



Mid Atlantic Regional Chapter of the American College of Sports Medicine

45th Annual Scientific Meeting, November 4th- 5th, 2022
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 11



Aerobic Capacity Independently Predicts Central Augmentation Index Among Apparently Healthy Adults

Justin Updegraff, Kathleen Dondero, Hannah A. Zabriskie, Rian Q. Landers-Ramos, Devon A. Dobrosielski. Towson University, Towson, MD

Central augmentation index reflects both arterial stiffness and ventricular-vascular coupling and is influenced by age and body height. Increased aerobic capacity and reductions in total body fat are cardioprotective, but their combined influence on central augmentation index is not entirely clear. **PURPOSE:** To determine the extent to which cardiorespiratory fitness and total body fat influence central augmentation index, a measure of arterial wave reflection and stiffness, in apparently healthy adults. **METHODS:** Community dwelling adults between ages 24 and 79 years were screened to exclude clinical and occult cardiovascular disease. Arterial wave reflection was measured noninvasively as central augmentation index (AIx). Aerobic capacity was assessed as maximal oxygen uptake (VO_{2max}) during an incremental treadmill exercise test. Body composition was determined using a dual -energy X-ray absorptiometry and % total body fat was used for analyses. **RESULTS:** Across the cohort (age: 43.5 ± 12.1 years; 53 men; 42 women), significant Pearson correlations were observed between AIx and age ($r=0.47$, $p<0.001$) height ($r=-0.32$, $p=0.002$), % total body fat ($r=0.29$, $p=0.004$) and VO_{2max} ($r=-0.52$, $p<0.001$). Multiple linear regression with backwards selection was conducted and VO_{2max} ($\beta=-0.48$), age ($\beta=0.30$) and height ($\beta=-0.65$) were found to be significant predictors of AIx, accounting for 35% of the variance. Total % body fat was not a significant predictor of AIx. **CONCLUSION:** In an apparently healthy adult population, AIx was strongly influenced by aerobic fitness, after accounting for confounding factors, including age and height. In contrast, % total body fat did not influence AIx.