

【Original Article】

Association between Tri-axial Accelerometer-derived Sedentary Time and Obesity in a Japanese Community-dwelling Older Population

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Abstract

Objective: Previous studies have shown that time spent in sedentary behaviors is a risk factor of obesity, independent of lack of moderate-to-vigorous physical activity (MVPA). However, few studies have been conducted to examine relationship between objectively measured time spent in sedentary behaviors and obesity. The aim of this study was to investigate the relationship of objectively measured sedentary time and obesity in community-dwelling older adults.

Methods: Cross-sectional analyses were completed on 1,401 (female n=849) participants of the baseline survey of the Sasaguri Genkimon Study (SGS), a longitudinal cohort study of community-dwelling older adults aged 65+ who were not certified as requiring nursing care. Sedentary behaviors were defined as activities with intensity ≤ 1.5 METs (metabolic equivalents). Sedentary time was assessed by a tri-axial accelerometer. Obesity was defined as body mass index (BMI) of 25 or higher. Body weight and fat mass was measured by bioelectrical impedance analysis.

Results: Sedentary time was positively associated with body weight, fat mass, body fat percentage and obesity in both men and women ($p < 0.01$), and positively associated with BMI in women as well ($p < 0.01$), after adjusting for socio-demographic and lifestyle factors, instrumental activities of daily living, and MVPA.

Conclusion: Prolonged sedentary behaviors were associated with increased risk of obesity and its related indicators in Japanese community-dwelling elderly. Decreasing sedentary behaviors can be an effective strategy for preventing obesity in population approach.

Key words: sedentary behavior, accelerometry, physical activity energy expenditure

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