RedFame

Journal of Education and Training Studies
Vol. 7, No. 11; November 2019
ISSN 2324-805X E-ISSN 2324-8068
Published by Redfame Publishing
URL: http://jets.redfame.com

The Effects of a Three Months Exercise on Physical Fitness, Body Composition and Some Blood Parameters in Sedentary Middle Aged Female

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Received: August 5, 2019 Accepted: August 28, 2019 Online Published: August 29, 2019

doi:10.11114/jets.v7i11.4424 URL: https://doi.org/10.11114/jets.v7i11.4424

Abstract

In this study, we aimed to investigate the effects of three months of aerobic exercise on physical fitness, body composition and some blood parameters in sedentary Female. 45 sedentary Female with an average age of 36.11 ±1.04 years, high of 158.9 ±0.76 cm and weight of 70.83 ±1.67 kg have been selected. Sedentary Females were trained through an aerobic exercises programmed one hour a day for three days a week. The aerobic exercise time was on 12 weeks. Setting-up exercises and training in each training session were arranged in such a way as to make each woman's heart rate to between a levels of 130-140 beats per minute. Statistical analysis were done with Paired-t test, Variance analysis and Scheffe tests. At the end of the three months exercise programmed, a decrease of %9.06 in body weight, %9.96 in systolic blood pressure, %6.94 in diastolic blood pressure, %12.42 in total cholesterol, %22.44 in Triglyceride, %21.16 in low density lipoprotein and %21.4 in fat content ratio have been registered. However, there were increases of %26.22 in hand grip power, %63.83 in the maximum oxygen transfer, %6.2 in aerobic strength and %16.34 in high density lipoprotein. Even though the three months exercise has produced significant effect to on systolic blood pressure, jumping, high density lipoprotein cholesterol, Apo-B, Triglyceride, Hip circumference at .01 level. On number of heart beats, hand grip power, waist circumference, the maximum oxygen transfer, Low density lipoprotein cholesterol, Apo A I and fat contents, diastolic blood pressure and aerobic strength at .05 level. Conclusions: The result of three months low intensity aerobic exercises have shown the fact that such exercises could improve high density lipoprotein cholesterol values and physical fitness. Also by the changes of body fat, Triglyceride, total cholesterol and low density lipoprotein cholesterol values parameters it reduces body parameters. The risk for cardiovascular problems are reduced on sedentary females. Aerobic exercises programmers may be recommended to reduce hypertension, weight loss, diabetes, cardiovascular diseases or metabolic diseases on sedentary females between 130-140 heart rate.

Keyword: physical fitness, exercise and blood parameters

1. Introduction

Sedentary life is possibly one of the greatest harmful diseases among females in the modern world (Aktaş et al., 2016). Exercising is most important for every living thing; In other words, we can also say that physical inactivity causes various diseases in the body (Raj and Narayani, 2010). A large number of studies indicate an association between regular physical activities with an alteration of health effects. The finding of results are consistent. Results is showing that sedentary people have about twice the risk of developing or dying from Coronary Heart Diseases (CHD), compared to active people (Arazi et al., 2012). It is showing that physical inactivity essential cause of early mortality and morbidity from chronic diseases (Taylor et al., 2014). There is substantial, consistent and strong argument that physical activity and exercise was a deterrent for developing several creates of cardiovascular disease. Among its many benefits, middle levels exercises and regular physical activity is thought to reduce cardiovascular disease risk by its favorable influence on excursive blood lipids and lipoproteins (Durstine et al., 2001). Some researchers reported that those who follow appropriate diet and aerobic exercise (for 60 to 90 minutes in 5 to 7 days a week) increase the values of training to use Oxygen Efficiently (VO_2 max). Aerobic exercises is cause increased HDL-C and carry out decreased waist circumference. Results provide stronger evidence for lower Total Triglyceride and higher High Density Lipoprotein

Cholesterol levels in physically active and middle exercise individuals (Fritz, 1987). Aerobic exercise training or physical activity has been associated with positive effects on Humans lipid profiles, most in triglyceride and high density lipoprotein cholesterol values (Earnest et al., 2103; Mann et al., 2014; Ruppar et al., 2014). Both middle aerobic and low anaerobic exercise can decrease total cholesterol (TC). This exercises raise high-density lipoprotein cholesterol levels (HDL-C), and lower the total cholesterol/High density lipoprotein cholesterol (TC/HDL-C) ratio (Thompson, 1991). Several studies have shown that aerobic and middle anaerobic exercise can cause improving effect on serum Total cholesterol, high density lipoprotein cholesterol, and low density lipoprotein cholesterol values (Gullu et al., 2013).

