Consensus Statement

The Inaugural Women in Sport & Exercise Conference: Blood, Sweat and Fears. Staffordshire University, Stoke-on-Trent, UK. June 13th-14th 2018

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The inaugural women in sport and exercise conference was held at Staffordshire University on 13th-14th June, and brought together a number of academics, clinicians, practitioners, sport leaders, policymakers and administrators, charities, current and retired athletes, and the general public for a showcase of current research on female-specific health and medical issues and opportunities arising from women's participation in sport and exercise. Aside from these common themes, the conference sought to kickstart a redressing of the gender disparity of participants in sport and exercise science research. Courtesy of Costello, Bieuzen, and Bleakley (2014), we know that females are significantly under-represented in research across all of the sports science and sports medicine disciplines. Ultimately, the result of this is the extrapolation of the findings, provided by male participants, to female athletes and exercisers (Costello et al., 2014). Contributors from a diverse range of disciplines such as physiology, biomechanics, psychology, nutrition, endocrinology, sociology, and sport policy sought to present their work from an academic, a professional practice, and a policy perspective. The commonality amongst all contributions was the consideration of females as a unique population both in research and in practice. Although the contributions were many and varied, there were a number of common themes that became apparent during the course of the two days. These were: encouraging more females

into sport and exercise, physical training and nutrition, menstruation, psychology, pregnancy, injury, ageing and the lack of a level “playing field”.

Encouraging more females into sport and exercise

At the recreational end of the spectrum, there were sessions from sport policymakers and academics on the challenges associated with reducing dropout and making sport and exercise enjoyable for female adolescents, especially during puberty (Nicholson, 2018), and for female University students (Carter, 2018). Furthermore, research from Burbage and Brown (2018) highlighted the importance of concerns about breasts as a barrier to exercise and the stereotyping of role models who “look too fit” to inspire the average female (Nicholson, 2018). In amongst the contributions aimed at increasing female participation was a lively key note from Lisa O’Keefe who presented the unrivalled success of Sport England’s #LikeAGirl campaign which has inspired an additional 2.6 million girls to engage in sport and exercise (O’Keefe, 2018). There were many successful interventions discussed that we can all translate into practice to help increase the growing trend in sport and exercise participation in this population.

Physical training and nutrition

The sex differences in physiology between men and women are often the most stark when you think about sport and exercise. Yet, from the research presented, it became clear that important physiological factors are rarely considered when designing suitable nutrition and physical training advice for the female athlete or exerciser. For example, we learned that females oxidise more lipids than men during submaximal exercise (Stevenson, 2018), which will clearly demand a different nutritional intake for effective performance. Likewise, females using oral contraceptives may be at greater risk of muscle damage during exercise, and the use of hormonal contraceptives generally may have implications for health and athletic

performance, as they alter the concentrations of ovarian hormone exposure (Elliott-Sale, 2018). All these issues are important considerations in the effective support of female athletes and exercisers.

Menstruation

There were a number of presentations that featured the negative impact of menstrual dysfunction on sport and exercise performance. Ultimately, research suggests that it is important to have a regular menstrual cycle as an elite athlete (Dooley, 2018; Keay, 2018), and that instances of heavy menstrual bleeding (resulting in iron deficiency) should be not overlooked (Bruinvels, 2018). Yet, Relative Energy Deficiency in Sport (RED-S), otherwise known as the Female Athlete Triad, can impair physiological function such as menstrual function, bone health, immunity, protein synthesis, and cardiovascular health (De Souza, Koltun, Southmayd, & Aurigemma, 2018). The first symptom of RED-S or the Female Athlete Triad is often amenorrhoea – the absence of a normal menstrual period. It was disappointing to learn that some athletes had been advised by their general practitioners (physicians) that an absence of periods was “normal” in female sport. In some cases, they were prescribed an oral contraceptive as a “solution”. The conference contributors were clear that all cases of amenorrhoea should be investigated due to its short- and long-term health consequences such as a reduction in vasodilatory capacity (Birch, 2018), and the detrimental consequences it has on bone (Hind, 2018). Indeed, contributors warned against the use of oral contraceptives to “treat” amenorrhoea as this approach induces an “imposter period” which is no substitute for a menstrual cycle with fluctuating hormones (Elliott-Sale, 2018).

