Abstract

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The purpose of this study was to examine the relationship between physical activity (PA) and cognitive function in older adults. Additionally, the study sought to determine if older adults adhering to ACSM PA guidelines would exhibit significantly better cognitive function than their less active peers. Thirty-five participants (M= 70.6 ± 4.6 years), 21 males and 14 females free of diagnosed cognitive disorders or prescribed psychotropic medications from the Muncie, IN. region were recruited for analysis. Resting heart rate, blood pressure, health history and basic body composition variables were evaluated to determine study eligibility. The Trail Making Task and Stroop Color and Word Test were used to assess cognitive function. Time spent in sedentary, light and moderate-vigorous PA (MVPA), energy expenditure and total steps were measured for a one-week period by accelerometry (ActiGraph GT3x) and questionnaire (International Physical Activity Questionnaire). Weekly MVPA was found to correlate significantly with Stroop Word (W) (r = .446, p < .05), Stroop Color (C) (r = .389, p < .05) and Stroop Color-Word (CW) (r = .609, p < .05) performance outcomes. MVPA was also found to have a significant relationship with Trail Making Test Part B (TMTb) outcomes (r = -.358, p < .05). Energy expenditure was related with cognitive performance where W (r = .416, p < .05), C (r = .424, p < .05), CW (r = .656, p < .05), TMTb (r = -.532, p < .05) and difference between TMT Parts A and B (TMTdiff) (r = -.485, p < .05) were significant. Total steps/week were strongly correlated to MVPA_{ACC+} (r = .752, p < .05) as well as CW scores
(r = .388, p < .05). Women were shown to have a stronger relationship between MVPA_{ACC+} and TMTb performance outcomes (r = .732, p < .05). Independent t-tests indicated that older adults participating in > 150 minutes of MVPA weekly perform better on Stroop W, C and CW (p = .003, p = .001, and p = .015, respectively) when compared to less active peers. Increased MVPA indicates improved cognitive performance outcomes in older adults when compared to less active peers.