Regular exercise imparts many beneficial effects on lipid particle subclasses, including significant increases in large high density lipoprotein cholesterol granule and significant decreases in medium high density lipoprotein cholesterol molecules (Sarzynski et al., 2015). The results of some studies involving exercise interventions of moderate to high intensity three to five times per week for >12 weeks indicated a general increase in high density lipoprotein cholesterol, decreases in triglyceride and low density lipoprotein cholesterol values. However, no was changing in total cholesterol (Pedersen and Saltin, 2006). Many researches show that the cholesterol is related with coronary heart disease (Çetinkaya and İmamoğlu, 2018). LDL-/HDL-C ratio can show arteriosclerosis disease risk. There is substantial, consistent and strong evidence that physical activity or middle levels exercise is an inhibitory for many conditions of cardiovascular disease. LDL-C/HDL-C ratio can show arteriosclerosis disease risk (Bedir et al., 1998). The lipid and lipoprotein abnormalities play a major role in the development and progression of coronary artery disease and participate in many physiological and biochemical events in human body (İmamoğlu et al., 2017). Physical activity has a positive effect on lipid and lipoprotein metabolism. These are as follows. Total cholesterol, low density lipoprotein cholesterol, Triglyceride and Total cholesterol / High density lipoprotein cholesterol ratio significantly decrease after exercise (Tran et al., 1983). Although people who perform regular sports may have a more uniform body posture and appearance than sedentary people (Yamak et al., 2018).

This study, is aimed to investigate the effects of three months of aerobic exercise on physical fitness, some performance parameters, some lipid and lipoprotein values and blood parameters in sedentary Female.

2. Material and Method

Design of Research

Subjects: The study included 45 sedentary Females. Sedentary Females are between 30-45 years old. Participants were selected from those who did not have a chronic disease and did not engage in active sports on female. All sedentary Females were healthy during the study. Women was engaged in daily life activities and professional activities. They did not participate in the exercise except for the designated work program. All sedentary Females measured their height and weight using anthropometry and medical scales reach. The height of each woman was taken before starting the exercise program. Body weights were measured before and later the exercise program for at 12- week training period. The aerobic exercises period was 12 weeks. All female were accepted to follow the aerobic exercise program. Those who interrupted the aerobic exercise programs were excluded from the analysis.

Aerobic Exercises Program

Each training session was 60 minutes for 3 times in a week during a 12- week training program. The days was Monday, Wednesday and Friday. Training for aerobic exercises movements were performed jogging, leg, arm, abdomen, and hip exercises. Group exercises were performed together with of trainers. The duration and intensity of each workout was set by the trainer. In the studies, the heart rate of women was adjusted to be around 130-140 beats per minute. Exercise program was conducted under the control of trainer Pelin Akyol for 12 weeks.

Data Measurement

Lipid and Lipoprotein Measurement: Blood e.g. is taken from a blood sample obtained by puncture of the cubital vein, the concentrations of lipids. A blood sample was taken sedentary females in the morning, after 12 hours of abstinence from food. Lipid and lipoprotein levels were determined by Hitachi 717 Autoanalyser. Total cholesterol (TC), triglycerides (TG), HDL-C and LDL-C were determined using standard methods. Apo A1 and Apo B levels were determined by Behring Nephelometer 100.

Body Fat Percentage: Triceps and scapula skin thickness were measured by Holtain caliper from the right side of the body. For Females: 0.55 x triceps + 0.31 x subscapula + 6.13 [İmamoğlu et al., 2017).

The maximum oxygen transfer (Max VO_2) values determined by 12 minute run test; MaxVO_2 (ml/kg/min) = Speed [m/min] x 0.2+3.5 ml/kg/min

Anaerobic Power: Jump measurements were taken by the jump meter.

