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## Title

### ***Associations of pattern-recognition-measured daily activities with sarcopenia and sarcopenic obesity in old age: The IMPACT65+ study***

## Abstract

Background: Physical activity has shown beneficial effects for a good state of muscles in aging, but the specific activities of daily living that could be protective remains unclear. This study aimed to analyse the associations of different pattern-recognition-measured daily activities with sarcopenia and sarcopenic obesity in a sample of older adults. Methods: 200 community-dwelling older adults wore the Intelligent Device for Energy Expenditure and Activity for two consecutive days. Twelve major daily activities recorded were merged in to three common intensity categories: sedentary behaviour (SB), light physical activity (LPA) and moderate-to-vigorous physical activity (MVPA). For physical performance measurements included, hand grip dynamometer and chair-stand tests were used. Skeletal muscle mass and fat mass were estimated by bioelectrical impedance analysis. Associations of daily activities with the study variables were examined using linear regression models. Results: There were no significant associations between total time spent in SB, LPA, or MVPA and sarcopenia. Sarcopenic obesity showed a negative association with total time spent in MVPA [ $\beta$  (95%CI):  $-0.29$  ( $-0.41, -0.17$ )]. Walk at a brisk pace was significantly associated with lower limb physical performance, muscle mass and fat mass % [ $\beta$  (95%CI):  $1.15$  ( $0.40, 1.91$ );  $1.45$  ( $0.68, 2.22$ ) and  $-2.63$  ( $-4.12, -1.14$ ) respectively]. Other MVPA activities were also significantly associated with the same sarcopenic obesity components [ $\beta$  (95%CI):  $4.65$  ( $0.55, 8.75$ );  $8.59$  ( $4.51, 12.67$ ) and  $-13.98$  ( $-21.96, -5.99$ ) respectively]. Conclusion: Time spent in daily activities of moderate-to-vigorous intensity is negatively associated with sarcopenic obesity but not with sarcopenia.

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## Author Keywords

Daily activities; IDEEA; Physical activity; Sarcopenia; Sarcopenic obesity

## Index Keywords

aged; Article; bioelectrical impedance analysis; chair stand test; community dwelling person; cross-sectional study; daily life activity; disease association; fat mass; female; function test; hand grip; human; Intelligent Device for Energy Expenditure and Activity; leg muscle; light physical activity; linear regression analysis; major clinical study; male; moderate-to-vigorous physical activity; muscle function; muscle mass; pattern recognition; physical activity; physical performance; regression model; sample; sarcopenia; sarcopenic obesity; sedentary lifestyle; skeletal muscle;

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statistical significance; time factor; very elderly; walking speed

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