

## Physical Function, Cognitive Function, and Aortic Stiffness in Older Adults

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Physical function and cognitive function both decline with advancing age. Vascular dysfunction may be a common underlying factor mediating the relationship between age-related loss of physical function and cognitive function. Increases in aortic stiffness and pressure from wave reflections occur with increasing age and may augment pulsatile hemodynamic energy being transmitted to the brain, damaging regions necessary for cognition and motor control. **PURPOSE:** The purpose of this study was to examine whether arterial stiffness and pressure from wave reflections influence the relationship between physical function and cognitive function in healthy older adults. **METHODS:** Twenty-six healthy older adults ( $68.3 \pm 6.6$  years, Body Mass Index (BMI)  $27.8 \pm 4.8$  kg/m<sup>2</sup>) participated in this cross sectional study. Cognitive/executive function was measured using Trail Making Tests (calculated as Trails B – Trails A). Aortic Pulse-Wave Velocity (PWV) was obtained from the carotid femoral pulse sites using applanation tonometry to measure aortic stiffness. Aortic augmentation index (AIx) was used to measure global pressure from wave reflections using radial applanation tonometry and a generalized transfer function. Physical function was measured using a 6-meter walk test (6MWT, time to walk 6 meters). **RESULTS:** Pearson's bivariate correlations indicated that executive function was significantly associated with 6MWT ( $r = 0.45$ ,  $p = 0.02$ ). This association remained significant ( $r = 0.54$ ,  $p = 0.01$ ) even after controlling for age, PWV, and AIx. **CONCLUSION:** Increased aortic stiffness and pressure from wave reflections does not appear to mediate the association between physical and cognitive function in healthy older adults in the present analysis. This relationship might be explained by age-related neuronal dysfunction rather than age-related systemic vascular dysfunction.

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