Anaerobic Power = √4.9 x Body Weight x √Jump Distance (m)

Body Mass Index (BMI) = Body Weight (kg) / Height $(m)^2$ = kg/m^2

Caloric Expenditure: For calculating basal metabolism; it has used the factor 0.9 kcal, per kilogram of body weight per hour for females. For calculating add caloric expenditure, the activity coefficients were taken for sedentary % 50 of basal metabolism. Basal Metabolism for Females =24 x Body Weight x 0.9

Additional Activity Metabolism = Basal metabolism x activity of %

Total metabolism (Energy) = Basal metabolism + Additional Activity Metabolism (İmamoğlu et al., 2005).

The hand grip strength was evaluated for the dominant hand an adjustable digital hand grip dynamometer (Takei Scientific Instruments Co., Ltd., Japan). The better of the two measurements was recorded. Hand Grip strength test were applied while in the standing position with the shoulder adducted and neutrally rotated and with the elbow fully extended (Saha, 2014).

Statistical analysis

Analysis was performed on SPSS 22 version. Kolmogorov-Smirnov test was used to evaluate the normality of parameters. To determine the differences between groups "independent t" tests were performed. The analysis for according age groups were used Variance Analysis and Scheffe tests. Significance level was taken as p<0, 05.

3. Results

Table 1 shows some anthropometric, physiological and motor properties of sedentary Female. Comparison of serum lipid values Sedentary Female for exercise protest and posttest in Table 2. Table 3. According age Groups 45 Sedentary Female's Blood Parameters and Hip Circumference Values. Table 4. Cardiovascular Diseases of Sedentary Female

Table 1. Physical and motoric characteristics of sedentary Female for exercise pro test and post test

Variable	Protest (X± Sd)	Protest (X± Sd)	t	% Change
Age (year)	36,11±1.04	-	-	-
Height (cm)	158.91±0.76	-	-	-
Body Weight (kg)	70.83±1.67	64.41±1.72	1.65	-9.06
BMI (kg/m^2)	28.71±0.14	26.95±0.12	1.54	-6.09
Systolic blood pressure (mmHg)	118.57±4.40	106.75±1.45	1.57*	-9.96
Diastolic blood pressure (mmHg)	76.42±2.87	71.12±1.65	0.48	-6.94
Hart Rate **(bpm)**	88.70±4.06	76.70±1.67	3.57**	-13.53
Hand Grip Strength (kg)	24.94±0.95	31.48±0.45	-3.94**	26.22
Jump Distance (cm)	26.34±1.41	38.75±1.24	-2.62*	47.11
Cooper Test (m)	1123.46±8.96	1975.33±45.81	-13.59**	75.83
Max VO2 (ml/kg/min)	22.23±.94	36.42±4.07	-12.15**	63.83
Anaerobic power (kg.m/sec)	77.73±1.52	82.62±2.14	0.17	6.28
Energy (kcal/day)	2433±119	2290±116	17.36**	-5,88
Body Fat % (kg)	22,20±1.42	17.45±1.32	4.50**	-21.40
% Lean Mass (kg)	81.27±1.40	85.68±1.13	0.33	5.42
Hip circumference (cm)	90.54±2,80	81.38±3,31	3.34**	-9,16
Waist circumference (cm)	105.22±1,31	98.58±1,93	2.83*	-6.30
Waist to hip ratio	0.86	0.82	-	-

* p <.05 ** p< .001 X: Mean Sd: Standard deviation

When the anthropometric properties were examined, the mean age was 36.11 years, and the lengths of the height were determined as 158. 91 cm. body weights decreased from 70.83 kilograms to 64.41 kilograms. Body Mass Index values decreased from 28.71 kilograms to 26.95 kg. The decrease in body weight and body mass index was not statistically significant (p> 0.05). Systolic and diastolic blood pressures and resting heart rate were decreased in the number of systolic blood pressure and resting heart rate (p <0.05).

Table 2. Comparison of serum lipid values of sedentary Female for exercise pro test and post test

Variables	Protest (X± Sd)	Protest (X± Sd)	t	% Change
Cholesterol	199.08±5.12	174.35±4.47	2.75**	-12.42
Triglyceride	111.11±8.23	86.20±5.32	2.93*	-22.41
HDL-C	40.67±1.15	47.31±1.12	-2.49*	16.34
LDL-C	157.71±3.51	124.33±3.12	2.67**	-21.16
Apo A1 value	158.76±3.65	137.61±3.24	3.37**	-13.31
Apo B value	118.61±5.81	105.89±3.48	2.09*	-13.63

* p <.05 ** p< .001

Serum lipid levels in the last measurement according to the first measurement of cholesterol, triglyceride, LDL-K and Apo B levels are falling. On the other hand, HDL-K and Apo A1 values increased. Serum lipid and lipoprotein levels were significantly increased (p <0.05 and p <0.001).

