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The Effect of a 12-Week Physical Exercise Program in Adults on Satisfaction with Life, Self-Esteem, Healthy Lifestyle Behaviors and Perceived Social Support

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KEYWORDS Physical Activity. Stress Management. Quality of Life. Self-Confidence. Self-actualization

ABSTRACT The aim of this study was to examine the effect of a 12-week physical exercise program in adults on satisfaction with life, healthy lifestyle behaviors, perceived social support and self-esteem. The main findings of the present study showed that an interaction effect for group and time existed in self-esteem, physical activity, friend and special person ($p<.05$). When the analyses made for the concept of perceived social support were examined in the study, while a statistically significant difference was observed in a positive direction in the pre-test and final test point averages for the sub-dimensions of "friend" and "special person" of the experimental group, it was observed that there was no difference at all in the "family" sub-dimension. In conclusion, it is thought that participating in regular physical activity is effective in preserving the bodily functions of individuals and in being psychosocially healthy individuals.

INTRODUCTION

It is known that physical exercise programs made based on conscious, regular and scientific foundations plays a significant role in individuals being healthy throughout their lives as well as engaging in social support in societal life, because all kinds of physical exercise has the individual get together with other persons and groups. On this point, it is also known that physical exercise is a societal phenomenon, which is under the influence of the fact of the social surroundings of people. Individuals, along with participating in sports activities, are decreasing the intensive stress created by city life and the problems in daily life and are receiving social support in response to situations that could pave the way for spiritual isolation (Cha 2003; Demir et al. 2004; Ramazanoglu et al. 2005). With a general perspective, social support is known as socio-psychological assistance, which is provided to the individual by an environment in which there are communications with family, friends and neighbors and within work life. This concept, which explains the basic social requirements of individuals, such as love, attachment, self-esteem and belonging to a group, is examined in the three basic dimensions of receiving support from "family", "friends" and "special persons" (Tonsing et al. 2012). It is known that in parallel with the feeling of "me", self-respect develops and persons have a number of beliefs and images about themselves. That is, self-esteem is a situation of liking, which is created from the approval of the concept of ego reached at the conclusion of self-evaluation by the person (Mruk 2006). Individuals who have high self-esteem, who have more confidence in themselves are individuals who can be effective in solving problems encountered and who can be influenced in a positive direction from the psychological and social aspects of life (Twenge and Campbell 2002). The relationship of physical exercise with self-esteem and level of social support has been included in many studies. It has been observed that these phenomena can be decreased or increased connected to many different variables, such as physical exercise (Kong et al. 2012, Song et al. 2001). The compilation study made by Fox (2000) from 79 studies, stated that physical exercise affected mental health and esteem in a positive direction as a contribution to field and experimental applications. When the entire life of the individual is taken into consideration, it is thought that the fact that self-esteem is high, social support is sufficient and physical exercise is regular, raises the psychosocial health of the individual (Flouri 2006). We are confronted with an important component along with the fact that mental, physical and social health is influenced

by each other: the attitudes for a healthy lifestyle of individuals. Healthy lifestyle behaviors are defined as individuals controlling their health habits and organizing their daily activities by selecting the behaviors in accordance with their own health status (Melnyk et al. 2006). It is known that the concepts of self-actualization, health responsibility, physical activity, nutrition, interpersonal support and stress management, which determine the levels of behavior and preserve the health of the individual, are the indicators of a healthy lifestyle (Arslan and Ceviz 2007; Bahar et al. 2008). Studies are conspicuous, which set forth that different variables, such as socioeconomic status, family and surroundings experienced, educational status and gender, affect healthy lifestyle behaviors (Lee and Loke 2005; Song et al. 2001; Vieira et al. 2012). In a study made by Ulla Diezi and Peres-Fortis (2009) on university students in Mexico they stated that socio-demographic attributes, such as gender and educational level of mother, had different influences on healthy lifestyle behaviors. The positive and negative feelings obtained as a result of comparing happiness, the expectations of individuals (what they want) and what they have, is defined with the name known as satisfaction with life (Ozer and Karabulut 2003). There are studies that explain the relationship between many concepts, such as satisfaction with life with depression, self-esteem, frequency of illness and physical health (Chow 2005; Pilcher 1998). In this context, it is known that the lives of persons are negatively affected by a deficiency of attitudes and behaviors related to health and many different problems stemming from an inactive life. This study was made with the objective of examining the effect of a 12-week physical exercise program on satisfaction with life, healthy lifestyle behaviors, perceived social support and self-esteem for determining whether or not the quality of the life of the individual increased or decreased.

