

Effects of a Single Bout of Exercise on Lipoprotein Fractions in Hypercholesterolemic Women

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ABSTRACT

Background: Abnormal lipoprotein profiles are strongly associated with premature cardiovascular disease. Sedentary lifestyle and menopause may accelerate abnormal lipid and lipoprotein metabolism in women. A single bout of aerobic exercise at moderate intensity may positively alter serum lipoprotein fractions in postmenopausal women with high cholesterol levels. **Objectives:** The current study investigated how a single bout of exercise affects lipoprotein fractions in sedentary, postmenopausal women with hypercholesterolemia. **Methods:** Thirteen (N=13) sedentary, hypercholesterolemic (defined as total cholesterol > 200 mg/dl; average TC = 241.7 ± 5.8 mg/dl) postmenopausal women (age = 57.4 ± 2.0 years) randomly performed both exercise and rest trials. For the exercise trial, participants performed a single bout of exercise at 60% of heart rate reserve on a treadmill until 400 kcal were expended. Serum samples were collected at pre (0), 24, and 48 hours following each trial to analyze the lipoprotein fractions (α , pre- β , and β) using electrophoresis. A 2 (trial: rest and exercise) x 3 (time: 0, 24, and 48 hours) repeated ANOVA was employed to determine the significant changes in serum lipoprotein fractions. The p value < .05 was considered to be statistically significant. **Results:** The α -lipoprotein fraction in the exercise trial was significantly higher than the rest trial (35.7 vs. 34.9%, p=.006), while the β -lipoprotein fraction in the exercise trial was significantly lower than the rest trial (56.8 vs. 57.6%, p=.001). Additionally, the β -lipoprotein fraction at 24 hours (56.3%) was significantly lower (p=.008) than 0 (57.8%) or 48 hours (57.5%). The pre- β fraction remained unchanged. **Conclusion:** A single bout of moderate intensity aerobic exercise can favorably alter serum α - and β - lipoprotein fractions in postmenopausal women with hypercholesterolemia.