Table 3. According age groups sedentary Female's blood parameters and hip circumference values

	Variable	Age	n	X ± Sd	F / Scheffe
Protest	Triglyceride (mg /100cc)	17-30	13	104.62 ±13.01	.907
		31-40	11	100.45 ±11.65	
		41>	21	120.71 ±10.36	
	Cholesterol (mg /100cc)	17-30	13	149.23 ±6.37	21.07** 1<2,3
		31-40	11	210.09 ±9.80	
		41>	21	224.19 ±8.42	
	LDL-C (mg /100cc)	17-30	13	71.38 ±5.89	48.71** 1<2,3
		31-40	11	193.27 ±13.82	
		41>	21	192.53 ±8.76	
	HDL-C [mg /100cc]	17-30	13	57.00 ±2.96	32.06** 1>2,3
		31-40	11	33.36 ±1.73	
		41>	21	34.38 ±1.88	
	Hip circumference (cm)	17-30	13	75.31 ±2.41	11.59** 1<2,3
		31-40	11	92.45 ±3.34	
		41>	21	92.58 ±2.59	
	Waist circumference (cm)	17-30	13	103.09 ±2.13	13.82** 1<2,3 2>3
		31-40	11	107.75 ±3.20	
		41>	21	104.82 ±1.41	
Posttest	Triglyceride (mg /100cc)	17-30	13	93.00 ±11.38	.602
		31-40	11	77.45 ±9.16	
		41>	21	86.57 ±7.06	
	Cholesterol (mg /100cc)	17-30	13	132.23 ±5.99	22.24** 1<2,3
		31-40	11	183.55 ±8.59	
		41>	21	195.62 ±6.52	
	LDL-C (mg /100cc)	17-30	13	62.92 ±4.88	30.89** 1<2,3
		31-40	11	146.00 ±10.36	
		41>	21	151.00 ±8.65	
	HDL-C [mg /100cc]	17-30	13	60.46 ±2.95	22.50** 1>2,3
		31-40	11	41.09 ±1.81	
		41>	21	42.42 ±1.71	
	Hip circumference (cm)	17-30	13	71.99 ±2.35	8.71** 1<2,3
		31-40	11	84.55 ±2.89	
		41>	21	85.52 ±2.24	
	Waist circumference (cm)	17-30	13	98.58 ±2.35	12.09** 2<1,3 1>3
		31-40	11	102.75 ±2.62	
		41>	21	97.94 ±2.18	

* p <.05 ** p< .001

The differences in the first measurements according to age groups were similar in the last measurements. There was no statistically significant difference between the age groups in both the first measurement and the last measurement for

triglyceride (p> 0.05). According to age groups, cholesterol, LDL-C, HDL-C values were found to be statistically significant in waist and hip circumferences (p <0.001). Cholesterol and LDL-C values of women in the 17-30 age group are lower than those in the age group 31-40 and older than 41 years. The HDL-C values of the first age group were significantly higher than the other groups (p <0.001).

Table 4. Cardiovascular diseases of sedentary Female

Variable	Pro test (X± Sd)	Posttest (X± Sd)	t	% Change
TC value /HDL-C value	5.63 ± 0,34	4.01 ± 0,22	3.18**	Minus 28.77
LDL-C value /HDL-C value	4.63 ± 0,37	2.94 ± 0,23	3.92**	Minus 36.50
Apo-B value/Apo-A I value	0.76 ± 0.04	0.78 ± 0.03	-0.45	Plus 2.63

* p <.05 ** p< .001

The ratio of total cholesterol to HDL cholesterol in sedentary women was 5.63 in preliminary analyzes and decreased to 4.01 in the last analysis. While the ratio of LDL-K to HHDL-K was 4.63 in preliminary analyzes, it decreased to 2.94 in the last analysis (p <0.001). The change in the ratio of Abo B to Apo A I is not statistically significant (p> 0.05).

