Abstract

Introduction. Skinfold thickness equations are widely used for body composition assessment. However the equations have not been validated in Colombia with a reference method. Objective. The skinfold thickness equations of Durning/Womersley, Jackson/Pollock and Ramírez/Torun were validated by hydrodensitometry in female from 18 to 40 years old. Materials and methods. The percentage of body fat was compared among 52 women, using underwater weighing (Chatillon scale) with simultaneous measured of residual lung volume (VMAX 22 Sensormedics spirometer) and skinfold thickness (Harpenden caliper) equations of Durning/Womersley, Jackson/Pollock and Ramírez/Torun. The statistic analysis included paired t test, Pearson and intraclass correlation coefficients, and the Bland-Altman method. Results. The mean percentage of body fat by hydrodensitometry (29.6±5.8%) was different (p<0.001) from those obtained with Durning/Womersley (34.2±4.5%), Jackson/Pollock (25.7±5.6%) and Ramírez/Torun (32.0±5.3%) equations. The correlation coefficient was significant (p<0.001) between hydrodensitometry and each of the equations (r between 0.62 and 0.72). Intraclass correlation was significant (p<0.001) between hydrodensitometry and each of the equations and varied from 0.42 to 0.62. The agreement limits between hydrodensitometry and each of the equation had a width between 16.5 and 17.1. Conclusion. The skinfold thickness equations showed poor validity for body fat assessment. The equations had significant differences and lower correlation coefficients with hydrodensitometry. In addition, the equations indicated agreement with hydrodensitometry over very wide limits. The outcomes suggested that the results obtained by hydrodensitometry were neither comparable nor interchangeable with those from Durning/Womersley, Jackson/ Pollock y Ramírez/Torun skinfold thickness equations.

Keywords

Validation studies, densitometry, anthropometry, skinfold thickness, body composition, body mass index, female.