players do not take their opponents' call into consideration when deciding where to go.

Impact of Ramadan intermittent fasting on sustained attention in athletes compared to normally active controls

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Ramadan is an Islamic month during which Muslims abstain from food and drink during the daytime for 29-30 days. As a result of restricted meal times, studies have shown individuals have disrupted circadian rhythms, sleep deprivation, and reduced subjective alertness close to end of day. High levels of attention and cognitive effort is essential for physical performance. The aim of this study was to determine the effects of fasting on sleep deprivation and sustained attention among Muslim trained athletes compared to normally active Muslim and non-Muslim controls. This study recruited volunteers aged 18-38 years and followed them for two months. We included eleven Muslim professional athletes (VO2max: 57.7±5.6 ml/kg/min), nine Muslim controls and nine non-Muslim controls (both groups with a self reported vigorous physical activity of <2hrs per week). Automated CANTAB Battery, RVP (rapid visual information processing) and sleep was assessed at three occasions: before Ramadan (BR), 1st-week (RA1) and 4th-week of Ramadan (RA4) at the end of day (before break of fast). Total duration of sleep remained unchanged throughout the study in athletes as well as control groups, whereas, Muslims had significantly higher duration of day-time sleep (P<0.001). Compared to baseline (60.6±5.8%), RVP performance (percentage of correct responses to a sequence) significantly increased only among Muslim athletes at RA1 (69.4±5.3%, P=0.042) and at RA4 (83.8±4.9%, P=0.001). Both Muslim and non-Muslim controls did not show any significant changes in RVP parameters with exception of RVP latency, that improved at RA4 (369±61 ms) compared to baseline (417±87.3 ms, P=0.012) in fasting controls. This study concludes that sustained attention is improved in trained Muslim athletes and is non-affected in controls as a result of daily intermittent Ramadan fasting as long as habitual sleep duration is maintained.

Cognitive-motor interference during walking in children with Developmental Coordination Disorder

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While typically developing children produce relatively automatized postural control processes, children with DCD exhibit an automatization deficit (Tsai et al., 2009). Dual tasks with various cognitive loads seem to be an effective way to assess the automatic deficit hypothesis. The aims of the study were to (1) examine the effect of a concurrent task on walking in children with DCD; and (2) to evaluate if easy cognitive tasks can lead to performance improvements in the motor domain. We examined dual-task performance of a cognitive and a sensorimotor task (walking) in 20 children with DCD (boys n=12; 8.10±1.07 years) and 39 typically developing children (boys, n=18; 8.44±1.19 years). Based on the idea of the paper-and-pencil Trail Making Test (TMT), participants walked along a fixed pathway (Trail-Walking-Test; TWT A), stepped on targets with increasing sequential numbers (i.e., 1-2-3; TWT-B), and increasing sequential numbers and letters (i.e., 1-A-2-B-3-C; TWT-C; Schott, in press). Dual-task costs (DTC) were calculated for each task. Additionally, children completed the Movement Assessment Battery for Children and the Trail-Making Test. In the primary walking task condition, means for children with and without DCD were not statistically significant (p=0.215) ; however, we found significant differences for the seated condition of the trail tracing task (TMT motor; p=.003). A concurrent cognitive task increased walking times significantly in all groups, with the effect greater in children with DCD. Increased cognitive task complexity resulted in greater slowing: gait DTCs as well as handwriting DTCs were least for the simplest conditions and greatest for the complex conditions in children with DCD more so than in comparison children. Additionally, gait DTCs were significantly lower than handwriting DTCs. These results support previous studies suggesting that children with DCD are more cognitively dependent and may have an automatization deficit, especially in the fine motor control task.

The injury severity on athletes' psychological indices in the beginning of the next competition season