METHODOLOGY

Participants

The experimental group of the study was composed of 42 individuals of whom 20 (47.6%) were females and of whom 22 (52.4%) were males above 18 years of age and who were members of Healthy Life Centers at *Izmir* Province. The control group of the study was composed of 42 individuals of whom 25 (59.5%) were females and of whom 17 (40.5%) were males above 18 years of age who led a sedentary life at *Izmir* Province. Selecting them with the random method provided the voluntary participation of the sampling group composed of a total of 84 participants. The average age of the experimental group was determined to be 27.50±11.31 and the average age of the control group was determined to be 21.00±8.20.

Measures

Satisfaction with Life Scale: This scale was developed by Diener et al. (1985) and adapted into Turkish by Koker (1991). The scale consists of 5 items. The scale is designed in seven evaluation steps (1 = strongly disagree, 7 =strongly agree). Total score that can be obtained from the scales could be 5 at minimum and 35 at maximum. Results in the study of Koker (1991) showed test-retest reliability coefficient of .85 (Dost 2007).

***Healthy Life Style Behavior Scale II*:** This questionnaire was developed by Walker et al. (1987). This scale was adapted into Turkish by Bahar et al. (2008). The scale consists of 52 items and six subscales. Health Responsibility (9 item), Physical Activity (9 item), Nutrition (9 item), Spiritual Growth (9 item), Interpersonal Relations (9 item) and Stress Management (8 item). The scale is designed in four evaluation steps (1 = never, 4 =regularly). General scores of the scale indicated the score of healthy life style behaviors. Total score that can be obtained from the scales could be 52 at minimum and 208 at maximum. The Cronbach alfa internal consistencies of scale is .92. Alpha values of the scale's subscales vary between .64 and .80.

***Multidimensional Scale of Perceived Social Support*:** This scale was developed by Zimet et al. (1988) and adapted into Turkish by Eker et al. (2001). The scale consists of 12 items and three subscales. Family (4 item), Friend (4 item) and Special Person (4 item). Personal responded to a seven-point Likert-type (1 = Very Strongly Disagree; 7 = Very Strongly Agree) scale. Total is sum of all 12 items, possible range for total is 7-84. High scores and low scores obtained from this subscale represent high and low level perceived social support, respectively. Total score that can be obtained from each subscale could be 4 at minimum and 28 at maximum. The Cronbachalfa internal consistencies among the sub-

scales of the scale are in the range of [.80-.95] (Eker et al. 2001).

***Self-Esteem Scale*:** This scale was developed by Morris Rosenberg (1965) and adapted into Turkish (Balkis and Duru 2010). Self-esteem scale is designed for individuals to make a general evaluation on their self-esteem. The scale consists of 63 items and 12 subscales. However, only the 10-item self-esteem part of the adapted scale was used in this study. The scale of each item has a four-step evaluation. High and low scores obtained from the scale represent high and low level of self-esteem, respectively. Individuals with low level of self-esteem have also low level of self-confidence (Avsaroglu and Ure 2007). Results in the study of Cuhadaroðlu (1986) showed an Internal consistency reliability coefficient of .71 and test-retest reliability coefficient of .75 (Belkis and Duru 2010).

