



THE EFFECTS OF SIX-WEEK AEROBIC EXERCISE PROGRAM ON BODY COMPOSITION AND BLOOD LIPIDS IN WOMEN

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Abstract:

Introduction and Purpose: This study was conducted to investigate the effects of 6 Week Aerobic Exercise Program on Body Composition and Blood Lipids in Women.

Methods: The population of the research consists of women who make step aerobics in the fitness centers of Elazığ and the sample consists in total 12 sedentary women of between the ages of 25 and 30 selected by random method. Participants were given an aerobic exercise program for 3 days and 30 minutes a week. The intensity of exercise was determined by Karvonen method as 50-60%. Participants' body weights, body fat percentages and blood lipids were measured before and after exercise. In the analysis of the data, SPSS 17 package program was used. The obtained data were evaluated statistically at ($p < 0.05$) level.

Findings: There was a significant difference in body weight and body fat percentages of sedentary women participating in the study compared to before exercise ($p < 0.05$). When the blood lipids of the participants were examined, significant differences were found in HDL LDL and triglyceride levels compared to pre-test values ($p < 0.05$).

Discussion and Conclusion: As a result, regular aerobic and anaerobic positive effect on body composition and blood lipids in women aged 25-30. It can be said that such regular training is necessary for a healthy life, especially for the prevention of obesity.

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Introduction

In addition to technological developments in our time, new living conditions lead people to a still, still life. When we look at the World Health Organization's 2002 review, still life, in other words, static life causes the world to lose 1.8 million lives every year. In the world, inactivity affects about 11-16% of breast, colon cancer and diabetes mellitus and 23% of heart disease (Akyol et al., 2008). Constantly, changing technology forces individuals to do less physical activity in their living space. With the further development of computer games in the 1970s, recreational activities for people of all ages have entered a new era (Turkish Public Health Institution).

Today's fast-paced technology has reduced the need for human beings, and the response from the work environment, which is a life model opposite to the natural structure of the human being, has entered into death causes, especially the disturbances of the stress digestive system. Sports is a solution against this danger placed against the modern people by developing a field that is far away from the troubles brought by daily life and also helping medicine by the healthy life style that it brings. This benefit has positive effects on the social development of the people. Therefore, the developed countries place more emphasis on spore and give physical education and sports lessons to children starting from early ages (Gökhan et al., 1979). Increasing people's awareness, level of exercise and health make people's life better. In childhood and youth, making physical activity a part of life will ensure a healthy and more peaceful life in the next life. In this sense, knowing what to do for women to have a healthy lifestyle will benefit people in terms of better quality of life (Ökan A., 2013).

Exercisers are expected to have a number of physiological changes with both acute and chronic adaptation. Regular long-term and moderate-intensity aerobic exercises are reported to increase the level of high-density lipoprotein (HDL-C), which reduces lipids such as Total Cholesterol, LDL-C and Triglyceride, which are risk factors for coronary artery disease. It is also emphasized that high blood pressure and obesity diseases decrease with exercise (Akgün N., 1995, Fox 1999, Çolakoğlu 2003.). However, the effect of doing exercises on some blood samples just as thyroid hormones depends on gender, datum fitness level, nutritional status, environmental temperature, height, the intensity and type of the exercise and the time measurement is done (Bernet and Wartofsky 2000, Polat et al 2017).

2. Materials and Methods

This study is composed of women performing step aerobics in the fitness centers of Elazığ and their sample is composed of 12 sedentary women between 25 and 30 years old selected by random method. Participants were asked to have a doctor's report that they did not mind any exercise. Blood lipids (Total-C, HDL-C, LDL-C, and triglyceride) were measured by age, body weight, resting heart rate, body fat percentage. For this, an average of 7 cc fasting blood samples was taken.

2.1 Exercise Program

Athletes were subjected to a run-and-walk exercise at 50-60% of the target heart rate, 6 weeks, 3 days a week, 30 minutes according to the progressive training method. Subjects were given a 10 min warm-up exercise before starting the workout, and a 10 min stretching exercise at the end of the workout.

The intensity of the exercise was determined immediately after the end of exercise by the number of target heart rate according to the number of heartbeats (Karvonen) method as a result of the 10 second heart rate count from the carotid artery in the neck (Fox 1990, Tamer 2000, Zorba 1995.).

The method is shown below:

$$\text{HRmax} = 220 - \text{years}, \text{HRR} = \text{HR max} - \text{HR rest}, 60\% \text{ THR} = (0.60 \times \text{HRR}) + \text{HR rest}.$$

All measurements and tests applied to the participant were performed twice, one week before the training program (pre-test) and one week after the training program (post-test).

2.3 Statistical Analysis

SPSS 17 package program was used in the analysis of the data. The obtained data were analyzed by standard deviation, averaged paired comparison analysis, Paired Samples T Test, statistically ($p < 0.05$).