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Following an injury, athletes may experience re-injury worry, low level of attention and confidence, thus decreased performance. The study examined the differences between various grades of musculoskeletal injury severity on athletes' psychological profile (re-injury worry, confidence, and attention) in the beginning of the next competition season following the injury rehabilitation program. The sample consisted of 80 team sport athletes, aged from 18 to 40 years old, who had an athletic musculoskeletal injury approximately 4 months (M=3.70, SD=1.69) prior to the data collection. The athletes followed and completed properly their physiotherapy rehabilitation program. Based on the Colorado Injury Reporting System (Hanson, McCullagh, & Tonymon, 1992), 52 athletes had an injury of grade II severity (without participation for 1 to 4 weeks), and 28 had an injury of grade III severity (without participation for more than 4 weeks). The participants completed just before the competition the "Causes of the Re-Injury Worry Questionnaire", the "Sport Confidence Questionnaire of Rehabilitated Athletes Returning to Competition", while the "Attention Questionnaire of Rehabilitated Athletes Returning to Competition" was completed upon the end of the competition. The instruments' factors showed acceptable reliability (Cronbach a=.92 to .95). The results indicated that athletes with a grade III severity of injury revealed higher re-injury worry compared to the athletes with a grade II ("re-injury worry due to rehabilitation" factor: t-test=-1.95, p<.05, "re-injury worry due to opponent's ability'' factor: t-test=-3.81, p<.01). On the other hand, lower confidence ("confident due to rehabilitation" factor: t-test=3.14, p<.01, "performance confidence" factor: t-test=2.12, p<.05), lower functional attention (t-test=2.49, p<.05), and higher distraction of attention (t-test=-1.90, p<.05) appeared in athletes' with a grade III than those of grade II injury severity. The severity of injury appears to affect

athletes' psychological status upon returning to sport, which may be considered important information by coaches and sport psychology consultants.

Gaming a bicycle with an interactive musical environment to improve resistance to amotivation

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Music has the power to augment well-being and positive emotions (Juslin & Västfjäll, 2008). In sporting environments, music has also been successful in augmenting physical performances (Karageorghis & al., 1996; Terry et al., 2012). As such, many applications are available to propose physical activities in a musical environment. Nevertheless, the question remains (1) how to select the appropriate musical style and rhythmicity for a given activity and (2) what type of audio dynamics should be used to stimulate motivation as a function of the emotional state of the user? We developed a musical platform in which one can define the musical style to use during a given sport session (user preferences) and which modulates in real-time the choice of the audio dynamics as a function of predefine neuro-psychological inputs (user state). Twenty-five healthy, non-musician and sport amotivated university students participated in a 45-minute cycling session. They were instructed to cycle at a moderately high rate and were not given the possibility to stop midway. The user state was evaluated every 5 minutes through the use of questionnaires (e.g., Feeling Scale - Hardy & Rajeski, 1989, EMS-28 – Brière et al. 1995) and physiological measures (e.g., heart and breating rates). Through music streaming in real-time, following user preferences, results showed here that the musical pre-selection within hundreds of possible tracks induced positive attitudes in the initiation of a physical exercise, which was predicted to be difficult. The dynamical properties of the musical environment during the physical exercise helped maintain physiological and emotion states of wellbeing, preserving especially the absence of occurrence of amotivational periods during which fatigue was settling in. The findings suggest the importance of understanding the psychological factors that induce modifications in the motivational state of a user when developing new technology to bust physical performances and compliance.

Trends of aggression of football coaches - former players

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Aggression is an important phenomenon for a sports performance. There is a dilemma both in a training and in a competition: destructive aggression versus aggression within fair-play behavior respecting accepted regulations. The term "need for achievement" should be more suitably adjusted to the current conditions. A high level of need for achievement with fair-play orientation needs to be promoted since childhood. The aim of the presentation is to describe certain aggression variables of football coaches and compare the trends to the three coaches' generations. Further to deduce increasing or decreasing trends of coaches' aggression. The football coaches – males recruited from three generation cohorts aged between 30-47 years of age in the year of conducting the survey. All of them were coaches of the 1st Czech junior football league and students of UEFA profi-licence and they were interviewed during their respective study programs: C1 (n= 30, interviewed in 2000), C2 (n= 30, in 2008), C3 (n=30, in 2012). B-D-I (Buss-Durkee Inventory) consisting of eight subscales plus an index of hostility and aggressivity were used as an instrument for the data collection. The data were analyzed using descriptive statistics and Scheffe test which can compare differences among the three exemined goups. Subscales scores of coaches' aggression, compared to a 10-point scale, were found in between the levels of 4 – 6 points (relevant to the scores of the common population). The subscale of "indirect aggressivity" showed an increasing trend (C1 - 4,5 points; C3 – 6,2 points), as it did on the scale of "hostility". The subscale of "verbal aggressivity" did not show any differences among the generation cohorts

and the subscale of “negativism” was decreasing. There is possible to conclude that the coaches aggression is mostly found in within the accepted fair-play behavior (need for achievement), even though the term “aggression” is emphasized.

