# The Relation between sedentary time and physical activity with physical fitness of the elderly

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**ABSTRACT**

**BACKGROUND:** As a result of the ageing process, there is evidence of a decline in physical fitness, in terms of strength, endurance, agility, and flexibility[1]. This decline is a growing problem which affects the health system and the medical treatment of a number of issues, including musculoskeletal disorders[2]. Physical activity and sedentary behavior might, therefore, influence the physical fitness level of the elderly. **OBJECTIVE:** The aim of this paper is to accurately verify the strength of the links between sedentary time and physical activity levels (light-, moderate- to vigorous intensity) on the physical fitness of the elderly. **METHODS:** This cross-sectional study sample included 83 elderly individuals (72.14 ±5.61 years old), both male and female. Sedentary time (counts $min^{-1}$<100) and physical activity time were assessed using the ActiGraph® GT1M Accelerometer during waking hours for 3 days, at least. The "Senior Fitness Test" battery (Rikli and Jones) was used to assess the physical fitness of the elderly[3]. In order to analyse data, descriptive and inferential statistics were used. Spearman and Pearson's tests were applied to bivariate correlations after assessing normality; the coefficient of determination was also found ($r^2$). The confidence intervals suggested by Hinkle, Wiersma and Jurs were used to accurately verify the strength of the correlation[4]. **RESULTS:** Evidence suggests that physical activity time (moderate- to vigorous intensity – MVPA) is negatively associated with Body Mass Index ($r_s$= -0.218; $p$=0.048; -0.3 < r ≤ - 0.1 (small); $r^2$=6.2%) and performance of the agility test (8-ft up-and-go) ($r_s$= -0.367; $p$=0.001; -0.5 < r ≤ -0.3 (low); $r^2$= 8.6%). Nevertheless, MVPA time is positively associated with aerobic resistance (6-minute walk) ($r_s$= 0.397; $p$=0.000; 0.5 < r ≤ 0.3 (low); $r^2$=10.6%) and strength of upper limbs (arm curl) ($r_s$= 0.243; $p$=0.027; 0.3 < r ≤ 0.1 (small); $r^2$= 4%). However, no significant association was found between sedentary time and light physical activity level. Still, longer periods of sedentary behaviors are connected with lower aerobic resistance and longer time spent in the agility test. **CONCLUSIONS:** Evidence therefore suggests that promoting MVPA

and reducing sedentary behaviors on the elderly might have a positive influence on the physical fitness of these individuals.

**Keywords**: *ageing, sedentary behaviors, physical activity, physical fitness, accelerometry.*

**References:**

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