Procedures

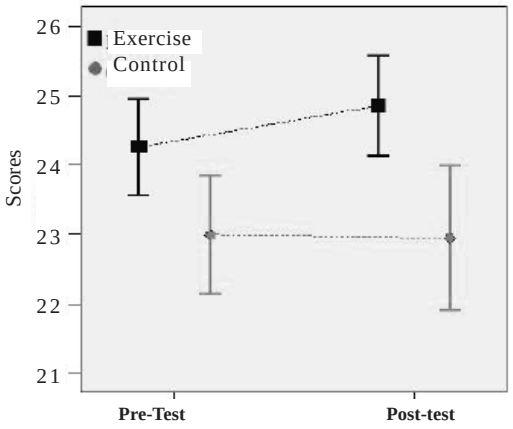
A total of 42 individuals above 18 years of age who participated in an exercise program for the first time formed the experimental group of this study. The persons in this random group implemented fitness programs for 12 weeks that were organized for them individually and that were continuously monitored. The other group, which did not participate in any exercise program, formed the control group. Both groups implemented pre-tests and final tests for the Healthy Lifestyle Behaviors, Multi-dimensional Perceived Social Support and Self-esteem scales. The scales were implemented face-to-face by researchers accompanied by the required explanations to individuals by going to the healthy life centers determined randomly at *Izmir* Province. The results were limited to the responses expressed by the participants. It was assumed that those who participated in the study responded with sincerity to the scales.

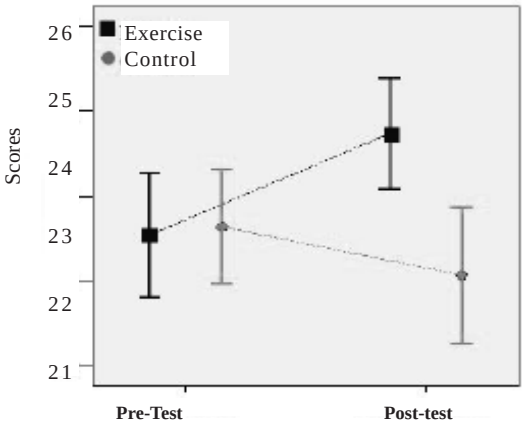
Statistical Analysis

The data of this study was realized by using the SPSS software. First of all, the descriptive statistics for the changes taken as the basis in the study were made during the analysis and evaluation of the statistical data. Subsequently, the main effects on the group and time data and whether or not there was an interaction between the group and time was evaluated with the 2×2 (group×time) Generalized Linear Model Two-Factor Mixed Model Analysis of Variance (GLM TFMM ANOVA) test. The differences in the variables of the inter-group performance were determined with the unpaired t test, whereas, the differences in the intra-group pre-test and final test were determined with the paired t test. The magnitudes of effect for the related tests were reported according to Cohen's classification (0.2=small, 0.5=medium and 0.8= large effect size). A level of significance of $p \leq 0.05$ was accepted in all of the statistical evaluations. These values were visualized with scatter plots for giving an idea about the pre-test and final test results obtained in different tests by the participants.

RESULTS

The main findings of the present study showed that an interaction effect for group and time existed in Self-esteem, Physical activity, Friend and Special Friend ($p<.05$). In other words, exercises showed positive effects on individuals in terms of above mentioned characteristics (Fig. 1). No significant main effect for both group and time was detected in satisfaction with life ($p=0.56$, and $p=0.15$) and self–esteem ($p=0.42$ and $p=0.40$) scales. A significant interaction effect was found between "group and time" for self-esteem scale ($p=0.03$) indicating that while self-esteem level increased by 4.4% in exercises group, a decrease was detected in control group by 1.5% (Figs. 2, 3, 4). No significant main effect for both group and time was detected in health responsibility ($p=0.71$ and $p=0.28$), nutrition ($p=0.003$ and $p=0.61$), spiritual growth ($p=0.76$ and $p=0.85$), Interpersonal support($p=0.32$ and $p=0.57$) and stress management($p=0.21$ and $p=0.064$) . A significant interaction effect was found between "group and time" for physical activity subscale ($p=0.001$) indicating that while physical activity level increased by 15.2% in control group, a decrease was detected in exercises group by 14.3%. No significant main effect for both group and time was detected in family ($p=0.18$ and $p=0.09$). A significant interaction effect was found between "group and time" for friends and special person subscales ($p=0.001$) indicating that while friends and special person subscale level, respectively, increased by 132.6% and 108.2 % in exercises group, control group showed a decrease of 14.3% and 27.5% respectively (Figs. 5, 6).