Don’t miss, don’t miss, d’oh! Performance when anxious suffers specifically where least desired

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We aimed to address a significant shortcoming of previous ironic effects research within a comprehensive test of Wegner’s (1994) theory of ironic processes of mental control in a performance setting. Specifically, we aimed to test the hypothesis that ironic error would be more prevalent when anxious, and to distinguish ironic error from other performance error. Seventy-three participants (45 men, 28 women; Mage = 22.82, SD = 4.07; 71) completed measures of cognitive anxiety and physiological arousal and completed a dart throwing task under conditions of low and high anxiety (induced by competition and monetary reward). We instructed participants to aim at a specific area of the dartboard and to avoid another area in a balanced design. Performers performed less well when anxious. More importantly, when instructed not to miss in a specific direction, anxious performers did so a significantly greater number of times ($t72 = 5.65$, $p < .001$) and there was no difference in non-ironic error (all $ts < 1$, $ps > .5$), which provides specific support for Wegner’s theory in a performance setting. We also probed the specific tendency to perform in the to-be-avoided area by measuring the radial error and arc length within the ironic error zone. When anxious, participants performed more precisely in the to-be-avoided zone (Wilks’ $\Lambda = 0.78$, $F (2, 61) = 8.55$, $p = .001$). The present research demonstrates that ironic performance errors are a meaningful and robust potential concern for performers who are required to perform under pressure. Regardless, coaches and practitioners would do well to be particularly careful with the specific words that they use as part of their instructions when helping performers to ensure that they do not contribute to the likelihood of mental control backfiring when it matters most to the performer (e.g., in competition).

Effect of SMR neurofeedback training on golf putting performance and mental representation

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Neurofeedback training (NFT) is a technique to train the brain to improve its functioning through self-regulation of the electroencephalogram (EEG). Previous findings have found that training participants to increase sensorimotor rhythm (SMR) power was associated with improvements in motor performance. However, novel insights can be obtained for a measurement which can investigate the cognitive measure of the memory structure of the movements through learning. The SDA-M (Structural Dimension Analysis of Mental Representation) approach is an ideal candidate which provides insights on changes on mental representation and can be combined with neurophysiological measurements. This project is designed to evaluate the effect of SMR NFT on golf putting performance by employing the SDA-M methodology. Twenty-two novices will be recruited and randomly assigned to either a SMR NFT group or a control group. Each participant will be requested to perform 80 putts and SDA-M test in pre-test, post-test and retention test. Three NFT sessions will be performed between pre-test and post-test. We predict that the SMR NFT group will enhance putting performance and show a more distinguished hierarchical structure of the mental representation after training in contrast to the control group.

Missed the putt again: Concentrate next time! A study of EEG high-alpha power and motor response programming

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The search for cortical correlates of expertise in sport has identified pre-movement electroencephalographic (EEG) high-alpha power as a predictor of movement accuracy (e.g., Cooke, 2013). Specifically, less frontal-central high-alpha power has been associated with accurate movements, such as holed golf putts (Babiloni et al., 2008; Cooke et al., 2014). Given the putative inverse relationship between alpha power and cortical activity (e.g., Pfurtscheller, 1992), these findings have typically been interpreted to indicate that more cortical resources are allocated to the accurate programming of movement parameters, such as direction and force, on successful trials. The present experiment tested this interpretation. Ten expert and ten novice golfers completed 120 putts while cortical activity was recorded using 32 scalp electrodes. The EEG signals were analysed as a function of whether the previous putt was holed (i.e., a correct response) or missed (i.e. an error). We observed less pre-movement high-alpha power following errors at frontal and central electrodes (Fz, F3, F4, Cz, C3, C4) overlying the motor planning regions of the cortex (Ashe, Lungu, Basford & Lu, 2006), especially in experts. Existing evidence indicates that more resources are allocated to response programming following errors (e.g., Lam, Masters & Maxwell, 2010). Our findings thereby support the interpretation of pre-movement high-alpha power as an inverse marker of the amount of resources allocated to motor response programming. They also indicate that expert performers are especially likely to increase the amount of cognitive resources devoted to motor planning when there is a need to correct previous errors. This finding is consistent with Reinvestment Theory's prediction that experts have accrued more performance-relevant knowledge (i.e., explicit rules) than novices to devote to error monitoring and correction (Masters & Maxwell, 2008).

