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## The Relationship Between the Inter-arm Systolic Blood Pressure Difference, Vascular Health, and Cognitive Function

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Associations between vascular health and cognitive function in the elderly are documented; however, cognitive decline may begin in the second or third decade of life. In support of this, measures of vascular health (i.e. pulse wave velocity (PWV)) and cognitive function have been linked in young individuals. PWV may be useful in determining the risk of cognitive decline, however, its clinical use is not well-established. Blood pressure measurement, particularly the inter-arm difference in systolic pressure (IAD), may provide further insight into vascular function and complement PWV measurement. **PURPOSE:** To determine if a link exists between IAD, vascular health, and cognitive function in a well-characterized, young cohort. **METHODS:** Following informed consent, participants completed the Trails A and B tests. After a ten-minute rest, resting blood pressure, resting heart rate variability, and central PWV were attained using standardized procedures. Subsequently, each participant completed a peak aerobic capacity test (PEAK) on a cycle ergometer. **RESULTS:** On average, participants (n=62) completed Trails A in 17.1±5.5s and Trails B in 35.5±13.3s. Individuals with a higher central PWV completed Trails A test more rapidly (-.252,  $p<0.05$ ) than those with a lower central PWV. In the present cohort, the only significant predictors of performance in the Trails A test were PEAK (male and female) and resting heart rate (female). Further, PEAK and resting heart rate variability predicted Trails B performance, but only in females. There were no associations observed between IAD and cognitive function. **CONCLUSION:** The relationship between IAD, vascular health, and cognitive function may have been overpowered by sample homogeneity. The present findings suggest that additional factors related to heart rate variability may impact cognitive function, particularly in females.