

GNYACSM Abstract

Bilateral Differences in Vascular Stiffness and Blood Pressure of Female College Tennis Players and Controls

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ABSTRACT

Vascular stiffness is highly correlated to cardiovascular disease (CVD) and has been attenuated by regular aerobic exercise in older adults. Additionally, body composition strongly predicts vascular stiffness and CVD risk. Previous research has documented that bilateral differences in shear stress lead to differences in vascular endothelial function in tennis players. However, whether this translates into bilateral differences in vascular stiffness and blood pressure remains to be elucidated. The SphygmoCor is a gold standard for assessing arterial stiffness but is not readily accessible. In comparison, the TicWatch GTH Pro, which uses the SphygmoCor algorithm to provide a cardiovascular health (CVH) score (ARTY score), could be a feasible way to monitor CVH, but its accuracy is unknown. **PURPOSE:** This study aimed to evaluate bilateral differences in vascular stiffness and blood pressure in Division III female college tennis players and recreationally active female students. A secondary aim was to determine if the TicWatch GTH Pro ARTY score relates to SphygmoCor outcomes. **METHODS:** Subjects from the Skidmore women's tennis team (n=10) and recreationally active female students (n=10) underwent a single testing session where anthropometrics, body composition, bilateral cardiovascular measurements, and a TicWatch analysis were performed. **RESULTS:** There were no significant differences in weight, body fat percentage, or BMI between the two groups (p=0.96; p=0.83; p=0.69). Augmentation pressure and augmentation index were different between the dominant and non-dominant arms (p=0.02; p=0.02), but no interactions of the group by arm were observed (all, p>0.05). In addition, the TicWatch ARTY score related significantly with brachial diastolic pressure, mean arterial pressure, and central diastolic pressure (r²= -0.52; r²= -0.50; r²= -0.56). **CONCLUSION:** In groups well-matched for age and body composition, two indices of vascular stiffness significantly differed between the arms, but this did not appear specific to this cohort of tennis players. The results also indicate that the TicWatch is an accurate device for assessing CVH indicators and may predict brachial diastolic pressure, central diastolic pressure, and mean arterial pressure.