Impact of coaching behaviour on collective efficacy and achievements with basketball players

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A number of researches in the field of sport show the importance and confirm the positive interrelation between coaching behavior and collective efficacy for successful mutual results. Collective efficacy is viewed as an element of the behavior of the group which has common beliefs and evolves out of the collectiveness of its members and their perceptions and abilities for success performing a particular task. It is of great importance in the team sports, and in basketball in particular, where the team is a group with a common goal. Many authors report of the strong influence of collective efficacy on achievement. According to the data teams possessing high levels of collective efficacy are superior to those teams with lower levels of collective effectiveness. The aim of our research is to study the coaching behavior, collective efficacy, and their relation to the achievements of basketball players. The research was done among 134 basketball players from the male A group and Youth Bulgarian League. All the researched individuals practice basketball on an everyday basis. In order to fulfill the aim we used: 1) Collective Efficacy Questionniare (CEQ, Feltz & Ligg, 1998); 2) Revised Leadership Scale for Sports (RLSS, Zhng, Jensen, & Mann, 1977); 3) Coaching Feedback Questionnaire (CFQ, Amorose & Horn, 2000). The specific characteristics of coaching behavior and the dominating leadership styles were outlined. A comparative analysis was done along age and level of qualification. The relations and dependencies between the researched indexes and the efficiency of play were revealed. On the base of the obtained results some possibilities and recommendations for optimization of the education-training process were proposed.

Psychological characterization of active patients with epilepsy

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Epilepsy is a chronic neurological condition characterized by recurrent seizures. According to World Health Organization, it affects approximately 50 million people worldwide (OMS, 2012). Epilepsy is considered one of the most stigmatizing diseases. The patients are often forgotten and neglected, with lower levels of physical activity and higher problems with psychological adjustment (Guerreiro & Guerreiro, 2000). To evaluate the relationship between physical activity and psychological aspects (quality of life, stigma, depressive symptoms, self-esteem and resilience) in patients with epilepsy. We evaluated 80 patients of the Outpatient Clinic of Neurology (Unicamp), aged 18-60 years (mean ± SD: 42 ± 10.0 years), 49 women and 31 men. For screening physical activity questionnaire, we have applied the International Physical Activity Questionnaire (IPAQ) and the subjects were divided into two groups: Active Group (AG) and Not Active Group (NAG). The instruments used were: Quality of Life in Epilepsy Inventory-31, Beck Depression Inventory, Stigma Scale of Epilepsy, Self-Esteem Scale and Resilience Scale. The active group had better quality of life scores (AG=66.71, NAG=49.98, p<0.000), depressive symptoms (AG=6.31, NAG=16.21, p=0.001), self-esteem (AG=6.68, NAG=11.68, p=0.001), resilience (AG=141.95, NAG=129.00, p=0.003) and stigma (AG=42.60, NAG=46.75, p=0.298) compared to the non active group. CONCLUSION: The active patients have better levels of psychological aspects in relation to non-active patients. So, it is important to highlight that physical activity can be used as an important therapeutic method in the improvement of psychological aspects in patients with epilepsy.

The relationship between perceived motivational climate and social loafing among male and female youth soccer players

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Social loafing refers to individuals` tendency to exert less effort when working with others than when working alone, and may reduce young players` possibilities for reaching their potential. Building upon the work of Everett, Smith & Williams (1992) and Høigaard & Ommundsen (2007), the aim of this study was to examine the relationship between perceived motivational climate and self-reported social loafing among young Norwegian soccer players, and explore possible gender differences. Participants were 532 soccer players (167 girls and 365 boys, mean age = 15.4, sd = 1.2) participating in a national soccer tournament. Perceived Motivational Climate in Sport Questionnaire (Ommundsen, Roberts, & Kavussanu, 1998) and Self-Reported Social Loafing Questionnaire (Høigaard, Fuglestad, De Cuyper, De Backer, & Boen, 2010) were used to assess players' perception of motivational climate and social loafing. Results revealed that social loafing was positively related to perceptions of an ego-oriented motivational climate ($r = .14$, $p < .01$) and negatively related to task-oriented motivational climate ($r = -.40$, $p < .01$). Perceived task-oriented motivational climate correlated negatively with social loafing for both boys ($r = -.42$, $p < .01$) and girls ($r = -.28$, $p < .01$), while an ego-oriented motivational climate correlated positively with social loafing for girls ($r = .24$, $p < .01$) but not for boys. Compared to girls, boys perceived their motivational climate to be significantly more ego-oriented and less task-oriented ($p < .01$). Boys also reported significantly more social loafing than girls ($p < .01$). The results indicate that a task-oriented motivational climate may reduce social loafing among young soccer players, which may be positive for player development. Furthermore, perceptions of interpersonal relationship with teammates may differ across gender, and thereby explain current findings.

