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Relationship Between Sedentary Behavior and Arterial Stiffness in Physically Active College Students

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Sedentary behavior (SB) may contribute to arterial stiffness (AS), an independent predictor of cardiovascular disease (CVD). Individuals who engage in more SB are at greater risk for CVD. By implementing regular physical activity (PA), the benefits of exercise may negate the damaging effects of SB. Incorporating routine PA and limiting SB is favorable to achieve cardiovascular benefits, such as decreased AS. **PURPOSE:** To examine the AS in physically active college students and assess the relationships between SB and AS. **METHODS:** College students (N=14) (age 20.64 ± 1.44 yr, BMI 24.16 ± 2.7 kg/m²) achieving recommended amounts of daily moderate-vigorous PA (MVPA) were included in this study. SB and PA were assessed via accelerometers, worn on the right hip for an average of 9.6 ± 2.85 days. Following accelerometry, AS was measured via pulse wave velocity (PWV) and augmentation index (AIX₇₅). For AIX₇₅ subjects were supine while a cuff was placed around the right brachial artery. The cuff inflated and, after assessing brachial blood pressure, analyzed the pulse wave for 5 consecutive seconds. AS was then measured via carotid-femoral PWV using applanation tonometry. **RESULTS:** Pearson correlations found no significant relationships between measures of AS and measures of PA or SB in the entire group and when separated by gender. Participants engaged in 598.6 ± 134.6 min of SB, 18.1 ± 5.45 bouts of SB, 62.1 ± 20.8 min of MVPA, and 294.1 ± 67.7 min of movement per day. Average AIX₇₅ and PWV were 3.21 ± 10.6 and 5.36 ± 0.94 , respectively. Independent t-tests revealed no significant differences in AS, PA, or SB between genders. **CONCLUSIONS:** While physically active college students achieved recommended amounts of MVPA, they also acquired substantial amounts of SB. However, no associations were found between AS and SB. It is possible that achievement of recommended amounts of daily MVPA may attenuate the impact of SB on AS.