Effects of a single bout of aerobic exercise on central arterial blood pressure
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Purpose: Central arterial blood pressure, a strong predictor of cardiovascular disease, was influenced by reflected wave and peripheral vascular resistance. It is known that a single bout of aerobic exercise decreases peripheral vascular resistance. However, the effects of a single bout of exercise on central arterial blood pressure and reflected wave are unknown. Therefore, the purpose of this study was to investigate effects of a single bout of aerobic exercise on central arterial blood pressure with reflected wave and peripheral vascular resistance in young men.

Methods: We measured brachial and central arterial blood pressures, reflected wave, and peripheral vascular resistance before and after a single bout of aerobic exercise in 9 young men (22±1 years). Each subject underwent aerobic exercise (30 min of steady state cycling exercise at their individual anaerobic threshold) and rest control trials on two separate days.

Results: Peripheral vascular resistance and reflected wave significantly decreased after the aerobic exercise (P<0.05, respectively), but not after the rest control trial. Brachial and central arterial blood pressures did not change in either the aerobic exercise or rest control trial.

Conclusion: These findings suggest that, in young men, a single bout of aerobic exercise decreases peripheral vascular resistance and reflected wave, but does not affect central arterial blood pressure.

Key words: Central arterial blood pressure, reflected wave, peripheral vascular resistance, aerobic exercise

Effects of short-term exercise training on arterial stiffness in elderly hypertensive females
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Purpose: The aim of this study was to compare the effects of exercise training on arterial stiffness between elderly hypertensive and healthy females.

Methods: Ninety-two females with hypertension and 108 healthy females were randomly assigned to either the control group or to participate in a 12-week training program. In the training groups, the subjects engaged in 90-minutes of training twice a week for 12 weeks. Each training program included recreational activities, six to eight resistance exercises for circuit training and chair-based exercise for the lower extremities. The systolic/diastolic blood pressure and brachial to ankle pulse wave velocity were obtained in the supine position using an automatic pulse wave form analyzer.

Results & Discussion: Compared with that observed in the control group, greater reductions in the pulse wave velocity and systolic/diastolic blood pressure were achieved in the both training group (p<0.05). Furthermore, a significant difference in the delta pulse wave velocity before and after training was noted between the hypertensive (-72.5±8.1 cm·sec⁻¹) and healthy females (-131.5±107.3 cm·sec⁻¹) who participated in the training program (p<0.05). These data indicate that exercise training produces fewer improvements in arterial stiffness in elderly hypertensive females than in healthy elderly females.

Key words: exercise training, hypertension, pulse wave velocity, arterial stiffness, blood pressure