4. Discussion

Recently many fitness halls and sport centers has organized healthy life programs in Turkey. It was presented exercise plans appropriate for females' needs, interests, and periods. One of these programs is the aerobic exercise programs. In this study, it was determined that sedentary Female had a mean age of 36.11 year, a height of 158.91 cm and a body weight of 70.83 kg. Body mass index values were 28.71 kg / m^2. In this study, body weight found before 12 weeks exercise 70.83 kg and after 64.41 kg. There was a significant decrease in body weight and body mass index (p<0.05). Aktaş et al. (2016) in a study, was found aerobic training application affected positively weight loss and body composition among the sedentary females. In this study, found at the end of the 3 months aerobic exercise program, a decrease of 9.06 % in body weight on sedentary females. Delextrat et al. (2016) in a study, found maximum aerobic fitness (3.6%), physical power self-perception (16.3%) and muscle development (18.6%), more autonomy (8.0%) and significant positive changes in life goal (4.4) identified. Physical activity and exercise contribute to prevent cardiovascular and chronic diseases, obesity, diabetes, and to lead a healthy lifestyle (Demirel et al., 2018). It has been identified that regular middle exercise reduces total blood cholesterol, serum triglycerides and low density lipoprotein cholesterol (LDL-C) and increases high-density lipoprotein cholesterol (HDL-C), (İmamoğlu et al., 2017). Çetin et al. (2019) in a study, together Pilates and aerobic exercise was found similar effect for blood parameters on sedentary Female.

Many studies have demonstrated an increased risk of Coronary Heart Disease and cardiovascular death with an increase in Body Mass Index (İmamoğlu et al., 2017). In classification for Body Mass Index: Body Mass Index categories were normal weight (22–23.9 kg/m^2, the referent), overweight (24–26.9 kg/m^2), obese 1 (27–29.9 kg/m^2), and obese 2 (≥ 30 kg/m^2), (Hsu et al., 2018). Body mass index 25-34 years of age in general up to 25 kg/m^2 everyone is healthy, after 25 kg/m^2 everyone is sick (Glyn, 1991). The mean age of our subjects was 36 and it reached the limit of being healthy by decreasing 6.09% at the end of exercise period and 26.95 kg at the end of the exercise period with an initial 28.71 kg value. It is statistically proved that Waist to hip ratio (WHR) Female with 0.85 are at greatest risk of health complications. If WHR above 0.85 for females accept important marks of lifestyle-related health problems throughout the world. Sedentary Female with waist circumference of more than 85 cm had almost doubled mortality risk compared to active Female with waist circumference values below 80 cm (İmamoğlu, 2014; Dubbert et al., 2002). In one study on Turkish population, it was found at the end of three months of exercise, the decrease in waist and hip circumference measurements significant (Turgut et al., 2017). In this study, was found at the end of the 12 weeks aerobic exercise program, a decrease 9.16 % hip circumference values and 6.30 % waist circumference values. The WHR rate was 0.86 cm prior to 12-week aerobic exercise and decreased to 0.82 cm after the exercise period. In this study, the change of the aerobic exercises on the waist and hip circumference was statistically significant (p <0.05; p <0.01). In our study, the percentage of fat decreased from 22.20% to 17.45% (21.40% reduction) and an increase of 5.42% in non-fat percentage.

It is generally accepted that hand grip strength measurements can be used as a health marker (for cardiovascular health and functional limitations), (Aktas et al., 2016). In this study, hand grip strength rise from 24.94 kg to 31.48 kg. The increase in hand grip strength of our subjects was found to be significant with 26.22% (p <0.01). Aerobic exercises had a positive effect on hand grip strength in sedentary women. This result suggests that sedentary women doing aerobic exercises can make their activities related to handwork better. In this study, the basal metabolic values of female were decreased at 2493 kcal/day before starting the exercise and at 2290 kcal / day at the end of exercise (p <0.01). The daily energy consumed by sedentary women is reduced. It's probably about women losing weight.

