Abstracts

Wednesday 30th June, 14.00 -15.00

<https://stmarys.zoom.us/j/86802063157?pwd=TmZhNXlOUFlXSXhBNUNrN2lHbWNVUT09>

**Mini-Orals: (Session 2) (Session Chair: Stephen Patterson)**

**Talk 1: Jourdana Durrell:** An insight into children’s physical activity behaviour: the teacher’s perspective

**Talk 2: Luke Hughes:** Reduced sensitivity to pain with blood flow restricted aerobic exercise

**Talk 3: Rishi Patel, Sarah Coakley, Jamie Tallent, Alex Woodhead, Jess Hill, John Pattison:** Physiology: Exercise in the heat and heat acclimation strategies

**Talk 4: Ross Wadey:** Challenging the Status Quo of Sport Injury Psychology

**Talk 5: Silvia Riva:** Long-Term Cognitive Impairment in blood diseases: the case of Thrombotic thrombocytopenic purpura

Title: An insight into children’s physical activity behaviour: the teacher’s perspective.

Presenter: Jourdana Durrell

Increasing physical activity levels or meeting current advised levels is a vital factor in the reduction of body mass (Horsak et al., 2019). A literature review found high efficacy of physical activity interventions to reduce obesity-related measures of school age children (Shaya, Flores, Gbarayor, & Wang, 2008). However, these physical activity interventions, on average, result in minimal increases in children’s total activity volume. This reflects that although physical interventions can result in some initial change in obesity-related measures, behavioural changes towards physical activity participation are not positively altered.  Schools are the ideal opportunity to observe obesity related behaviours such as physical activity (Story, Nanney, & Schwartz, 2009). Despite the beneficial positions school staff are in, there are few studies which look at physical activity behaviours for both typical and overweight/obese children from the teacher’s perspective (Allison, & Adlaf, (2000). In current literature, there is a lack of representation of school staff in their suggestions, reflections and recommendations in relation to physical activity programmes (Langford, Bonell, Jones, & Campbell, 2015). Therefore, this study aims to utilise primary school staff to gain an insight into typical as well as overweight/obese children’s motivational behaviours towards physical activity from the teachers perspective. Four virtual focus groups were conducted following a semi-structured interview style. The data was transcribed and Thematic Analysis conducted to identify themes which relate to physical activity motivational behaviours in typical and OWB children (analysis not complete yet, will be complete by presentation). These findings will be used alongside data I will be collecting from children to inform an intervention design in aim to lead to biomechanical changes as well as motivational behaviour towards physical activity.

Horsak, B., Schwab, C., Baca, A., Greber-Platzer, S., Kreissl, A., Nehrer, S., Keilani, M., Crevena, R., Kranzl, A., & Wondrasch, B. (2019). Effects of a lower extremity exercise program on gait biomechanics and clinical outcomes in children and adolescents with obesity: A randomized controlled trial. Gait & posture, 70, 122-129.

Metcalf, B., Henley, W., & Wilkin, T. (2012). Effectiveness of intervention on physical activity of children: systematic review and meta-analysis of controlled trials with objectively measured outcomes (EarlyBird 54). Bmj, 345, e5888.

Shaya, F. T., Flores, D., Gbarayor, C. M., & Wang, J. (2008). School‐based obesity interventions: a literature review. Journal of school Health, 78(4), 189-196.

Story, M., Nanney, M. S., & Schwartz, M. B. (2009). Schools and obesity prevention: creating school environments and policies to promote healthy eating and physical activity. The Milbank Quarterly, 87(1), 71-100.

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Title: Reduced sensitivity to pain with blood flow restricted aerobic exercise

Presenter: Luke Hughes

Exercise can decrease sensitivity to pain (i.e. hypoalgesia). Performing blood flow restriction (BFR) during low intensity resistance exercise can increase the hypoalgesia response, which may be useful for individuals with chronic pain who cannot tolerate high intensity exercise. However, the effect of aerobic exercise with BFR on pain sensitivity is not known. The aim of this study was to investigate the effect of low intensity aerobic exercise with BFR on pain sensitivity in comparison to low and high intensity aerobic exercise. Ten pain-free males were recruited for this study (age = 26 y). Participants performed five sessions consisting of a graded exercise test followed by 4 experimental testing sessions in a randomised crossover design. A different exercise protocol was used for each session: 1) low intensity aerobic exercise (LI-AE); 2) LI-AE with low pressure BFR; 3)  LI-AE with high pressure BFR, and 4) high intensity exercise. Participants cycled for 20 min and BFR was applied to both lower limbs. Pressure pain thresholds (PPT) were measured before and 5 min post-exercise to examine pain sensitivity. Measurement sites included both quadriceps muscles, the dominant bicep and non-dominant trapezius. Data were analysed using a two-way repeated measures ANOVA at each measurement site. Significantly greater increases in PPT were found following high intensity exercise (15-21%) and low intensity aerobic exercise with low pressure BFR (21-24%) and high pressure BFR (30-34%) compared to LI-AE (1-6%) (all p<0.05). In both quadriceps, high pressure BFR resulted in the greatest change in PPT (both p<0.05). Performing BFR in low intensity aerobic exercise increases the hypoalgesia response both locally and systemically. The magnitude of this effect may by influenced by the level of pressure applied. Low intensity aerobic exercise with BFR may be useful to rehabilitate people with painful conditions and chronic pain.

