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**Title:** Does the incremental shuttle walking test (ISWT) require maximal effort in healthy subjects of different ages?

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**Body:** Background: It is unknown whether the ISWT requires maximal effort in subjects of different ages. Objective: To evaluate if the ISWT requires maximal effort in healthy subjects of different ages. Methods: 331 individuals (158 men) performed two ISWT, allowing more than 12 levels of the test, if necessary. The participants were separated into six groups according to their age (G1: 18-28, G2: 29-39, G3: 40-50, G4: 51-61, G5: 62-72 and G6: 73-83 years). Heart rate (HR) and symptoms of dyspnea and fatigue were recorded. HR achieved at the end of the test was expressed as a percentage of the maximum heart rate ($HR_{max}$). Results: 31% of the subjects achieved more than 12 speed levels. The majority of subjects reached HR values greater than 90% of $HR_{max}$ at the end of the test with a median [interquartile range] of: G1: 100[95-104]; G2: 100[96-105]; G3: 102[97-107]; G4: 99[91-105]; G5: 95[87-106] and G6: 95[90-109]%$HR_{max}$. Regarding symptoms, all groups showed higher values of dyspnea and fatigue at the end of the test ($p < 0.05$). A multivariate analysis (logistic regression) identified that female gender (odds ratio: 3.3 [95% confidence interval:1.4-8.1], worse performance in the ISWT (low: 4.2 [1.7-10.2]; normal: 2.6 [1.3-5.4] versus high performance) and older age (4.7 [1.7-12.9]) increased the chance for not achieving 90% of $HR_{max}$ at the end of the ISWT. Conclusion: The Incremental Shuttle Walking Test is a field test that requires maximum effort for most healthy individuals, and for that it is necessary to extend the test beyond twelve speed levels. Female gender, older age and worse performance in the test are the determinants for not reaching maximal effort during the ISWT.