TACSM Abstract

Exercise Training Improved Plasma Glucose and Lipid Profiles in Obese Hispanic Women

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ABSTRACT

Obesity is strongly associated with increased morbidity and mortality, notably among Hispanic women. Exercise may improve cardiovascular health by positively altering plasma lipids and lipoproteins; however, the effects of different intensities of exercise on plasma glucose and lipid profiles have not been extensively studied within Hispanic women. **PURPOSE**: The current study examined the effects of a 12-week aerobic exercise training at either high or low intensity on plasma glucose and lipid profiles in obese Hispanic females. **METHODS**: Thirty physically inactive, obese females (age= 26.07±4.4 years, height= 161.4±4.1 cm, weight= 89.8±8.1 kg and %body fat= 40.9 ±4.9%) were randomly assigned to three groups: control (n= 10, no exercise), low-intensity exercise (LI, n= 10, 50% VO_2max) and high-intensity exercise (HI, n=10, 70% VO_2max). Both LI and HI groups participated in supervised exercise training on a treadmill for 12 weeks with the following exercise protocol: weeks 1-4 (3 days per week to expend 13.5 METs·hr/w), weeks 5-8 (4 days per week to expend 18.0 METs·hr/w), and weeks 9-12 (5 days per week to expend 22.5 METs·hr/w). Overnight fasting plasma samples were taken at before (PRE) and after the 12-weeks of exercise training (POST). A 3 x 2 analysis of variance with a Tukey post-hoc test (p <0.05) was used to examine changes in plasma glucose and lipid parameters, including total cholesterol (TC), lipoprotein (a) [Lp(a)], low-density lipoprotein cholesterol (LDL-C), and high-density lipoprotein (HDL-C). **RESULTS**: Both LI and HI groups decreased body weight up to 2.1 and 3.4kg, respectively. TC at POST in the LI group (116.53±5.32 mg/dL) was significantly lower (p <0.012) than in the control group (139.12 mg/dL). LDL-C at POST in the LI group (50.25±5.24 mg/dL) was significantly lower than that of the HI and control groups (62.83±5.24 mg/dL, p=0.036 and 67.17±5.24 mg/dL, p=0.006), respectively. Plasma glucose at POST in both LI (75.32±2.71 mg/dL, p= .024) and control groups (80.1±2.71 mg/dL, p=0.001) was lower than in the HI group (90.77±2.78 mg/dL). **CONCLUSION**: Regardless of exercise intensity, both low and high intensity aerobic exercise training for 12 weeks improved body weight and body composition in obese Hispanic women. However, the low-intensity exercise provided a more favorable effect than the high-intensity exercise on the plasma glucose and lipid profiles of obese Hispanic women.