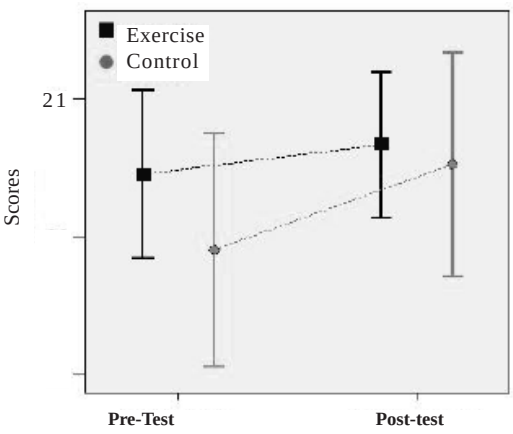


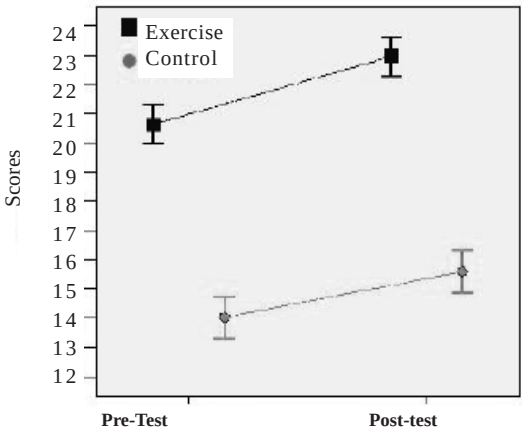


Main Effect (time)	F(1;82)= 0.34;	p=0.56;	$\eta_{p_2}^2$=0.004	Main Effect (time)	F(1;82)=0.66;	p=0.42;	$\eta_{p_2}^2$=0.001
Main Effect (group)	F(1; 82)=2.11;	p=0.15;	η_p^2=0.03	Main Effect (group)	F(1; 82)=0.70;	p=0.40;	η_p^2=0.01
Interaction				*Interaction			
(group x time)	F(1;82)=0.47;	p=0.50;	η_p^2=0.006	(group x time)	F(1;82)=5.23;	p=0.03;	η_p^2=0.006
Control (Pre-Post)	t(41)=0.63,	p=0.95,	d=0.08	Control (Pre-Post)	t(41)=0.96,	p=0.35,	d=0.12
Exercise (Pre-Post)	t(41)=1.06,	p=0.29,	d=-1.29	*Exercise (Pre-Post)	t(41)=2.45,	p=0.02,	d=-0.26
Pre (Exercise-Control)	t(81)=1.15,	p=0.25,	d=0.25	Pre (Exercise-Control)	t(81)=0.09,	p=0.92,	d=0.02
Post(Exercise-Control)	t(81)=1.50,	p=0.13,	d=0.33	Post(Exercise-Control)	t(81)=1.60,	p=0.11,	d=0.35

*Statistically significant at the level of p=0.05, error bars represent "± standard deviation"

