Effects of Resistance versus Aerobic Training on Coronary Artery Disease Risk Factors

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Abstract

Individuals exhibiting "the metabolic syndrome" have multiple coronary artery disease risk factors, including insulin resistance, hyperlipidemia, hypertension, and android obesity. We performed a randomized trial to compare the effects of aerobic and resistance training regimens on coronary risk factors. Twenty-six volunteers who exhibited android obesity and at least one other risk factor for coronary artery disease were randomized to aerobic or resistance training groups. Body mass index, waist-to-hip ratio, glucose, insulin, body composition, 24-hr urinary albumin, fibrinogen, blood pressure, and lipid profile were measured at baseline and after 10 weeks of exercise training. Both groups showed a significant reduction in waist-to-hip ratio and the resistance training group also showed a reduction in total body fat. There was no significant change in mean arterial blood pressure in either group. Fasting plasma glucose, insulin, total cholesterol, low-density lipoprotein (LDL) cholesterol, and triglycerides were unchanged in both groups. High-density lipoprotein (HDL) cholesterol increased (13%) with aerobic training only. Plasma fibrinogen was increased (28% and 34%, $P < 0.02$) in both groups and both groups showed a significant decrease (34% and 28%, $P < 0.03$) in microalbuminuria after their respective training regimen. In conclusion, resistance training was effective in improving body composition of middle-aged obese sedentary males. Only aerobic training was effective in raising HDL cholesterol. More studies are warranted to assess the effects of exercise on plasma fibrinogen and microalbuminuria.

Key Words: insulin resistance • metabolic syndrome • resistance training • aerobic training • coronary artery disease

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