TITLE: BODY COMPOSITION AND ANTHROPOMETRIC PROFILES OF ELITE FEMALE ATHLETES

ABSTRACT: Quantifying body composition is central to monitoring performance and health in all athletes. Optimal body composition in athletes is associated with improved strength, power-to-weight ratio and cardiorespiratory fitness. Anthropometric assessment, including body dimensions, circumferences and skinfold thickness measurement, is the most practical and frequently used method to describe body composition in athletes. Despite the importance of body composition as a performance variable in athletes, there is a paucity of reference gender- and sport-specific data. Previous studies on male athletes demonstrate large variations in anthropometric profiles between different athletes and across different sports, highlighting the necessity for sport-specific normative data to ensure informed monitoring of female athletes. Very limited body composition data currently exists in the elite female athlete population. As a result, female athlete body composition data are commonly and often inappropriately compared to male reference values.

Expecting athletes to achieve body composition goals of set values for specific sports may place them at increased risk of developing relative energy deficiency syndrome (RED-S). This will eventually lead to increased risk of infection, illness, fatigue and nutrient deficiencies along with more serious physiological and psychological consequences, ultimately, impairing sports performance and severely compromising athlete health. The associated pressure of targeting set body composition goals within high performance environments could even place athletes at increased risk of developing disordered eating patterns and eating disorders. Given that so many variables may influence body composition, it is important for it to be interpreted with the context of the individual athlete in mind. In addition to genetics, athlete age, training status, stage in competitive career, sporting demands, time of season and competition should all be considered when interpreting athlete data. Limited sport-specific anthropometric reference data, assessedand reported in a standardised manner, is available for female athletes, which limits interpretation of bodycomposition information amongst athletes and support teams.

Therefore, the aim of the proposed study is to investigate the assessment and reporting of anthropometric profiles in high performance female athletes from different sports. The project will 1) evaluate the influencing factors on body composition in female athletes to enhance testing procedures and standardisation; 2) provide sport specific anthropometric reference data in high performance female athletes from different sports at different time points in a season; 3) identify the influence of the menstrual cycle on the assessment of body composition profiles.

There is a distinct need for sport-specific anthropometric profiles, assessed in a standardised manner andreported in line with guidelines to allow optimal monitoring and interpretation of anthropometric characteristics in female athletes amongst athletes and support teams. Guidelines and data provided in this study will be an invaluable resource for sports practitioners, coaches and scientists working with female athletes when monitoring and interpreting body composition data.

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