The influence of locus of control on collective efficacy and group cohesion in female collegiate handball team

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Recent studies have shown that Collective Efficacy (CE) and Group Cohesion (GC) are closely related with the team performance. The purpose of the current study was to examine the influence of athletes' locus of control upon CE and GC among a female handball team throughout a season. Twenty-eight players completed Locus of Control (LOC) Questionnaire (Rotter, 1966), and they were divided into two groups; Internal LOC group (N=14) and External LOC group (N=14). The participants in both groups answered Collective Efficacy Questionnaire for Sports (Short et al., 2005; Uchida et al., 2014), and Group Environment Questionnaire (Carron et al., 1985; Oda et al., 2005) at prior to four major games (i.e. local league, regional tournament, qualification match, and national championship). Two-way Repeated Measures ANOVA was conducted to examine the changes of the team means scores of CE and GC during the season. The main effect was significant showing that team means scores of GC of both groups at national championship were higher than any other occasions ($p<.05$). Moreover, the significant interaction was observed in team mean score of CE showing that the mean score of internal LOC group was higher than that of external LOC group at three major games($p<.05$). At the final national championship, the mean score of external LOC group were increased, so that there was no significant difference between both groups at the championship ($p>.10$). The team won the national championship, the higher mean scores of CE in both groups at the championship might be explained by the result. This longitudinal case study suggests that players' locus of control have much influence upon their CE compared to GC, and both are closely related to team performance.

The implementation of power naps in a preparation training camp of the German junior national rowing team

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Short daytime naps are considered a beneficial recovery strategy. However, empirical evidence is limited to laboratory studies investigating cognitive parameters. Although Waterhouse et al. (2007) indicated positive effects on sprint performances, field studies among athletes are lacking. The present study implemented power naps in a four-week preparation camp of elite junior rowers (16-18 years) examining the recovery-stress balances. The intervention group (IG, n=13) conducted collectively 30-min post-lunch naps on eight consecutive days while the control group (CG, n=13) received no intervention. Pre-post differences in the scales of the Recovery-Stress Questionnaire for Athletes (RESTQ-Sport; Kellmann & Kallus, 2001) were analysed between and within the groups. RESTQ-Sport profiles did not differ significantly between IG and CG before the intervention. For the post-intervention, a MANOVA identified a group effect ($F(19,6)=11.918$, $p<0.01$, $\eta p^2=0.974$), indicating overall higher recovery and lower stress scores in the IG. While the CG did not reveal significant pre-post differences, the IG decreased in Fatigue ($m1=3.29 \pm 1.14$, $m2=2.87 \pm 0.97$, $U=-2.370$, $p<0.05$) and Physical Complaints ($m1=2.33 \pm 0.70$, $m2=1.87 \pm 0.63$, $U=-2.177$, $p<0.05$). Participants' feedback was positive, e.g., feeling more refreshed after short and systematic napping compared to sleeping unrestrained and too long. The present field study investigated the implementation of systematic napping in the context of elite athletes. Positive effects on psychological parameters were found for the intervention group. Results were promising, but require further research. Although confounding variables could hardly be controlled and objective measures were lacking, the results suggest that power naps might help reduce the process of cumulative fatigue during training camps. Anecdotal reports confirmed the transferability and potential of power naps as successful recovery strategy.

Development of a diagnostic online tool system for Swiss sport psychology practitioners

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Psychological assessment is a central component of applied sport psychology. Despite obvious and well-documented advantages of diagnostic online tools, there is a lack of a system for such tools for sport psychologists so far in Switzerland. Having the most frequently used questionnaires available online in one single tool for all listed Swiss sport psychologists would make the work of practitioners a lot easier and less time consuming. Therefore, the main goal of this project is to develop a diagnostic online tool system with the possibility to make available different questionnaires often used in sport psychology. Furthermore, we intend to survey status and use of this diagnostic online tool system and the questionnaires by Swiss sport psychologists. A specific challenge is to limit the access to qualified sport psychologists and to secure the confidentiality for the client. In particular, approved sport psychologists get an individual code for each of their athletes for the required questionnaire. With the help of this code, athletes can access the test via a secure website at any place of the world. As soon as they complete and submit the online questionnaire, analysed and interpreted data reach the sport psychologist via E-Mail, which is timesaving and easy applicable for the sport psychologist. Furthermore, data are available for interpretation with athletes and documentation of individual development over time is possible. Later on, completed and anonymised questionnaires will be collected and analysed. Bigger number of collected data give more insight in the psychometric properties, thus helping to improve and further develop the questionnaires. In this presentation, we demonstrate the tool and its feasibility using the German version of the Test of Performance Strategies (TOPS, Schmid et al., 2010). To conclude, this diagnostic online tool system offers new possibilities for sport psychologists working as practitioner.