Title: Physiology: Exercise in the heat and heat acclimation strategies

Presenter: Rishi Patel, Sarah Coakley, Jamie Tallent, Alex Woodhead, Jess Hill, John Pattison

Exercise in the heat poses a formidable threat to the body’s ability to control its internal environment, which often results in an elevation in body core temperature (Tc). This is the cumulative results of high rates of metabolic heat production and heat gain by physical transfer from the environment. Studies have shown that an accelerated increase in Tc could impair both exercise performance and exercise capacity. Consequently, there is growing interest in heat mitigation and acclimation strategies to optimise performance.

This abstract showcases two current ongoing projects focusing on exercise in the heat and heat acclimation strategies

**Mechanisms of Taurine in the heat**

Supplementation with taurine has been shown to increase endurance performance and more recently demonstrated to enhance exercise performance in the heat. However, less is known on the mechanistic action by which taurine exhibits its effects. This study aims to investigate the neuromuscular effects of taurine supplementation following a fixed steady state exercise bout in the heat.

**Post exercise hot water immersion as an acclimation strategy**

One novel approach to heat acclimation is to have individuals undertake hot water immersion (HWI) immediately after daily exercise performed in temperate conditions. Many of the physiological adaptation following heat acclimation can enhance strength and endurance performance in hot and thermoneutral environments. Therefore, our research aims to investigate the following:

1. A comparison between traditional and novel heat acclimation strategies
2. The time course of the strength and endurance adaptations following novel heat acclimation strategies

Title: Challenging the Status Quo of Sport Injury Psychology

Presenter: Ross Wadey

The aim of this presentation is to introduce a new book – Sport Injury Psychology – and encourage research collaboration at St Mary’s University. A book which challenges the status quo of this field of research and opens new and exciting trajectories for future research. From the outset, the book sets out to evolve sport injury psychology from an individual focused and single, scientific discipline into a cultural and relational focused and interdisciplinary discourse. Up until now, research interest on cultural and relational thought and practice has been marginal if not completely eschewed in sport injury psychology. Therefore, the opening chapters in this text considers how future researchers in this field can connect their work with the larger social-cultural environment in and outside of sport, and forge links and reciprocity with related disciplines (e.g., sport sociology, social psychology, organizational psychology, cultural psychology). However, a barrier to these novel pathways for future research is that the field of sport injury psychology remains largely positivistic, using nomothetic methodological designs and quantitative methods to explain and predict injured athletes’ behaviour. While some authors in this book provide several recommendations on how to improve the methodological rigor of studies underpinned by this research philosophy, it is anticipated by others that future researchers might also want to start to consider embracing other research paradigms that incorporate diverse qualitative methods, which might involve working ‘with’ rather than ‘on’ our participants. Congruent with this more collaborative agenda, the final consideration discussed in the closing chapters of this book is the ‘gap’ between academic researchers and applied practitioners. To close this gap and encourage greater diversification in applied practice rather than relying on the ‘usual suspects’ (i.e., psychological skills), the authors in the closing chapters draw upon their experiential knowledge to challenge dominant discourses in applied research and provide a vision for sport injury psychology of theory driven practice and theory informed by practice

Title: Long-Term Cognitive Impairment in blood diseases: the case of Thrombotic thrombocytopenic purpura

Presenter: Silvia Riva

Thrombotic thrombocytopenic purpura (TTP) represents a rare haematological condition that affects normal blood's tendency to clot. This condition involving all body and nervous system presents a frequent involvement of neuropsychological functioning. Patients affected by such critical illness often have a prolonged and disabling form of cognitive impairment that remains inadequately characterized. To assess the long-term neuropsychological consequences of TTP, we recruited 35 acquired TTP patients (77% females, median age at onset 41 years, interquartile range: 35–48) regularly followed at the out-patient clinic of the Haematology and Oncology Department at the University of Milan which is a national contact point for all rare haematological disorders in Italy. Patients underwent a psychological evaluation of memory and attentional functions, emotional wellbeing and health-related quality of life at least three months after their last acute TTP event (median 36 months, interquartile range: 17–54). During the psychological consultation, 17 patients (49%) referred persisting subjective neurological impairment in the frame of a remission phase, with at least one symptom as disorientation, loss of concentration, dizziness, lack of balance, headache and diplopia. Neuropsychological assessment revealed lower scores than the Italian general population pertaining to direct, indirect and deferred memory. A higher degree of impairment of memory domains was found in patients with neurological involvement at the time of presentation of the first acute TTP episode. Anxiety and depression were detected in seven (20%) and 15 (43%) patients, respectively. Health-related quality of life was lower than the Italian general population, with mental domains more impacted than physical domains (mean difference 58.43, 95% confidence interval: 71.49–45.37). Our study demonstrates compromised memory and attention functions, persisting anxiety/depression symptoms and a generally reduced quality of life in patients recovering from acute acquired TTP. New clinical strategies should be considered to improve these symptoms.