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ORIGINAL ARTICLE

Investigation of Some Physiological Parameters in Women Taken Teraband Exercise Training

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ABSTRACT

Aim: This study aimed to investigate the effect of a six-week theraband (strength band) exercise program on some physiological parameters in sedentary women.

Method: The pretest-posttest model was used in the study. Before the study, the participants were asked whether they had any health problems. In this study, 34 volunteer women with a mean age of 26.91±2.64 years and a mean height of 164.20±4.36 who regularly attended a private sports centre were included in the study. Before and after the exercise program, body weight, fat percentage, and blood samples were taken in the morning on an empty stomach by experts in the appropriate laboratory environment at the health institution. The obtained data were analyzed in SPSS 22.0 package program. Paired Sample T Test was applied to compare the values before and after exercise.

Results: As a result, it was determined that sedentary women who regularly performed theraband exercise for six weeks had a positive effect on their weight, fat percentage and blood lipids (Triglyceride, Cholesterol, HDL and LDL) levels ($p<0.05$).

Conclucions: As a result, since the teraband (strength band) exercises we applied in our study were both affordable and can be easily performed by individuals at home, it has great importance for health that these exercises can be promoted more, and people's awareness.

Keywords: Teraband, Exercise, Blood lipid

INTRODUCTION

The human body is designed to move. Hobbes (1992), who said that "man is selfish by nature", to be talked about, if it is necessary to refer to nature, this should be the concept of movement in the context of the struggles of man in the field of life. The individual is in both mental and physical movements during the period from birth to death. In a sense, it proves the existence of the concept of potential in human beings.

William Blake says, “Desire not translated into action leads to mental disorder”. In other words, the most important thing that will cause mental disorder in a person is inactivity. Throughout history, all punishment methods have been built on being inactive by restricting freedom of movement. In this context, it is quite thought-provoking that although people have the freedom to move, they do not participate in physical inactivity and exercise at the required level for a healthy life, as if punishing themselves. So that; In addition to mental disorders, many physiological disorders occur in people who do not move. Some of these disorders occur in lipid profiles that seriously trigger cardiovascular diseases.

The term "lipid profile" is defined as low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, and triglyceride, which most commonly represent varying levels of lipids in the blood. High LDL cholesterol levels indicate excess lipids in the blood, which increases the risk of cardiovascular complications (Carroll et al., 2012; Temur et al., 2018). Regular exercise, which is seen as a healing power of all these ailments, provides benefits by positively affecting high lipid levels that almost cause cardiovascular disorders.

Exercise is planned, structured, repeatable, and continuous activities that aim to improve one or more elements of physical fitness (Yeşil and Altıok 2012). Exercise is effective for burning fat in our body in terms of providing energy and preventing excessive loss of muscle tissue during weight training (Janssen et al., 2002). Depending on the type, intensity, and duration of exercise, there may be changes in different age groups' functional, physiological, hematological, and biochemical parameters (Pancar et al., 2017). One of these exercises is theraband (strength band) exercises.

The most important feature of theraband is that the resistance level of the bands increases as they get longer. Coaches prefer these bands because they are cheap in terms of cost and easy to carry. Theraband have been used in various fields such as rehabilitation treatment after injuries, increasing the functional capacities of the elder people, chronic diseases and increasing the functional capacity of athletes. It is a well-known fact that the exercises performed with theraband increase the strength and mass of the muscles to which they are applied (Çağlayan and Özbar 2017; Özdemir, 2020).

In parallel with all this information, this study aimed to examine some physiological parameters in women receiving theraband exercise training in our research.

MATERIAL AND METHOD

Research Model and Participants: The pretest-posttest model was used in the study. Before the study, the participants were asked whether they had any health problems. In this study, 34 volunteer women with a mean age of 26.91±2.64 years and a mean height of 164.20±4.36 who regularly attended a private sports centre were included in the study.

Body Mass Index (BMI): Body composition can also be expressed as a combination of body fat mass and lean body mass (Arslan et al 2001; Turğut and Metin, 2019). In our study, a bioelectrical impedance analyzer (TANİTA TC-418, ABD) was used to determine the body fat percentage measurements of the participants.

