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The Effect of Aerobic Training and Consumption of Apple Vinegar on Cardiovascular Risk Factor in Older Women

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Abstract : Aim: Recent studies on cardiovascular risk factors have been focused on the new markers of inflammatory diseases such as C-reactive protein (CRP). Research evidence shows that physical activity along with other factors such as reduced smoking, controlling blood pressure, control blood lipids TC, LDL-c, HDL-c and having a healthy weight can reduce the risk of chronic heart disease (CHD) .Therefore, the aim of this study was to determine the effect of twelve weeks aerobic exercise and consumption of apple vinegar on cardiovascular risk factor in older women. Methodology: 28 inactive women (mean body weight 72.13 ± 8.6 kg, height 157 ± 7.4cm, age 48.06 ± 5.18 years and BMI 28.2 ± 3.2 kg/m2) by recall and notice of investigation, among of the eligible voters recruited and randomly divided in 4 groups: control, apple vinegar, exercise, exercise + apple vinegar. The training program includes a 20-minute warm-up and stretching, running for 15 minutes in the first session with an intensity of 80% of maximum heart rate and an increase in one-minute run time in next training session. Also, subjects in experimental groups received daily specified amount of 50 ml apple vinegar. Blood samples were collected from the brachial vein in before and after training to measure CRP and blood lipids (cholesterol, HDL, VLDL, LDL). The levels of CRP were measured by ELISA way. K-S test to determine the normality of the data and analysis of variance for repeated measures was used to analyze the data. A significant difference in the p < 0/05 accepted. Results: The results indicated that individual characteristics including height, weight, age, and body mass index were not significantly different among the four groups. The results showed that levels of CRP and LDL cholesterol were significantly reduced in all groups at post-test compared to the pre-test. The HDL levels increased significantly in all groups in post-test compared to the pre-test. Analysis of the data indicates that levels of CRP, TC, and LDL were significantly reduced in all groups compared to the control group, while the changes in the other groups were not significant relative to each other. Conclusion: Results of this study showed that twelve weeks of aerobic exercise with apple vinegar cause a significant decrease in CRP, cholesterol, LDL, and significantly increased HDL levels. According to the results of this study, it is possible that aerobic exercise with apple vinegar can inhibit CRP and undesirable fats. Considering the strong association between the inflammatory indices and the prevalence of cardiovascular diseases, every factor that decreases these indices can reduce the cardiovascular complications.

Keywords : aerobic exercise, apple vinegar, CRP, older women
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