Fig. 1. Effects of exercise on satisfaction with life and self-esteem sores

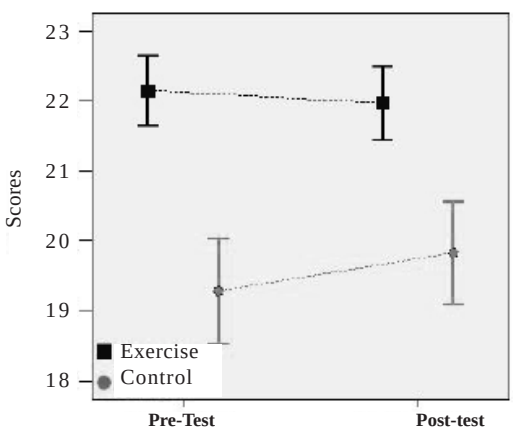


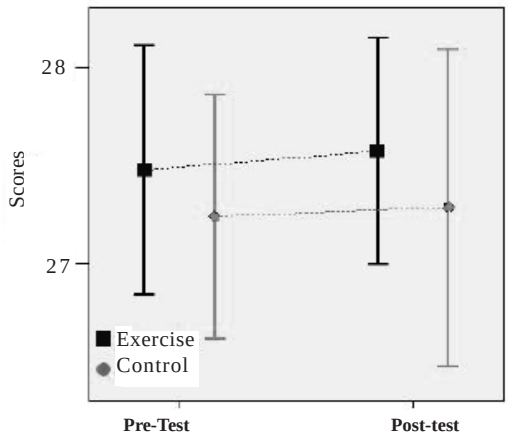


Main Effect (time)	F(1;82)=1.18;	p=0.28;	$\eta_{p_2}^2$=0.14	*Main Effect (time)	F(1;82)=17.4;	p=0.01;	η_p^2=0.18
Main Effect (group)	F(1; 82)=0.14;	p=0.71;	η_p^2=0.002	*Main Effect (group)	F(1; 82)=65.6;	p=0.001;	η_p^2=0.44
Interaction				Interaction			
(group x time)	F(1;82)=0.28	p=0.60;	η_p^2=0.003	(group x time)	F(1;82)=0.63	p=0.43;	η_p^2=0.001
Control (Pre-Post)	t(41)=0.92,	p=0.35,	d=0.11	*Control (Pre-Post)	t(41)=2.60,	p=0.01,	d=0.34
Exercise (Pre-Post)	t(41)=0.56,	p=0.57,	d=-0.07	*Exercise (Pre-Post)	t(41)=3.27,	p=0.002,	d=-0.53
Pre (Exercise-Control)	t(81)=0.52,	p=0.59,	d=0.11	*Pre (Exercise-Control)	t(81)=6.74,	p=0.001,	d=1.47
Post(Exercise-Control)	t(81)=0.14,	p=0.88,	d=0.03	*Post(Exercise-Control)	t(81)=7.51,	p=0.001,	d=1.64

*Statistically significant at the level of p=0.05, error bars represent "± standard deviation"

Fig. 2. Effects of exercise on health responsibility and physical activity scores

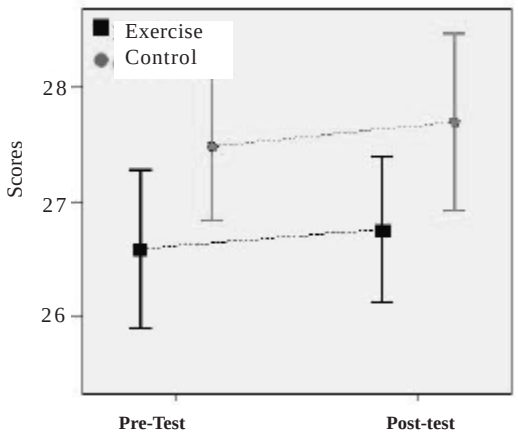


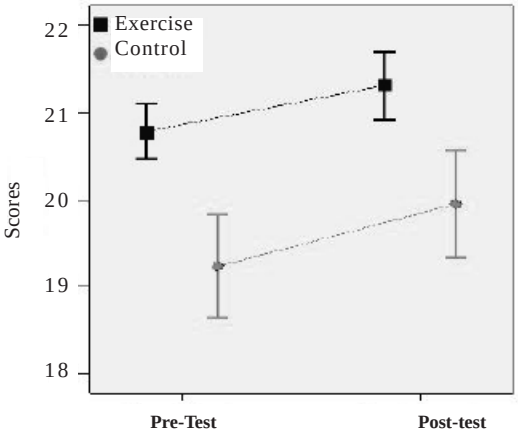


Main Effect (time)	F(1;82)=0.26;	p=0.61;	η_p^2=0.003	Main Effect (time)	F(1;82)=0.04;	p=0.85;	η_p^2=0.001
*Main Effect (group)	F(1; 82)=9.06;	p=0.003;	η_p^2=0.010	Main Effect (group)	F(1; 82)=0.091;	p=0.76;	η_p^2=0.001
Interaction (group x time)	F(1;82)=1.11*	p=0.30;	η_p^2=0.013	Interaction (group x time)	F(1;82)=0.004;	p=0.95;	η_p^2=0.001
Control (Pre-Post)	t(41)=0.95,	p=0.34,	d=0.11	Control (Pre-Post)	t(41)=0.082,	p=0.93,	d=0.10
Exercise (Pre-Post)	t(41)=0.47,	p=0.63,	d=-0.06	Exercise (Pre-Post)	t(41)=0.20,	p=0.84,	d=-0.02
*Pre (Exercise-Control)	t(81)=3.20,	p=0.002,	d=0.70	Pre (Exercise-Control)	t(81)=0.26,	p=0.79,	d=0.06
*Post(Exercise-Control)	t(81)=2.36,	p=0.02,	d=0.52	Post(Exercise-Control)	t(81)=0.28,	p=0.77,	d=0.06

