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Effects of High Functional Resistance Training on Parameters of Arterial Stiffness- Pilot Study

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Arterial stiffness is a strong predictor of cardiovascular disease risk. Identifying and characterizing stimulants and developing therapeutic strategies has become an important undertaking in recent years. It is correlated with age, smoking, alcohol abuse, sleep deprivation, inactivity, and dietary patterns among other things. Additionally, aerobic activity has consistently shown to attenuate markers of arterial stiffness in otherwise healthy adults. What is less understood is the overall impact of high functional resistance training on vascular compliance. There is a void in the literature with only one cross-sectional study conducted on the topic. **PURPOSE:** To determine the effects of an 11-week high functional resistance training program on indices of arterial stiffness. **METHODS:** 12 participants (18-40 years old) were control were recruited from the surrounding community and placed in the habitual training (HT) group (n = 5; >2 years of CrossFit experience), or control (CON) group (n = 7; <6 months of CrossFit experience). Participants in the CON group were asked to refrain from exercise during the study period. All participants completed a series of tests including body composition, arterial tonometry, blood pressure acquisition, and dynamic endurance and muscular strength assessments at baseline and follow-up. Repeated measures analysis of variance was used to examine the effects of treatment and the treatment-order interaction on arterial stiffness. **RESULTS:** There were no significant group effects in carotid-femoral pulse wave velocity (cfPWV) (-4.5 ± 20.7 vs. -11.2 ± 15.7 percent change; p = 0.17), carotid-radial PWV (crPWV) (-10.4 ± 23.5 vs. -17.8 ± 13.4 percent change; p = 0.06), beta-stiffness index (14.4 ± 3.7 vs. 14.9 ± 18.2 percent change; p = 0.35), and arterial compliance (AC) (13.7 ± 7.5 vs. 18.8 ± 19.8 percent change; p = 0.27) in the CON and HT groups, respectively. **CONCLUSION:** Our findings indicate high functional resistance training does not augment arterial stiffness in habitual participants.