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Agreement Between Skinfold, Ultrasound And Dual-energy X-ray Absorptiometry In Adults

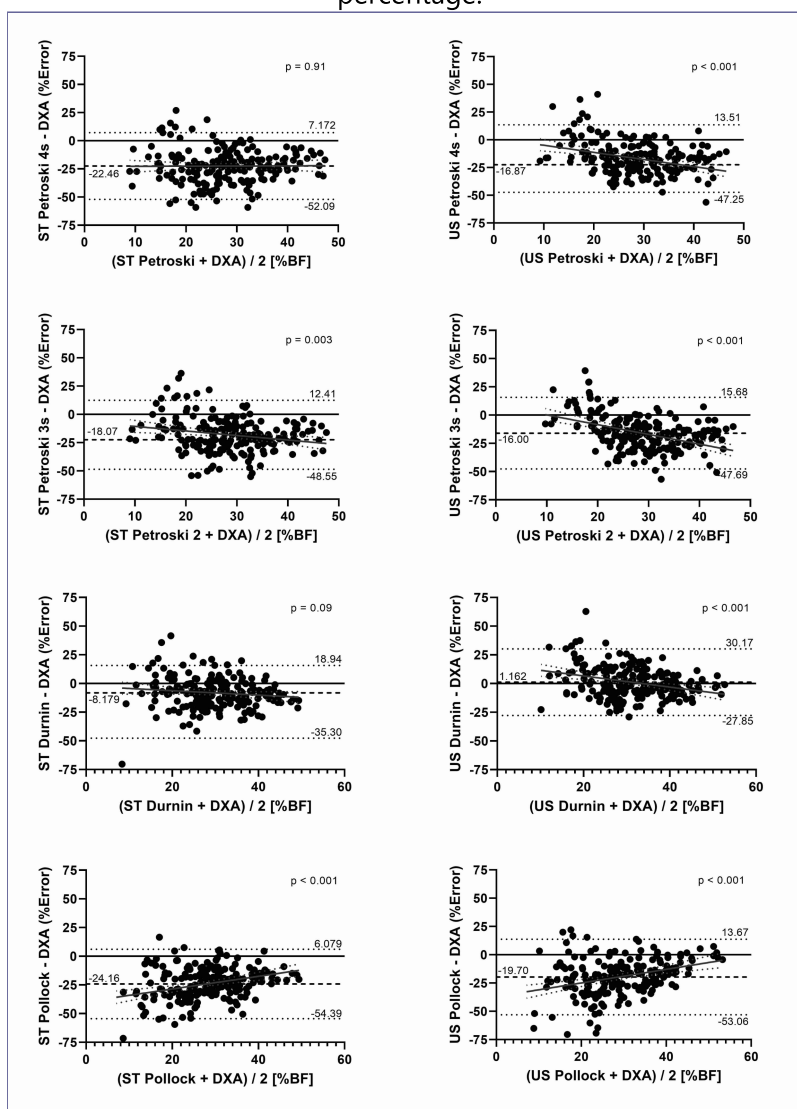
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Abstract:

Skinfold (ST) is a traditional and easily applicable method to access the body composition. In contrast, the use of ultrasound (US) dates to 60's, however it seems to be used far less than skin fold technique. **PURPOSE:** Compare the agreement of the ST and US methods to access the body fat (BF) in adults. **METHODS:** 195 Brazilian adults (106 females), age 35.1 ± 12.3 years, height 169.1 ± 8.8 cm, weight 74.4 ± 16 kg. The participants were evaluated through ST (Cescorf, Porto Alegre, Brazil) and US model BX 2000 (Intellametrix®, CA, USA) at the same anatomical sights by an anthropometrist Isak level 2. BF was measured by Dual-energy X-Ray absorptiometry (DXA) (GE, Madison, USA) and estimated by Jackson & Pollock (1978), Durnin & Womersley (1974), and Petroski EL (1995) (4 and 3 sites) equations. Values obtained by US were multiplied by two and entered the skinfold equations. Bland-Altman's method (BA) was used to evaluate the 95% limits of agreement and BIAS between methods. Concordance Correlation Coefficient (CCC) was utilized to evaluate concordance between each method with DXA. **RESULTS:** BIAS value of the %error between methods ranged from 1.16 (Durnin US) to 24.16 (Pollock ST). Confidence interval values are represented by the dotted line and the BIAS by the dashed line (Figure 1). CCC was 0.91; 0.74; 0.70 and 0.69 for the Durnin, Pollock, Petroski 4s and Petroski 3s equations with US and 0.87; 0.73; 0.70 and 0.71 with ST. The sample was stratified in %BF < 30 (96 subjects) and %BF > 30 (99 subjects) to try to identify if it influenced the BIAS. Durnin's equation with US had the highest CCC for both groups (BF < 30 = 0.74 and BF > 30 = 0.81). **CONCLUSIONS:** Despite the Petroski equations being developed with the Brazilian population and the Pollock equation being one of the most used, the Durnin equation with

US had the lowest BIAS and the best agreement for the complete sample and for groups separated by fat percentage.



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I.C. Salvador: None.

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