Taunton et al. (1996) in a study that included 41 healthy sedentary women, aerobic exercise was performed for 45 minutes for 3 weeks. At the end of 12 weeks, the increase in muscle strength of exercise revealed significant changes in body composition and flexibility values. They also found a significant difference in max VO_2 values before and after exercise. In the 12-minute Cooper test, Female aged between 30-39 years were reported to have insufficient, 1650 m adequate and 2000 m well below 1350 m in 12 minutes (Kale, 2002). Bowman et al. (1997) in a study of 26 healthy sedentary women, Heart rate help following yoga and VO_2 max increased by 11% following yoga and by 24% following aerobic training. In another study in which 37 healthy sedentary women participated, participants performed aerobic exercise at least 3 times a week for 24 weeks. After 24 weeks, a significant difference was found in the VO_2 max values of women (Grandjean et al., 1996). Since the average age of our subjects was around 36 years of age, the running distance was initially insufficient with an average of 1120.455 m, and after 3 months it increased to 75.38% with a level of 75.80%. Max VO_2 value is between 20 and 28 ml / kg / min between 30-39 years of age and 28-33 ml / kg / min is medium and 34-44 ml / kg / min is very good (Hsu et al., 2018). In our study, Female rel. maxVO_2 increased to 36.42 ml / kg / min with aerobic activity from 22.23 ml / kg / min. In other words, a good health for Female has been reached conditionally. At the end of the 3-month study there was an increase of 63.83% in aerobic power and an increase of 6.28% in anaerobic power. It is seen that the aerobic exercise can bring rel.maxVO_2 to the desired level in a period of three months. The increase in aerobic power and splashing of the females were found to be significant due to the aerobic type of exercise ($p < 0.01$) and it was not significant in anaerobic power ($p > 0.05$).

Most of studies about blood pressure and heart beat, is assertion that the long time exercise decreased the blood pressure and heart beat (İmamoğlu, 2014).İmamoğlu et al., (2017) in a study, was decreased the systolic, diastolic blood pressure, and heart beat with long time aerobic exercise. Koca (2017) in his study founding similar result. The systolic blood pressure was decreased with long time aerobic exercise. When Female's body size is normal, their mood is positively affected. Even personality traits change positively with education (İmamoğlu and Demirtaş, 2017; Koca et al., 2018). In this study, was decreased systolic blood pressure 9.96% and Diastolic blood pressure 6.94 % at aerobic exercise on sedentary female. Heart beat was decrease 13.53% in aerobic exercise. The decrease in systolic blood pressure and heart rate was found to be significant in this study ($p<0.05$). There was no significant change in diastolic blood pressure ($p>0.05$). Since physical activity is significant reduces body fat content for the treatment of heart disease. It is very important long time aerobic exercise (cardiovascular exercise) compared to other training. Regular aerobic exercise are more effective in reducing body fat percentage. Therefore, most studies ant training use aerobic exercises (Marandi et al., 2013). Regular aerobic exercises may be recommended to reduce hypertension, diabetes, coronary artery diseases, cardiovascular diseases or metabolic diseases. Beneficial effects of aerobic training programs and middle exercise levels on blood lipid profiles have been interpret. Many studies have shown that appropriate exercise make because improving effect on serum TG, Low density lipoprotein cholesterol and High density lipoprotein cholesterol values (Boardley et al., 2007). It is proposed that increase in High density lipoprotein cholesterol values and reduction in triglyceride values after appropriate exercise can be associated with progressive effects of exercise training (Marandi et al., 2013). Turgut et al., (2017) in a study, found there a significant difference in lipid and lipoprotein values between the first measurement and the second measurement after 3 months of aerobic exercise. Imamoğlu et al., (2017) in a study, regular aerobic and weight-lifting plus aerobic exercises have been shown to reduce the risk of cardiovascular disease in sedentary Female. Result is Systolic and diastolic blood pressures reduction of cholesterol, triglyceride, and of Low density lipoprotein cholesterol values. In other study, there were decreases in run-walk group on total cholesterol by 6.44%, Low density lipoprotein cholesterol by 7.93%, and triglyceride by 17.75%, but there was not any difference statistical in value of High density lipoprotein cholesterol (Gullu et al., 2013). Other studies on Turkish population, found to effect long time exercise on serum lipids of sedentary females increase in High density lipoprotein cholesterol and to decrease in Low density lipoprotein cholesterol, total cholesterol, and triglyceride (Pedersen and Saltin, 2006; Koca, 2017). In this study after 3 Months aerobic exercise, was decrease percentage of blood values of females. It found 12.42% in Cholesterol values, 22.41 % in triglyceride values, and 21.16% in Low density lipoprotein cholesterol values to decrease. Also High density lipoprotein cholesterol values was increase 16.34 % on female. At the exercise period end they could found triglyceride, total cholesterol, Low density lipoprotein cholesterol values was decreased and High density lipoprotein cholesterol values was increased statistical significance ($p<0.001$).

