

1-C-2 Effects of aerobic exercise and dietary modification on central and peripheral arterial stiffness in obese men

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Purpose: Arterial stiffness increasing, a risk factor for cardiovascular diseases, is shown in obese individuals, which decrease after dietary modification or habitual aerobic exercise. However, it was unclear the difference between the effects of dietary modification and aerobic exercise training on arterial stiffness in obese people. We compared the effects of dietary modification and aerobic exercise training on central and peripheral arterial stiffness in obese men.

Methods: Twenty-six obese men completed 12-week dietary modification program (D) or aerobic exercise training and dietary modification program (DE). We measured body mass, brachial blood pressure and central and peripheral pulse wave velocity (cfPWV and faPWV) before and after the program in all participants. **Results:** After D and DE, body mass, blood pressure and cfPWV were significantly decreased. There were no significant difference between the change amount of them in D and DE. In contrast, faPWV was significantly decreased after DE, but not D. **Discussion:** We observed that the addition of aerobic exercise training to dietary modification may decrease not only central arterial stiffness, but also peripheral arterial stiffness in obese men. On the other hand, dietary modification alone decreased central arterial stiffness, but not peripheral arterial stiffness in obese men.

Keywords: Lifestyle modification, obesity, diet, exercise, arterial stiffness

1-C-3 Acute effect of brisk walking with graduated compression stockings on vascular endothelial function and oxidative stress

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Purpose: The purpose of this study was to investigate the acute effect of brisk walking with and without graduated compression stockings (GCSs) on vascular endothelial function and oxidative stress.

Methods: Ten young healthy subjects walked briskly for 30 min with (GCS trial) and without (CON trial) GCSs in a randomized cross-over trial. Brachial artery flow-mediated dilation (FMD) was measured as the percent rise in the peak diameter from the baseline value at prior occlusion at each FMD measurement before and 30 min after walking in the two trials. Derivatives of reactive oxygen metabolites (d-ROM), as an index of products of reactive oxygen species, and biological antioxidant potential (BAP), as an index of antioxidant potential, were also measured using a free radical elective evaluator before and 30 min after walking in both trials.

Results and Discussion FMD significantly decreased after brisk walking in both trials ($P < 0.05$). However, FMD after brisk walking in the GCS trial was significantly higher than that in the CON trial ($P < 0.05$). The d-ROM did not change before and after both trials, whereas the BAP significantly increased after walking in the GCS trial ($P < 0.05$). These findings demonstrate that brisk walking while wearing GCSs suppresses the decrease in FMD and increases BAP.

Key Words: Graduated compression stocking, Vascular endothelial function, Oxidative stress