

Sarcopenic obesity and sex-specific functional impairment in older adults: an observational case-control study.

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Background: sarcopenic obesity (SO) is a clinically relevant but often under-recognized condition in older adults. This study examined whether obesity severity and body fat distribution are associated with physical capacity, functional autonomy and health-related quality of life in a sex-specific manner.

Methods: In this observational case-control study with cross-sectional assessments, 45 older obese adults (OB; 27 men and 18 women) and 40 non-obese (NOB) comparison participants (18 men and 22 women), aged 65-85 years, underwent anthropometric assessment, bioelectrical impedance analysis, geometric body shape indexing, physical performance testing, autonomy assessment, physical activity evaluation and health-related quality-of-life assessment. SO was classified using a study-specific operational application of the ESPEN/EASO framework based on excess adiposity, impaired muscle function, and BIA-derived skeletal muscle mass adjusted for body mass.

Results: using this operational framework, all participants in the OB group were classified as presenting an SO phenotype. OB men showed substantially greater visceral adipose tissue mass than OB women (+106.5%, ES: 1.27, large, $p < 0.001$) and a higher A body shape index-associated relative risk (+27.9%, ES: 0.82, large, $p < 0.001$). Conversely, OB women showed more severe mobility impairment than OB men, with lower performance in the 8-Foot Up-and-Go (-22.9%, ES: 0.66, medium, $p < 0.001$) and 6-Min Walk test (-23.4%, ES: 0.64, medium, $p < 0.001$) and slightly lower basic autonomy. Health-related quality of life was significantly reduced only in OB men (-10.8%, ES: 1.07, large, $p < 0.001$) than NOB.

Conclusions: in this clinical sample, an operational SO phenotype was identified among older OB adults and exhibited divergent sex-specific profiles. Men showed a predominantly geometric visceral risk phenotype and poorer perceived health status, whereas women showed more pronounced impairment in mobility and basic functional autonomy. These findings support sex-differentiated, multidisciplinary rehabilitation strategies in older adults with obesity.

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