World Academy of Science, Engineering and Technology
International Journal of Sport and Health Sciences
Vol:17, No:06, 2023

Examining the Effects of Exercise and Healthy Diet on Certain Blood Parameter Levels, Oxidative Stress and Anthropometric Measurements in Slightly Overweight Women

Authors : Nezihe Şengün, Ragip Pala

Abstract : To prevent overweight and obesity, individuals need to consume food and beverages according to their nutritional needs, engage in regular exercises, and regularly monitor their body weight. This study aimed to examine the effects of exercise, diet, or combined intervention on changes in blood lipid parameters (total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides) and the level of malondialdehyde (MDA), a marker of oxidative stress, in parallel with the increase in body weight due to poor nutrition and sedentary lifestyle conditions. The study included a total of 48 female students aged 18-28 years with a BMI between 25.0 and 29.9 kg/m^2. They were divided into four groups: control (C), exercise (Ex), diet (D), and exercise+diet (Ex+D). Those in the exercise groups received aerobic exercises at 60-70% intensity (10 minutes warm-up, 30 minutes running, 10 minutes cool-down), while those in the diet groups were provided with a diet program based on the calculation of energy needs considering basal metabolic rate, physical activity level, age, and BMI. The students' body weight, body fat mass, Body Mass Index (BMI), and waist-hip ratios were measured at the beginning (day 1) and end (day 60) of the 8-week intervention period. Their total cholesterol, HDL cholesterol, LDL cholesterol, triglycerides, and MDA levels were evaluated and analyzed, considering a statistical significance level of $p<0.05$. As a result, female students in the Ex+D group had the largest difference in body weight, body fat mass, BMI, and waist-hip ratios, and this difference was statistically significant. Except for those in the C group, those in the other groups experienced a decrease in their total cholesterol, LDL cholesterol, and triglyceride levels and an increase in their HDL cholesterol levels. The decrease in total cholesterol, LDL cholesterol, and triglyceride levels was statistically significant for those in the D group, and the increase in HDL cholesterol level was statistically significant for those in the Ex+D group ($p<0.05$). A decrease in MDA level was found in all groups except those in the C group, and this decrease was significantly higher in the Ex group. In conclusion, our study revealed that the most effective way to achieve weight loss is through a combination of exercise and diet. The application of Ex+D is considered to balance blood lipid levels and suppress oxidative stress.

Keywords : obesity, exercise, diet, body mass index, blood lipids
Conference Title : ICESEPN 2023 : International Conference on Exercise Science, Exercise Physiology and Nutrition
Conference Location : Vienna, Austria
Conference Dates : June 19-20, 2023