A Simple Method for Increasing Levels of High-Density Lipoprotein Cholesterol: A Pilot Study of Combination Aerobic- and Resistance-Exercise Training

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Abstract

Evidence suggests that physical activity has a beneficial effect of elevated high-density lipoprotein cholesterol (HDL-C) on reducing coronary artery risk. However, previous studies show contrasting results for this association between different types of exercise training (i.e., aerobic, resistance, or combined aerobic and resistance training). The aim of this study was to determine which type of exercise training is more effective in increasing HDL-C levels. Forty obese men, age 18–29 yr, were randomized into 4 groups: an aerobic-training group (n = 10), a resistance-training group (n = 10), a combined-exercise-training group (n = 10), and a control group (n = 10). After a 12-wk exercise program, anthropometrics, blood biochemical variables, and physical-fitness components were compared with the data obtained at the baseline. Multiple-regression analysis was used to evaluate the association between different types of exercise training and changes in HDL-C while adjusting for potential confounders. The results showed that with the control group as the comparator, the effects of combined-exercise training (β = 4.17, $p < .0001$), aerobic training (β = 3.65, $p < .0001$), and resistance training (β = 2.10, $p = .0001$) were positively associated with increase in HDL-C after adjusting for potential confounders. Our findings suggested that a short-term exercise program can play an important role in increasing HDL-C levels; either aerobic or resistance training alone significantly

increases the HDL-C levels, but the
improvements are greatest with combined aerobic and resistance training.

Keyword：physical activity, lipid, coronary artery disease, randomized controlled trial