

2019 Women in Sport and Exercise Conference Abstracts

Abstract Summaries

Open Communications

Gender Gap in Painful Knees: PFJ & ACL – ‘Odd Couple’ Biomechanics and Neuromuscular Differences Between Females and Males

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Since 1972, after Title IX was passed governing gender equality in scholastic athletics, an exponential rise in musculoskeletal trauma accompanied the explosion of female sports participation; mostly regarding knee injuries which comprise up to 50% of all sporting activities. Specifically, the incidence of patellofemoral (PF) pain (25%>2x) and anterior cruciate ligament (ACL) injuries (2-8x) occurs more often in females compared to males. Interestingly, female knee (ACL) injuries occurring during sports participation parallels the onset of puberty and release of the sex-specific hormone, oestrogen. The ramifications of ACL tears put a tremendous strain on the injured athlete and society, not only physically, but also psychologically and economically i.e. disability/financial cost. Various theories have attempted to explain this gender disparity in knee injury incidence. Both intrinsic and extrinsic factors play a role including lower extremity alignment, landing biomechanics and differential neuromuscular activation; each is implicated in plausible trauma causation. Inherent morphology of bones/joints above and below the knee can predispose female athletes to PF injuries and/or ACL tears. Since anatomical variation cannot be altered, current research aims to find alternative ways to minimise painful symptoms/injury risk. Studies indicate that strength and conditioning programs which incorporate plyometrics into the training regimen have demonstrated success in reducing/preventing knee trauma by as much as 50%. By targeting specific lower extremity muscle groups in female athletes, and encouraging athletes to repeatedly practise how to land from a jump, reflexive mechanism will hopefully occur within the body, i.e. posture control during sports manoeuvres in order to protect them from incurring knee trauma.

Increased Injury Risk in Short, Middle and Long-Distance Female Runners

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Running-related injuries constitute a major health concern, especially with increases in recreational running and a growing number of distance running events. This study aimed to investigate the effects of gender and weekly distance on lower extremity injury prevalence in runners. A retrospective cohort study was designed to investigate the prevalence of running-related injuries and establish trends in short-, middle- and long-distance runners. Anonymised self-reported data relating to 386 females and 614 males were sampled and analysed. Both injured and non-injured individuals were included. Runners in all distance population groups

were found to have a high risk of running-related traumas (80.5 – 86.9%), but females reported greater injury rates than males in each distance group, with the greatest difference observed in middle-distance runners (females 91.5%, males 76.0%). Knee injuries were the most common traumas reported, followed by the foot and shank. A significantly higher number of hip injuries were reported by females than males. Overall, females were found to be at a high, and significantly greater, risk of running-related issues compared to males, which was not explained by training habits. Although males and females showed similarity in patterns of injury, the underlying pathway of those injuries might differ between runners due to various internal factors associated with gender. Further research should focus on investigating how foot and lower limb mobility, body anatomy, as well as hormonal status affects movement biomechanics in females to develop strategies to protect females from running-related issues through exercise, footwear recommendation and gait education.

USA Women’s Rugby-7s Non-Contact Injury Incidence

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Despite tremendous growth of female participation in Rugby-7s, there are limited data on injury epidemiology of women’s Rugby-7s. The aim of this study was to prospectively report non-contact injury incidence and causes among US women’s under-19 to elite Rugby-7s’ players over 2010–2015 using the Rugby Injury Survey & Evaluation (RISERugby) methodology. Non-contact causes of injury occurred frequently (26.5/1000 ph; 29% of all injuries; $n = 167$) over the study period (classic-non-contact (CNC) = 92%, $n = 153$; other-non-contact (ONC) = 8%, $n = 14$; $p < 0.001$). Overall, non-contact injury incidence (time-loss and medical attention) were found at similar rates among backs (58%, 23.9/1000 ph) versus forwards (42%, 19.3/1000 ph; RR:1.04, $p = 0.816$). CNC time-loss injuries were observed

at similar rates among positions (backs 6.1/1000 ph; forwards 5.9/1000ph, RR:1.03, $p=0.933$). Non-contact injuries resulted in 58.4 mean days absent (CNC 58d; ONC 60d). The study's findings of non-contact injury associated with the open play phase (39%) and periods of intense running/sprints support the need for training and conditioning necessary to meet Rugby-7s' demands for women. The high muscle and tendon injury rates (31%) could be reduced with preseason and in-season conditioning. The high rates of joint and ligament injuries (39%), particularly among US females' knees and ankles, could be reduced by increasing muscular load tolerance and proprioception during training and by including open field manoeuvres. The high recurrent injury rates at 40% may be reduced with proper education on the importance of appropriate post-tournament medical care and return-to play programmes.