*Statistically significant at the level of p=0.05, error bars represent "± standard deviation"

Fig. 3. Effects of exercise on nutrition and spiritual growth scores

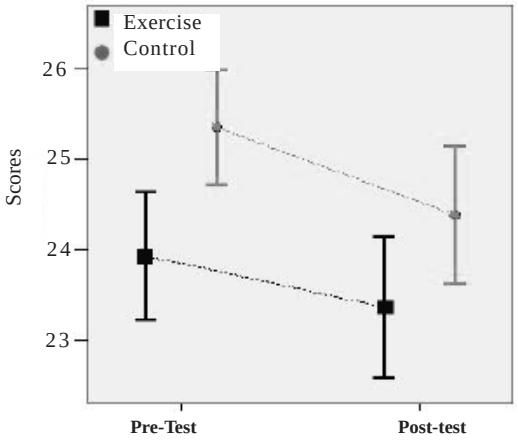


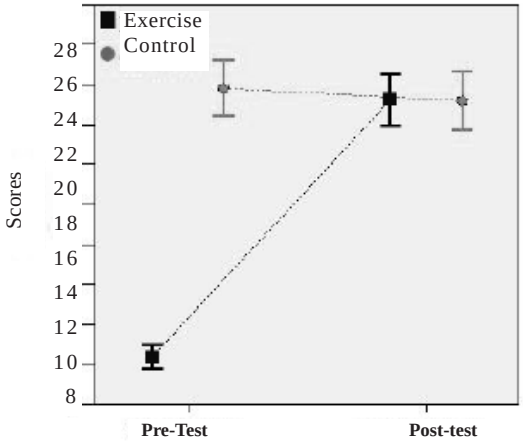


Main Effect (time)	F(1;82)=0.33;	p=0.57;	η_p^2=0.004	Main Effect (time)	F(1;82)=3.52;	p=0.064;	η_p^2=0.041
*Main Effect (group)	F(1; 82)=0.99;	p=0.032;	η_p^2=0.012	Main Effect (group)	F(1; 82)=5.55;	p=0.21;	η_p^2=0.063
Interaction (group x time)	F(1;82)=0.005;	p=0.94;	η_p^2=0.001	Interaction (group x time)	F(1;82)=0.083;	p=0.77;	η_p^2=0.001
Control (Pre-Post)	t(41)=0.47,	p=0.64,	d=0.05	Control (Pre-Post)	t(41)=1.40,	p=0.16,	d=0.18
Exercise (Pre-Post)	t(41)=0.34,	p=0.72,	d=-0.04	Exercise (Pre-Post)	t(41)=1.25,	p=0.22,	d=-0.23
*Pre (Exercise-Control)	t(81)=0.94,	p=0.34,	d=0.21	Pre (Exercise-Control)	t(81)=2.31,	p=0.02,	d=0.50
*Post(Exercise-Control)	t(81)=0.94,	p=0.35,	d=0.21	Post(Exercise-Control)	t(81)=1.86,	p=0.77,	d=0.41

*Statistically significant at the level of p=0.05, error bars represent "± standard deviation"

Fig. 4. Effects of exercise on Interpersonal support and stress management scores



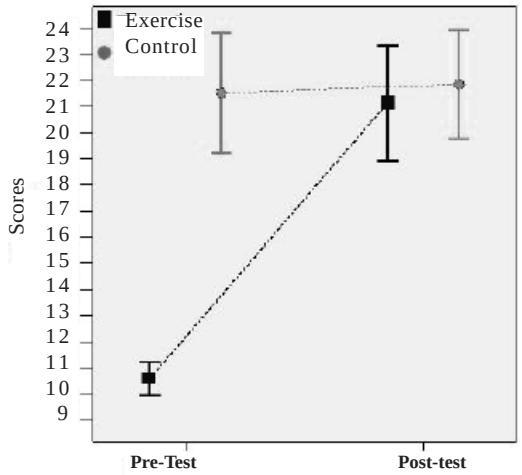


Main Effect (time)	F(1;82)=2.82;	p=0.097;	η_p^2=0.033
Main Effect (group)	F(1; 82)=1.77;	p=0.187;	η_p^2=0.021
Interaction (group x time)	F(1;82)=0.19;	p=0.66;	η_p^2=0.002
Control (Pre-Post)	t(41)=1.85,	p=0.07,	d=0.21
Exercise (Pre-Post)	t(41)=0.75,	p=0.45,	d=-0.12
Pre (Exercise-Control)	t(81)=1.48,	p=0.14,	d=0.32
Post(Exercise-Control)	t(81)=0.93,	p=0.35,	d=0.20

