

Does Leisure-Time Physical Activity Variety Lead to Better Cognitive Function Despite NOT Meeting PA Guidelines?

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PURPOSE: Examine whether engaging in a variety of leisure-time physical activities (LTPA), despite not meeting physical activity (PA) guidelines, leads to better cognitive function in older adults. **METHODS:** Data was retrieved from the 1999-2002 National Health and Nutrition Examination Survey (NHANES). Older adults ($N = 2,773$, M age = 71.4 yrs, 50.6% ♀, 60.9% non-Hispanic White) reported their moderate- and vigorous-intensity LTPA during the past 30 days, including the specific type (e.g., hiking, tennis, or running), frequency (e.g., d·wk⁻¹), and average duration. Moderate-to-vigorous physical activity (MVPA) was calculated by multiplying the metabolic equivalent values of the activities (MET) by the frequency and duration (MVPA-min·wk⁻¹ = MET level x frequency x duration). A dichotomous variable was created categorizing those who met PA guidelines ($n = 831$) based on federal guidelines (≥ 600 MVPA-min·wk⁻¹). LTPA-variety was calculated as the total number of activities participated in at least once a month. Cognitive function was assessed via the Digit Symbol Substitution Task (DSST). Age, sex, education, race, and whether the reported PA was similar over the previous 10-years were used as covariates in all analyses. Total minutes spent in MVPA was controlled for in all analyses as it was possible to engage in some PA and not meet PA guidelines. **RESULTS:** A multivariable linear regression model revealed a significant effect of LTPA-Variety on DSST ($\beta = 7.14$, 95% CI: 4.78-9.50, $P < 0.01$); MVPA--min·wk⁻¹ was not a significant predictor ($P = 0.41$). Univariate analysis of covariance (ANCOVA) of those not meeting PA guidelines ($n = 1942$) revealed a significant effect ($F_{1,29} = 7.99$, $r^2 = 0.41$, $P < 0.01$) for LTPA-Variety on DSST. In those not meeting PA guidelines, engaging in 2 or more different types of LTPA, compared to less, resulted in significantly greater cognitive functioning ($M = 45.60$ vs $M = 40.09$, $P < 0.01$) when accounting for MVPA--min·wk⁻¹. **CONCLUSION:** These results suggest that, for older adults, engaging in a greater variety of leisure-time physical activities can promote greater cognitive function regardless of the amount of time spent in moderate-to-vigorous activities. This has future implications for examining the primary metric of focus for physical activity engagement in this population.