The average net increase in High density lipoprotein cholesterol values with exercise was highly significant. Coronary heart disease risk decreases by 1.5% if High density lipoprotein cholesterol values increases by 1% (İmamoğlu et al., 2017). In that case in this study, decrease of Low density lipoprotein cholesterol and increases of High density lipoprotein cholesterol have decreased risk of Coronary Heart Disease. In particular, the 1% decrease in total cholesterol levels, coronary heart disease is reduced by 2% (İmamoğlu et al., 2017). Accordingly, the rate of risk decreased by 24.84% with a 12.42% decrease in cholesterol. The optimal blood triglyceride level should be less than 100 mg / dl (Prentice, 1990). In our study, Triglyceride decrease from 111.11 / mg / dl to 86.20 mg / dl. Also it found optimal blood triglyceride level decreased by 22.41%. In Female, there is a risk of Total Cholesterol > 200, HDL-C <35, LDL-C > 160

and Triglyceride > 250 for coronary heart disease. The subjects were initially included in the risk group of total cholesterol, High density lipoprotein cholesterol and low density lipoprotein cholesterol values, while the total cholesterol at the end of exercise was 174.35 mg / 100cc, HDL-C values 47.31 mg / cc, LDL-C 124 mg / 100cc. Normal high density lipoprotein cholesterol values in Female should be 38-75 mg / dl [average HDL-C value = 50 mg / dl for Female], Low density lipoprotein cholesterol should be less than 150 mg / dl. Heart attacks become rare when the Low density lipoprotein cholesterol level falls below 100 mg / dl. Female with high density lipoprotein cholesterol less than 40 mg / dl have 3 times more risk of heart disease than normal (İmamoğlu et al., 2017; Prentice, 1990). The risk is also reported when this value falls below 45. People with High density lipoprotein cholesterol values below 40 mg / dl have three times more risk of heart disease than those with high density lipoprotein cholesterol (Werner et al., 1990). In our study, the amount of high density lipoprotein cholesterol increased from 40.67 to 47.31. In our study, a decrease of 21.16% in Low density lipoprotein cholesterol and an increase of 16.34% in High density lipoprotein cholesterol is a remarkable result. According to age groups in this study, Triglyceride, cholesterol and Low density lipoprotein cholesterol levels of the 17-30 age group for Female are lower than in the age group 31-40 years and older than 41 years. The High density lipoprotein cholesterol level is higher. Similar results were found before exercise compared to after exercise. The periodic risk of heart disease by dividing total cholesterol, High density lipoprotein cholesterol is explained. If the cholesterol / High density lipoprotein cholesterol ratio is 5 or higher, the risk factor is high and the risk is lower than 3.5 (Edward et al., 1992). In our study, subjects were initially in the high-risk group with a value of more than 5 for heart disease, while the result of the exercises decreased from 4 to normal. In this study, Even though the 3 months aerobic exercise has produced significant effect to on systolic blood pressure, jumping, Apo-B, Triglyceride, High density lipoprotein cholesterol values, Hip circumference at .01 level. On number of heart beats, hand grip power, waist circumference, maxVO_2, Low density lipoprotein cholesterol values, cholesterol, Apo A I, and fat contents, diastolic blood pressure and aerobic strength at .05 level. The predictive value of apolipoproteins A-I and B in coronary artery disease is well established and documented in the medical literature. Increased Apo B/Apo A-I ratios have been consistently consolidated with risk of coronary artery disease (Zambon et al., 2006). In this study, Apo B / Apo A-I ratio did not change.

5. Conclusion

The result of three months low intensity aerobic exercises have shown the fact that such exercises could improve high density lipoprotein cholesterol values and physical fitness. Also by the changes of body fat, Triglyceride, total cholesterol and low density lipoprotein cholesterol values parameters it reduces body parameters. The risk for cardiovascular problems are reduced on sedentary females. Aerobic exercises programmers may be recommended to reduce hypertension, weight loss, diabetes, cardiovascular diseases or metabolic diseases on sedentary females between 130-140 heart rate.

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