

## **Study designs for female athlete research**

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Specific research to guide the training and nutrition strategies used by female athletes to optimise performance is lagging behind their increased participation in sport. The under-representation of females in sports science research is multi-faceted; factors include the complexity of the study design needed to account for their special characteristics – particularly around the menstrual cycle - but may also include a lack of availability or desire to participate in certain types of research. It is important to coordinate the awareness of the need for targeted research on female athletes by identifying areas of greatest imbalance, best likelihood of special characteristics, or greatest performance gains. Addressing the main barriers to female involvement in sport will also require a multi-targeted approach. Strategies include canvassing the attitudes and beliefs of female athletes regarding research participation and developing research opportunities that can support the training and education needs of emerging but under-resourced athletes. Standardisation and monitoring of menstrual phase/menstrual status are important features of high-quality research protocols. Meanwhile, research-embedded training camps conducted over 4-5 weeks provide a unique opportunity to monitor various attributes of athlete health and performance while tracking menstrual phase. Although designs in which a cohort of females simultaneously undertake the research project present a challenge to standardising menstrual phase, some practical suggestions include holding tests close together or ~1 cycle apart, with the verification of menstrual hormones. A range of real-life experiences in conducting female research projects can provide insights into successes and challenges

## **Sports Nutrition – what’s in it for me?**

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In July 2012, just prior to the opening ceremony of the London Olympic Games, simultaneous activities by the BBC current affairs program Panorama and the British Medical Journal directed attention to sports science research. The outcome was a hearty criticism of our work (“40 years of sports science research and little insight gained”), with focus on the small sample sizes commonly seen in investigative studies, the lack of the generalisability of results, the intrusion of commercial bias and the failure of the replication of results. While these summaries include a kernel of truth and a reminder that peer-reviewed science can be flawed, they misunderstand the questions asked by athletes and coaches and underestimate the challenges involved in providing answers. This presentation provides a critical analysis of our current understanding of the benefits of a range of sports nutrition strategies on sports performance, as well as the impairment of performance associated with incorrect nutrition support. Features include the specificity of the application of sports nutrition to different events and to different populations, and the magnitude of the benefits and impairments. Strategies to enhance our delivery of a specific evidence base to sports nutrition will be discussed.