Public Abstract
First Name:Celsi
Middle Name:Erin
Last Name:Cowan
Adviser's First Name:Stephen
Adviser's Last Name:Ball
Co-Adviser's First Name:
Co-Adviser's Last Name:
Graduation Term:SP 2013
Department:Exercise Physiology
Degree:MS
Title:Comparison of Anthropometry to DXA in Men: A Validation Study

INTRODUCTION. Accurate and valid body composition methods are needed in order to assess percent body fat (%BF) but the accuracy of anthropometric equations is limited by the criterion method from which they are created. Current equations by Jackson and Pollock (JP), recommended by the American College of Sports Medicine (ACSM), have been shown to underestimate body composition due to the assumptions of the 2C model (2, 10, 16, 23). The more recent DXA criterion (DC) skinfold equation created by Ball et al. is based on dual X-ray absorptiometry (DXA), a three-component model (3C), which has been shown to be more accurate than the previous 2C model (14). The purpose of this study is to validate the DC skinfold equation. The secondary purpose of this study is to compare the currently recommended skinfold equations to DXA. METHODS. Two hundred ninety-seven male subjects, aged 18-65, completed a seven site skinfold assessment and one DXA scan to determine %BF. Three JP equations and the DC equation were used to predict %BF (2, 15, 17, 30). RESULTS. Two hundred and seventy two subjects were included in the analysis. Mean age was 32.4 ± 14.0 y and mean BMI was 25.6 ± 3.3 kg/m2. The mean DXA %BF was 18.0 ± 5.9. The mean %BF for skinfold equations DC, JP7, JP3a, and JP3b were 19.1 ± 6.3, 16.1 ± 7.4, 14.8 ± 6.8, 15.6 ± 6.7 respectively. The standard error of the estimate (SEE) of DC was low (2.72%) and was highly correlated with DXA. CONCLUSION. The DC equation was found to better predict %BF across a general population than three JP SF equations when compared to the 3C model, DXA. This study suggests that the DC equation is a more accurate prediction equation than the current ACSM recommended equations.