Psychology

It is clear that sociocultural and sociocognitive influences determine nuanced behaviour in athletes and exercisers (Roberts, Ferguson, & Mosewich, 2018), and, therefore, there are

many psychological components of performance that may differ according to gender. For example, during sport competition, research suggests that females often adopt different pacing and tactical strategies than males, which are often more robust and independent of opponents (Hettinga, 2018) – information that is key to effective coaching and performance psychology support. In addition, the unique quandry of female athletes who decide to become a mother *during* an athletic career creates a significant interruption to their career trajectory, bringing with it a unique set of demands that requires coping processes to allow a return to elite sport. This level of disruption, Roberts and Kenttä (2018) argue, means that motherhood during an athletic career should be treated as a career transition within its own right (Roberts & Kenttä, 2018). The nuances of this situation require greater awareness and support strategies on the part of athlete support personnel and the sports concerned. Women can also develop their own confidence to face challenging situations through their athletic and exercise careers (Jones, 2018).

Pregnancy

For exercisers and elite athletes alike, contributors to the conference repeatedly called for clinicians and practitioners to upskill themselves to ensure they are competent enough to encourage and support women wanting to exercise and train during pregnancy (Hind, 2018), especially with the encouraging evidence that exercise can prevent reduce antenatal and postnatal (postpartum) depression and weight gain (Daley, A, 2018). In addition to this, it was clear that there is an urgent need for the design and implementation of return-to-play strategies for women after childbirth (Elliott-Sale, 2018; Roberts & Kenttä, 2018, Smith, 2018), no matter what level at which these women exercise or compete.

Injury

Conference contributions emphasised the role of hormonal fluctuations during the menstrual cycle in putting females at greater risk of sport injury than males. Important work involved regarding screening athletes and providing bespoke training to counteract injury susceptibility (De Ste Croix, 2018) was discussed. Additionally, Duffy (2018) spoke about the identification of the higher frequency of concussion in female athletes, and the process she is embarking on to attempt to understand why this is the case.

Ageing

Advantageously for females, research presented at the conference identified the vast benefits of a lifetime of exposure to oestrogen (Birch, 2018). Not only is oestrogen cardioprotective, but it is also important for bone health for the exercising female (Babatunde & Forsyth, 2013), and can reduce triglycerides and insulin sensitivity. However, Birch (2018) suggested that, as we get older, the number of our oestrogen receptors decrease, thereby heightening the risk of cardiovascular disease and increasing out likelihood of mortality. The research that Birch (2018) presented suggested that high-intensity interval training has been shown to moderate the risk of coronary heart disease in later life, providing clear direction on successful interventions for older adult females.

Sport is not a level playing field

Although the numbers of female athletes and exercisers is on the increase, there remains a great gender disparity in sport, specifically in the leadership and coaching domains. From a leadership perspective, Phelps (2018), in her talk entitled “The problem with women’s sport” encouraged us all to challenge the status quo by observing that we cannot expect half the population to work to norms developed 100 years ago. On the same theme of gender disparity in sport, Norman (2018) discussed her work that has highlighted the acute difference between the numbers of men and women coaches and at a leadership level in

sport (Norman, 2018). She went on to suggest that gender-inequitable organisations produce gender-inequitable results and encouraged us all to take an active role in influencing the culture of sport, such that it becomes a female-friendly environment for gender diversity.

Summary

This statement merely provides and overview of some of the key themes evident in the conference contributions. There were many more talks and presentations that provided us with an insight of the female-specific nuances of sport and exercise, including many excellent studies that addressed important topics such as using exercise to decrease hot flushes in breast cancer patients (France, Brislane, Holcome, Low, & Jones, 2018), homophobia in female team sport (Bullingham & Roberts, 2018), and how to leverage charity challenges (e.g., race for life) as a gateway to more regular exercise (McVinnie, Plateau, & Stevinson, 2018). Extended abstracts providing a greater level of detail are featured in this issue of *Women in Sport and Physical Activity Journal*.

Next steps

The consensus arising from the conference on the next steps for continued progress in the area of women in sport and exercise are summarised as follows:

- Research in the women in sport and exercise domain is in its relative infancy. Much more work is required to ensure that the field produces findings from studies that are truly representative of the population to which they are being applied.
- Males and females should participate in the same research projects, with equality of representation in order to determine true gender differences.

- Although hormonal fluctuations and other confounds such as the use of hormonal contraception makes research with female athletes and exercisers challenging, future research should be designed to take these challenges into account.

Finally…

The conference featured many members of the growing Women in Sport and Exercise Academic Network (WISEAN). We are fortunate to have members representing a number of disciplines, from all around the world who are working together to grow, strengthen and promote research in women and sport and exercise. If you would like to join our dynamic network, please email Dr Claire-Marie Roberts (claire-marie.roberts@uwe.ac.uk) or Dr Jacky Forsyth (J.J.Forsyth@staffs.ac.uk) expressing your interest. For 2019, the Women in Sport and Exercise/WISEAN conference will be hosted at St Mary's University, Twickenham, London, UK.

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