

1-A-11 Effects of acute resistance exercise under difference respiration patterns on central arterial stiffness

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Purpose: Increased central arterial stiffness is an emerging risk factor for cardiovascular disease. Acute aerobic exercise reduces arterial stiffness, while acute resistance exercise may increase arterial stiffness, which might be contributed to the Valsalva maneuver. In this study, we tested the effects of acute resistance exercise under difference respiration patterns on central arterial stiffness.

Methods: Seven healthy subjects underwent two supervised bench press exercises at 10 repetition maximum under different respiration patterns; usual respiration (UR) and no breath (NB). The pulse wave velocity (PWV), systolic blood pressure (SBP), diastolic blood pressure (DBP) and heart rate (HR) were measured at rest, 5, 10, and 15 min after exercise.

Results and Discussion: Compared with rest, PWV and HR were increased after exercises in both UR and NB conditions. However, there were no significant differences of all measurements between two conditions. These results suggested that respiration pattern did not influence on central artery stiffness while acute resistance exercise. More studies about different intensity, sets, term and respiration techniques are required to further understand the influence of Valsalva maneuver.

Key words: acute resistance exercise, central arterial stiffness, Valsalva maneuver

1-A-12 Effect of combined high and low intensity resistance training on arterial stiffness

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Background: Although high-intensity resistance training (RT) increases arterial stiffness, low-intensity RT reduces arterial stiffness. The present study investigates the effect of low-intensity RT before and after high-intensity RT on arterial stiffness.

Methods: Thirty young healthy subjects (aged 19.2 ± 0.6 y, mean \pm SD) were randomly assigned to a group that performed low-intensity RT before high-intensity RT (BLRT, n=10), a group that performed low-intensity RT after high-intensity RT (ALRT, n=10) and a sedentary control group (CON, n=10). The BLRT and ALRT groups performed RT at 80% and 50% of one repetition maximum twice each week for 10 wk. Arterial stiffness was measured using carotid-femoral (cf) and femoral-ankle (fa) pulse wave velocity (PWV).

Results: Both cfPWV and faPWV after combined training in the ALRT group did not change from before training. In contrast, cfPWV after combined training in the BLRT group increased from before training ($P < 0.05$). faPWV after combined training in the BLRT group did not change from before training. These values did not change in the CON group.

Conclusion: These results suggest that although arterial stiffness is increased by low-intensity RT before high-intensity RT, performing low-intensity RT thereafter can prevent the increasing of arterial stiffness.

Keywords: Resistance training; Arterial stiffness; Training intensity