Effect of high- versus low-frequency aerobic exercise training on characteristics of the metabolic syndrome in obese adults

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Abstract

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Abstract
The aim of this study was to examine the effects of two different frequencies of aerobic exercise training on components of physical fitness and characteristics of the metabolic syndrome. Forty-five obese [body mass index (BMI) ≧ 27 kg/m2] males, aged 19-30 years, were randomly separated into three groups: high-frequency group (5 training days/week), low-frequency group (3 training days/week), and control group (non-exercising). The subjects in the training groups performed aerobic exercise of walking on the treadmill 60 min/day at 50－70 % maximal heart rate (HRmax) during the 12 weeks of training. All subjects' anthropometric variables, characteristics of the metabolic syndrome, and components of physical fitness were measured at baseline and after 12 weeks of exercise training. Components of physical fitness were significantly improved in both high-frequency group and low-frequency group ($p < 0.001$). In addition, the waist circumference (WC), systolic blood pressure (SBP), diastolic blood pressure (DBP), fasting glucose (FG), and triglycerides (TG) were significantly decreased and the high-density lipoprotein cholesterol (HDL-C) was significantly increased in

both groups. The absolute changes in WC, SBP, DBP, FG, TG, and HDL-C percentages in the high-frequency group after a 12-week exercise program were -9.2 %, -5.8 %, -5.7 %, -7.7 %, -8.3 % and 9.5 %, -6.9 %, -4.8 %, -4.6 %, -6.1 %, -5.3 % and 6.6 % in the low-frequency group, respectively. In conclusion, these results indicate that high-frequency aerobic training had greater improvements in components of physical fitness and characteristics of metabolic syndrome than low-frequency aerobic training.

Keywords: aerobic training, exercise frequency, physical fitness, metabolic syndrome

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