3. Results

Table 1: Participants' Demographic Information

| Variables | Person Num | % | mean | Standard deviation | Minimum | Maximum |
|-----------|------------|-----|------|--------------------|---------|---------|
| Age | 12 | 100 | 27,5 | 1,78 | 25 | 30 |
| Height | 12 | 100 | 1,65 | 0,04 | 1,58 | 1,73 |

Table 2: Analysis of Participants' Pre-Test and Post-Test Values

| Variables | | Person Num | mean | Standard deviation | P |
|---------------------|-----------|------------|-------|--------------------|------|
| Weight | Pre-Test | 12 | 57,5 | 4,03 | 0,00 |
| | Post-Test | 12 | 54,4 | 3,70 | |
| Body Fat Percentage | Pre-Test | 12 | 26,7 | 5,50 | 0,02 |
| | Post-Test | 12 | 21,2 | 3,30 | |
| Body Mass Index | Pre-Test | 12 | 21,1 | 1,12 | 0,00 |
| | Post-Test | 12 | 19,9 | 1,02 | |
| Hdl | Pre-Test | 12 | 41,8 | 2,79 | 0,01 |
| | Post-Test | 12 | 45,0 | 2,90 | |
| Ldl | Pre-Test | 12 | 83,8 | 14,6 | 0,00 |
| | Post-Test | 12 | 72,0 | 11,4 | |
| Triglycerides | Pre-Test | 12 | 199,5 | 81,7 | 0,01 |
| | Post-Test | 12 | 131,7 | 48,3 | |

Table 2 shows that ; there is statistically significant differences in participants' weight, body fat percentage, body mass index, HDL, LDL, and triglyceride pre-test and post-test values.(p <0,05).

4. Discussion and Conclusion

Pre-test averages of 57,5 kg were determined for women who have step aerobics between 25-30 years of age participating in the study, while post-test averages were 54,4 kg. Body fat percentage in pre-test and post-test measurements was found to be decreased in step aerobics for body mass index measurements. Increase in HDL values in blood lipids decreased in LDL values. It is thought that 6 weeks training is effective on Body Composition and Blood Lipids.

Babayiğit et al. (2002), found that sedentary women aged 25-31 years had a decrease in body weight at the end of the 8-week, 3-week, medium-severity 45-minute step program.

Çolakoğlu and Karaca (2006) found that body weight decreased in both groups when they applied aerobic exercise for 12- week, 3-days 45-60 minutes and 50-75%

intensity to middle-aged and young women. In another study, Çınar et al. (2017) found that six-week weight lifting exercises reduced body weight.

In a study by Fatouros et al. (2002) 32-person group of ages between 65 and 78 years reported a reduction in body weights in a 16-week, 3-week, 55-80% aerobic exercise trial.

In the study performed by Imamoğlu et al. (2002), on 45 sedentary it has been found that there was no significant decrease in body weight, physical fitness, body composition and some blood parameters of three-day, one-hour, three-month exercise three times a week in the study that they made.

Yaprak (2004), found a significant decrease in body weights and body mass indexes in the study he made on 41 obese women which, aged $37,70 \pm 2,75$ years, $158,64 \pm 5,59$ cm in length and $83,12 \pm 11,56$ kg, who do 45-60 minutes of aerobic exercise per day and three days in a week eight weeks.

In the study performed by Çolakoğlu and Karacan, (2006) 8-week aerobic exercise was found to decrease in body mass index at the end of 3-day 30-minute run-walk exercise program for 12 weeks.

Body fat percentage of the study group was measured as $27,566 \pm 5,070\%$ before exercise program and $25,613 \pm 5,054\%$ after exercise program. The study group's pre-exercise program values and post-exercise program values were found to be significantly decreased after the exercise program (Kurt 2007).

Murphy and Hardman (1998) reported that, there was a significant decrease in body fat percentages of 47 sedentary that performed short and long fast walks in the study that they organized as; first group walk 10 minutes each day and second group 30 min.

As a result of the study that made by Ug et al. (2006) it has been reported that the body fat ratio decreases in the subject group who do regular endurance type of exercises not less than 3 hours a week, between 78 men and 53 women aged 20-74 years. Özdal et al. (2016) reported that the practice of Body Vibration exercise reduced the fat percentage of the research group.

As a result of other studies on body fat percentage, it has been reported that body fat percentage decreases (Murphy and Hardman 1998, Sevim et al. 1996, Tsourlou et al. 2003).

Dönmez and Aydos (2000) examined the changes in blood lipids and body fat mass with 20-week aerobic exercise in a total of 650 male and female subjects aged between 17 and 65 years. At the end of the training, subjects had a 3.3% decrease in body fat mass and a significant correlation was found between changes in body fat mass, and LDL-C, total cholesterol, total-K / HDL-C lipid exchange index of women.

A number of studies have been conducted on the effects of aerobic exercises on physical fitness and blood lipids (Dönmez and Aydos 2000, Karacan and Çolakoğlu 2003, Çınar et al. 2016).

In particular, the number of studies reporting that regular and controlled exercises reduce body fat and increase lean body mass are increasing day by day (Çınar et al. 2016, Pancar e et al. 2017).

As a result, six weeks of step aerobic exercises have a positive effect on weight, body fat percentage, body mass index, HDL, LDL, Triglyceride variables. Six-week step-aerobic exercise can be applied to sedentary women aged 25-30 years. Different durations and different exercise models can compare the effects of the same age and different age groups.

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