

The Inter-Rater Reliability of A-mode Ultrasound for Determining Percent Body Fat Among College-Aged Males

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Few studies to date have examined the validity and reliability of A-mode Ultrasound (US). While the results have been promising, the inter-rater reliability of both experienced and inexperienced assessors has not been previously investigated. **PURPOSE:** The purpose of this study was to examine inter-rater reliability between four assessors using both US and skinfold methods (SF) to determine percent body fat (%BF) among college-aged males. **METHODS:** Sixteen college-aged adult males between 18-24 years old (20.8 ± 1.6 yrs) participated in this study. All subjects reported for a single testing session in a hydrated state (Usg 1.014 ± 0.006). Both US and SF measurements were taken at the chest (CH), abdomen (AB), and thigh (TH). The 3-site Jackson & Pollock method was used to determine body density and %BF for both US and SF. Four assessments were completed by four different assessors, two experienced (A1 and A2) and two inexperienced individuals (A3 and A4). **RESULTS:** There was no significant difference in %BF determined by any of the 4 assessors when using US (A1= $12.8 \pm 4.7\%$; A2= $13.8 \pm 5.4\%$; A3= $13.2 \pm 5.4\%$; A4= $13.4 \pm 5.4\%$; $p=0.120$) or SF (A1= $10.3 \pm 5.0\%$; A2= $11.2 \pm 6.3\%$; A3= $10.5 \pm 4.7\%$; A4= $10.2 \pm 4.9\%$; $p=0.094$) methods. The intra-class correlation coefficients (ICC) for %BF measurements determined by US and SF were identical at 0.986. When considering the measurements for CH, AB, and TH for each instrument, the ICC's were 0.967, 0.935, and 0.991 for US, respectively and 0.966, 0.957, and 0.930 for SF, respectively. **CONCLUSION:** The results of this study demonstrate acceptable inter-rater reliability for the assessment of percent body fat using US when administered by both experienced and inexperienced assessors. The reliability for US was equivalent to that demonstrated by SF.