Unemployed but happy? The effect of exercise and psychological support on the emotional state of employed & unemployed individuals

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It is well accepted that unemployment creates significant negative consequences in those affected. This study examined the effects of a four months intervention programme of aerobic dance with or without the addition of a group cognitive-behavioural psychological support in the lives of unemployed and employed individuals. The exercise programme was provided 3 times/week (hourly sessions) and the psychological programme was provided biweekly (90' sessions). Forty seven (47) volunteered to participate in the study, ranging in age from 32 to 65 years old (M = 43.95, SD = 7.36). Based on the purpose of the study, the following four experimental groups were formulated: (a) unemployed exercisers, (b) unemployed exercisers following psychological support, (c) employed exercisers and (d) employed exercisers following psychological support. Data collection was based on the Profile of Mood State, the State Anxiety Inventory, and the Self-Esteem Scale which were filled in at the beginning, the middle (2nd month), and the end of the programme. Results provided support for the positive effect of exercise (in all groups) and exercise plus psychological support (in the unemployed participants).The greatest positive change was revealed in the case of the unemployed participants (Pillai's Trace = .955, $F_{2,18} = 2.130$, $p<.05$, $\eta 2p = .477$) between the initial and the final measurements (i.e., Total Mood Disturbance: $p<.05$, $\eta 2p = .287$). The most important finding was related to the quick positive change in the psychological response of the unemployed participants who attended the exercise plus psychological support

programme (at 2 months) followed by the positive effects of the exercise programme for the unemployed participants. Although the effects of many variables were not assessed (i.e. analysis of fitness levels, exercise intensity, polarity of emotions), the current study provides initial clues on the potential of combining group exercise and psychological interventions supporting unemployed individuals.

The Spanish Sport Anxiety Scale project: A Self Determination Theory perspective

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The Sport Anxiety Scale-2 (SAS-2; Smith, Smoll, Cumming, & Grossbard, 2006) is considered as one of the best instruments to assess child and adolescent athletes' trait competitive anxiety (Harris, Blom, & Visek, 2013). Validation studies and cross-cultural comparisons are becoming a major scientific interest in psychology in order to expand the knowledge of different measure functioning across countries and cultures (e.g., Fischer & Fontaine, 2011). Trait competitive anxiety is defined as the systematic trend to react with state anxiety to competitive situations (Martens, 1977). It can be thus considered as a context specific emotional response. This fits with the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 2007) that explains the relationship between social environment, motivation, and emotional consequents at global, contextual and situational levels. Three studies have been conducted on the Spanish SAS-2 project: (a) a linguistic and cultural validation study; (b) an invariance study of the SAS-2 across three adapted versions (i.e., Spanish, Flemish and Portuguese), as well as across gender, age and type of sport; and (c) a structural model to confirm that Competitive Trait Anxiety is a contextual ill-being consequent of controlling environments and controlled regulations. Results of the CFA of the three factor model Spanish SAS-2 (i.e., Somatic Anxiety, Worry, and Concentration Disruption; CFI = .98; RMSEA = .04) as well as scalar invariance across sampling variables (CFI between .96 and .98; RMSEA between .05 and .06) give support to the structural stability of the scale. The fit of the predictive model of controlling environments and regulations on the competitive anxiety (CFI = .95; RMSEA = .04) supports the model based on Vallerand's theory and validates its conceptualisation as a negative consequent on SDT approaches in future research.

Difficulties faced by the sports clubs in the Sultanate of Oman

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The aim of this study was to identify the difficulties of planning and organizational, technical and financial difficulties facing sports clubs in the Sultanate of Oman. To answer the research questions, the researchers set up and developed a questionnaire as a major tool for the study. The researchers also conducted field visits to targeted clubs, collecting documents and publications related to the current situation of these clubs. The study sample (totaling 231) was selected of board members of sports clubs and federations, executive staff of the Ministry of Sports Affairs, sports clubs and federations, and the media. The results indicated that the order of the difficulties faced by sports clubs are as follows: planning difficulties, the financial difficulties, technical difficulties, and then come in the fourth and final ranking organizational difficulties. The study recommended the need to develop long-term plans and with a timetable for the activities of the federations or the club. It is also important to not ignore to plan the qualification activities for the workers in the federations and clubs. Finally, there is a need to develop regulation form of relations between members in the clubs.

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