Abstract

Background and objective: Different anatomical locations for measuring waist circumference are described in the literature but the best anatomical location for measuring waist circumference in older adults has yet to be established. Thus, an exploratory study was developed to examine which waist circumference best explains abdominal fat mass in older adults. Methods: Waist circumference was measured in the ten different anatomical locations from a sample of 51 older adults. The choice of which waist circumference measurement best associated with abdominal fat mass was evaluated with dual-energy X-ray absorptiometry (DXA) measurement of abdominal fat. Results: Mean waist circumference values varied from 81.9 (standard deviation (SD): 8.7) cm and 91.5 (SD: 11.2) cm for women and between 95.7 (SD: 8.2) cm and 101.5 (SD: 10.4) cm for men, according to the different anatomical locations. The coefficients of determination of the linear regression model varied from 0.545 to 0.698 (p < 0.001) and the standardised coefficients varied from 0.738 and 0.836 (p < 0.001). The anatomical landmark situated 2.5 cm above the umbilicus was the waist circumference measurement that associated best with abdominal fat mass measured by DXA. Conclusion: This exploratory study contributes to the recognition that the anatomical location where the waist circumference measurement is taken gives considerably different results. The waist circumference measurement 2.5 cm above the umbilicus was the best surrogate measure of abdominal fat in this older adult’s sample.

Keywords

Waist circumference, Anatomical location for measurement, Abdominal fat mass, Dual energy X-ray absorptiometry, Older adults.