*Main Effect (time)	F(1;82)=192.9;	p=0.001;	η_p^2=0.7
*Main Effect (group)	F(1; 82)=76.1;	p=0.001;	η_p^2=0.48
Interaction (group x time)	F(1;82)=0.234;	p=0.001;	η_p^2=0.74
Control (Pre-Post)	t(41)=1.27,	p=0.20,	d=0.13
*Exercise (Pre-Post)	t(41)=17.50,	p=0.001,	d=-3.93
*Pre (Exercise-Control)	t(81)=17.50,	p=0.001,	d=3.82
Post(Exercise-Control)	t(81)=0.048,	p=0.96,	d=0.01

* Statistically significant at the level of p=0.05, error bars represent "± standard deviation"

Fig. 5. Effects of exercise on family and friends scores



*Main Effect (time)	F(1;82)=44.2;	p=0.001;	η_p^2=0.035
*Main Effect (group)	F(1; 82)=28.4;	p=0.001;	η_p^2=0.026
*Interaction (group x time)	F(1;82)=38.9;	p=0.001;	η_p^2=0.032
Control (Pre-Post)	t(41)=0.29,	p=0.077,	d=0.43
*Exercise (Pre-Post)	t(41)=8.99,	p=0.001,	d=-2.04
*Pre (Exercise-Control)	t(81)=9.15,	p=0.001,	d=1.99
Post(Exercise-Control)	t(81)=0.47,	p=0.63,	d=0.10

* Statistically significant at the level of p=0.05, error bars represent "± standard deviation"

Fig. 5. Effects of exercise on special friends scores

DISCUSSION

Physical activity is generally thought to be a strategy realized on individuals for forming healthy lifestyle behaviors and for increasing the quality of life. In this context, the effect of a 12-week physical exercise program implemented in adults on satisfaction with life, self-esteem, healthy lifestyle behaviors and perceived social support was examined in this study. At the conclusion of the analyses made, it was observed that there was not a statistically significant change in satisfaction with life after the 12-week physical exercise program of the individuals in the control and experimental groups. In the study made by Pori et al. (2013) on adult recreative runners and runners who participated in the Ljubljana marathon, they reached the conclusion that the recreative runners were more pleased with their lives. At the same time, Grant et al. (2009) stated that individuals received greater pleasure from activities formed from simple basic components in receiving satisfaction with their lives. Thogersen-Ntoumani et al. (2005) stated that participating in physical activities a minimum of once/week was the cause of a high satisfaction with life. Whereas, Blace (2012) stated that par-

ticipating in more physical activities could play a role in individuals having better health conditions and in having higher satisfaction with live. In parallel with our study, in the study by Blacklock et al. (2007) they stated that there was not a significant relationship between quality of life with regular walking (slow, medium, fast) and physical activity. In this context, the fact that there are many factors, which influence the satisfaction with life of the individual, such as gender, age, economic status, social relations, environmental factors, etc. it can be thought that the effect created by feeling oneself physically well could be made meaningless.