Blood Fats Measurement Parameters: 5 ml blood samples were taken from the participants in the morning on an empty stomach in the resting state before the exercise. After 6 weeks (3 days a week, 3*12 repetitions) teraband exercise, 5 ml blood samples were taken again on an empty stomach. Besides, LDL, HDL, total cholesterol and triglyceride values were obtained after blood samples were taken by specialists in a suitable laboratory environment in Bartın state hospital, and complete blood counts were measured with the Backman Coulther STKS device. During the study, no diet program was applied to the participants.

Table 1: Exercıse Workout Program

Exercises	Period
In Line Lunge with exercise band	3*12 sets
Squat with exercise band	3*12 sets
Shoulder movements with exercise band	3*12 sets
Push up with exercise band	3*12 sets
Penguin movement with exercise band	3*12 sets
Thrust movement with exercise band	3*12 sets
Baseball swing movement with exercise band	3*12 sets
Stand out squat with exercise band	3*12 sets

Statistical analysis: SPSS 22.0 package program was used in the analysis of the obtained data. Paired sample t test, which was one of the parametric tests, was used to determine the differences between the pre-test and post-test values of the study group.

RESULTS

Table 2: Frequency Table for Some Physical Characteristics of the Participants

	N	Age (years) (Mean±SD)	Height (cm) (Mean±SD)
Women	34	26,91± 2,64	164,20±4,36

When the physical characteristics of the women participating in the study were examined in Table 2; age and height were respectively: 26.91± 2.64 years, 164.20±4.36 cm.

Table 3: Differences Between Mean Measuring Values of Physiological Parameters Before and After Teraband Exercises

Measurements (cm)	N	Pre-Test	Post- Test	Differences Between means	t	p
Weight (Kg)	34	84,40± 10,99	77,65±11,70	-6,74	4,08	0,000**
Fat percentage (%)	34	39,01± 5,94	32,23±6,42	-6,78	7,73	0,000**
Triglyceride (mg/dl)	34	165,35 ±78,99	88,35±28,00	-77,0	5,90	0,000*
HDL (mg/dl)	34	47,38± 12,51	64,08±14,33	16,7	-7,95	0,000**
LDL(mg/dl)	34	128,08 ±40,84	82,29±24,44	-45,79	6,91	0,000**
Total Cholesterol (mg/dl)	34	188,70 ±41,18	135,26±26,57	-53,44	7,99	0,000**

When Table 3 was examined, it was observed that 6-week theraband exercises had a positive effect on the weight, fat percentage, cholesterol, triglyceride, HDL and LDL cholesterol values of the participants ($p<0.01$). In this context, we can say that the regular exercise program significantly and positively changed the physiological values of the participants.

DISCUSSION AND CONCLUSION

Our research was performed to examine the effect of the theraband exercise program applied to women who regularly go to the sports centre on some physical and physiological parameters. According to the results of our research, it was determined that sedentary women who regularly exercised theraband for six weeks had a positive effect on their weight, fat percentage and blood fats (Triglyceride, Cholesterol, HDL and LDL) levels.

Temur et al., (2018) found a significant result ($p<0.05$) in the study that the mean HDL values before the exercise program were 53.87 ± 14.51 mg/dl, while this mean value was 52.31 ± 15.07 mg/dl after the exercise program. In another study, they found that exercise increased HDL levels (Tran et al., 1993). When our study result was examined, it was observed that there was a change in HDL levels before and after exercise. Therefore, the results of this study show parallelism with our study.

In another study conducted by Ljubojevic et al., (2014), it was determined that there was a significant decrease in the body weight values of 12 women aged 25-35 years, who applied a zumba exercise program three days a week for eight weeks ($p<0.05$). Huttunen et al., (1979) found a decrease in LDL cholesterol levels in the study on the effect of moderate physical exercise on serum lipoproteins ($p<0.05$). As it is understood, studies on the effect of exercise on physiological parameters support the results we obtained from our study. In another study, it was determined that different exercise programs performed at aerobic and anaerobic rates had positive acute effects on TG, LDL cholesterol and HDL cholesterol levels (Turgay et al., 2002).

As a result, it can be said that the applied 6-week exercise training program created positive significant changes on body weight, fat percentage and blood fats (HDL, LDL, Triglyceride and Cholesterol). Many different results have been revealed in different studies investigating the effect of exercise on blood parameters. Considering these results, it is assumed that the duration and intensity of exercise, age of the participants, body weights and nutritional habits also affect the positive contribution of exercise in terms of blood parameters. In our study, it is of great importance that these exercises can be promoted more, and people's awareness and guidance are directed, since they are convenient in terms of cost and that individuals can easily perform them at home.

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