“We’re Here to Become Good People, Not Good Footballers!”: Uncovering Meaning Through an Ethnographic Exploration of Girls’ Experiences in a Recreational and Restorative Football Programme in Central Scotland

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In light of the historic qualification of Scotland's Women National Team for their first World Cup finals, football participation of women and girls in Scotland has grown tremendously. Reports abound with statistical insights into reasons for motivation and participatory trends; however, what lacks is a thorough understanding of the intermediate outcomes of participation, especially in recreational environments. This ethnographic study explored the lived experience of a group of at-risk girls participating in a girls'-only recreational and aspirational football programme in Scotland. With the primary aims of life-skill development, increasing school retention and promotion of physical activity in this historically marginalised population, this programme utilises football as a vehicle for change. Wholly focused on 'becoming good people, not good footballers', this programme offers these young girls a safe space to learn and grow through football. Investigatory aims focused specifically on the meanings associated with relationships, identity and gender within the context of recreational football. This paper presents early findings from data collected through fieldwork observations, informal and formal interviews, and participatory arts-based focus groups. Despite the lack of formal games and competition, the importance of 'team' identity proved to significantly impact the development of individual identity. Another significant component of their experience was the importance of the developed culture. Their lived experience, sense of identity and culture are conceptualised through the theoretical lens of the ethic of care. These insights aim to contribute to the budding literature on the creation of caring sporting environments.

Zumba Fitness Improves Aerobic Fitness and Psychological Wellbeing in Healthy Women

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The aim of this study was to investigate the effects of an eight-week exercise intervention based on Zumba fitness classes on physiological and psychological outcomes in healthy women. Maximal oxygen consumption (VO₂max), body composition, physical self-perception and psychological wellbeing were assessed before and immediately after eight weeks of Zumba performed three times weekly (Zumba group, $n=22$, age: $M=26.6$, $SD=5.4$ years old; height: $M=165.8$, $SD=7.1$ cm) or no intervention (control group, $n=22$, age: $M=27.9$, $SD=6.0$ years old; height: $M=164.7$, $SD=6.2$ cm). All variables were analysed by a two-way (Group x Time)

analysis of variance with repeated measures, and a Bonferroni post-hoc test. Pearson correlation coefficient assessed the relationship between changes in anthropometric, physiological and psychological variables. Zumba provided significant positive changes in VO₂max (+3.6%), self-perception of physical strength (+16.3%) and muscular development (+18.6%), greater autonomy (+8.0%), and purpose in life (+4.4%). No significant changes were observed in the control group. In addition, some psychological changes were significantly correlated to body fat at baseline and changes in fitness. These results are in accordance with those from the literature for aerobic fitness and body fat and highlight that Zumba is beneficial to improve fitness and wellbeing in healthy women but might not be appropriate on its own for weight loss.

Weight on the Bar vs. Weight on the Scale: Disordered Eating Pathology in Competitive Female Powerlifters

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Disordered eating research in sport psychology has arisen due to the need to investigate sub-clinical populations. The manifestation of sub-clinical symptoms presents risk to full eating-disorder diagnosis. Researchers have identified the risk of disordered eating development to be heightened in female athletes and those in lean, weight-preoccupation sports. The aim of the study was therefore to explore disordered eating pathology through subjective enquiry in competitive female powerlifters. Methods: Semi-structured interviews were conducted with 17 British female powerlifters, competing at national or international level. Three major themes which contributed to disordered eating were identified through inductive thematic analysis; unique sport-specific factors, preoccupation with food, and managing body perceptions. Themes highlighted the conflict between the aim of powerlifting in terms of adding 'weight on the bar', and the weight-class aspect of the sport requiring athletes to monitor 'weight on the scale'. Through their experiences in the sport, a combination of both positive and negative accounts were provided by participants. The unique characteristics of powerlifting, requiring maximal loads to be lifted, created feelings of empowerment by the female athletes. Furthermore, the sport emphasises characteristics traditionally deemed masculine, which defy the norms of femininity. In order to reap the positive benefits, and to alleviate disordered eating development and maintenance, a multi-disciplinary approach is advocated. Discussions amongst athletes and support staff may prove useful in creating an awareness of this mental health concern and ultimately eradicate the negative connotations associated with this 'taboo' topic.

Gender Equity in Sport Governance: Next Steps for Creating Change

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Sport governance remains gender-imbalanced at all levels of leadership across the world, and English sport governance provides no exception. Scholars, activists and practitioners have identified the need to address gender inequity within sport governance. This presentation aims to: (1) Present an overview of key findings from a doctoral study that explored the workings of gender power relations within the governance of two English NGBs: England Golf and the Lawn Tennis Association; and (2) Provide recommendations of how academic research and applied practice can combine to create organisational change towards achieving gender-equitable sport governance. A multi-method approach was used, which consisted of semi structured interviews (primarily with senior leaders and middle managers), participant observation (of general organisational life and specific events) and an analysis of supporting documents (including annual reports, rules and board minutes). There was evidence of both the conservation and resistance of gender power relations that profit