When the analyses made with the concept of self-esteem were examined in the study, while a statistically significant increase ($p<.05$) in the point averages of the experimental group was determined after the 12-week physical exercise program, it was observed that there was not a statistically significant change in the level of self-esteem of the control group. In this study made by McAuley et al. (2000), they observed that there was a rise in the levels of self-esteem of the individuals with an average age of 65 at the end of an exercise program made in 2 periods for 12 months. In the study made by Spence et al. (2005), they determined that exercise made a positive effect on self-esteem. On the other hand, it was observed that there was not a statistically significant change in the level of self-esteem of the control group. Hubbs et al. (2012) observed no significant relationship between physical activity and self-esteem. These studies made support our study. As it can be observed, it has been stated that physical exercise in individuals has effects in a positive direction on the concepts related to self-esteem, such as feeling self-confident and being able to establish more balanced communications and social relations, etc. In the study, a statistically significant difference was not found between the pre-test and final test average points for the sub-dimensions of Health Responsibility, Nutrition, Self-actualization, Interpersonal Support and Stress Management for the group participating in physical activity and the group that led a sedentary life. In the study made by Song and Lee (2001) for examining the effect on motivation and healthy lifestyle behaviors of a 12-week exercise program for cardiac patients, positive changes were shown in the 12-week period within both groups who exercised and did not exercise for general lifestyles, but they stated that there were no significant differences. In contrast to this, in the study made by Turkmen et al. (2013) on 2,218 university students, they observed that there was a positive relationship among all of the sub-dimensions for the healthy lifestyle behaviors with different physical activity levels. They also stated that regular physical activity could create many positive effects physically, mentally, socially and psychologically on the life of university students. In the study realized by Ay et al. (2012) on 1,007 university students, they stated that the students attending the Department of Physical Education and Sports had higher averages for the sub-dimensions of healthy lifestyle behaviors, health responsibility, nutrition, interpersonal support and stress management and a higher average in total points compared to the students attending other departments. When the physical activity sub-dimension data in our study were examined, a significant difference in favor of the experimental group was found between the pre-test and final test average points. Coban et al. (2010) stated that students who participate in regular physical activities had internalized the healthy lifestyle behaviors more compared to students who led a sedentary life. It takes a definite period of time and efforts for individuals to acquire a behavior and for them to transform this behavior into a lifestyle. According to the results of our study, a change was not experienced in the concepts of “Health Responsibility”, “Nutrition”, “Self-actualization”, “Interpersonal Support” and “Stress Management”, which belong to the healthy lifestyle. It can be thought that this result stemmed from the habits previously acquired by individuals. It is thought that if suitable strategies and periods unique to the individual are provided, then positive changes could be experienced. When the analyses related to the perceived social support concept were examined in the study, while a statistically significant difference in a positive direction was observed between the pre-test and final test point averages for the “friend” and “special person” sub-dimensions of the experimental group, no difference at all was observed in the “family” sub-dimension. Whereas, it was determined that no significant difference at all was formed for the results related to the control group in all of the sub-dimensions. In the study made by Darlow and Yu (2011), it was determined that the exercise habits of individuals were related to the per-

ceived exercise habits of the special persons and friends in their lives. On this point, it is thought that friends or special persons could be a model in acquiring an exercise behavior to the individual. In the study realized by Sasidharan et al. (2006) in individuals past middle-age, they observed that the participation in physical activities during free time were composed of different effects of the perceived social support sub-dimensions upon the health perceptions and satisfaction with life levels. At the same time, especially the importance was stressed of the "friend" sub-dimension in perceived social support among individuals past middle age who participated in free time and recreational physical activities. In contrast to this, in the study made by Yilmazel (2013), it was stated that there was no significant difference related to the sub-dimensions of perceived social support of the university students who participated or did not participate in physical activities. There are many factors, such as sociocultural area, environmental status, heredity, etc. included in the participation of individuals in physical activities. At the conclusion of our study, it can be stated that along with participants engaging in regular physical activities, it paves the way for them establishing special relations with different persons in the environment in which they are found and for them acquiring friends. It can be thought that individuals who participate in physical exercise programs evaluate this situation as an environment where friends and special relations are developed and that it is a cultural attribute of the Turkish society.

CONCLUSION

In conclusion, it can be stated that participation in regular physical activities preserves the bodily functions of individuals and makes them psychosocially healthy individuals, in other words, it could create significant differences for increase in the quality of life.

RECOMMENDATIONS

It is proposed that the required environment and conditions are created for providing for participation in physical activity from an early age by taking into consideration the difficulties of changing a habit acquired by individuals or of acquiring new habits at advanced ages.

It is proposed that many attractive activities aimed at increasing self-esteem by providing for the participation in physical activities of individuals in our society should be organized in accordance with the objective together with the mass communications media.

It is proposed that it would be meaningful to provide education to individuals for healthy lifestyle behaviors along with physical activities and to make them aware of all its dimensions.

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