TOJRAS
The Online Journal of Recreation and Sport
www.tojras.com

ISSN: 2146-9598

The Online Journal of Recreation and Sport

Volume 3 Issue 4
October 2014

www.tojras.com
01.10.2014

Contact Address:
Prof. Dr. Erdal ZORBA
TOJRAS, Editor in Chief
Ankara-Turkey

Published in TURKEY

Message from the Editors

The Online Journal of Recreation and Sport (TOJRAS) welcomes you. TOJRAS also thanks all researchers, practitioners, administrators, educators, teachers, parents, and students from all around the world for visiting the volume 3 and issue 4.

TOJRAS is a quarterly journal (January, April, July and October). This online periodical is devoted to the issues and applications of recreation and sport. Reviewed by leaders in the field, this publication is designed to provide a multi-disciplinary forum to present and discuss all aspects of recreation and sport.

TOJRAS records its appreciation of the voluntary work by the following persons, who have acted as reviewers for one or more submissions to TOJRAS for v3i4. The reviewers of this issue are drawn quite widely from education field. Reviewers' interests and experiences match with the reviewed articles.

I am always honored to be the editor-in-chief of TOJRAS. Many persons gave their valuable contributions for this issue. I would like to thank the editorial board of this issue.

TOJRAS invites article contributions. Submitted articles should be about all aspects of recreation and sport. The articles should also discuss the perspectives of students, teachers, school administrators and communities. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJRAS. For any su
and comments on the international online journal TOJRAS, please do not hesitate to contact with us.

Prof. Dr. Erdal ZORBA
Editor in Chief

Table Of Contents

The Comprasion Of Anthropometric Measurements Of Elite Rowers And Sedanteries

Erkan ÇETİNKAYA [1], Hamdi PEPE [2], Asım CENGİZ [3], Rıdvan KIR [4], Bilal DEMİRHAN [5]

[1] Adnan Menderes University, Physical Education and Sports

[2] Selçuk University, University, Physical Education and Sports

[3] Gazi University, Department of Physical Education and Sports

[4] Bartın University Physical Education and Sports

[5] Ondokuz Mayis University, Faculty of Sports Sciences

ABSTRACT

It is aimed to introduce the differences of elite rowers pursuant to sedentary from anthropometric aspect and to present scientifically the anatomical changes to be occurred in sportsman related with rowers comparing with their anthropometric parameters in the elite rowers and sedentaries in this research. The total 36 individual in range of 16-18 years old man who consists of one group including 18 rowers also national sportsman activing in Galatasaray Sports Club and other group including 18 sedentaries took part in this research. Length, width, circumferences and subcutaneous fat measurements were done in the research. Statistical analyses were made with SPSS for Windows program. Paired comparisons and variables not having normal distribution were calculated with Mann-Whitney U test. The statistical significance was recognized as $p<0.05$. Comparing elite rowers to sedentaries for height and weight measurements according to the conclusions, a significant difference was determined. It was determined that the elite rowers pursuant to sedentaries were taller and weightier. As a conclusion, the conclusions of fat rates, measurement areas of circumferences, width and height were high in rowers, and especially the height of arm and leg was significantly high in rowers pursuant to sedentaries in the light of findings.

Keywords: Rowers, anthropometry, sedentary.

INTRODUCTION

Rowing can be defined as a sport in which athletes race against each other with using all of their main muscles in shells. Athletes that do rowing have to be strong, enduring, balanced and also they have to have mental balance and good technique. In rowing, tall athletes have an advantage, because if someone has long arms and legs, s/he can scull much longer. Average length of men rowers is 2.00 m and average length of women rowers is approximately 1.80m[7].

In rowing, arm, body and leg muscles are used at maximum level and also, rowing is a sport that requires strength and endurance.

Anthropometry is related to the measurements of body lengths and their ratios. Body ratio is expressed as body weight/body length ratio. For evaluating body dimensions and ratios, caliber, peripheral length, length and subcutaneous fat thickness of the body have to be measured. These measurements are also done for evaluating general and endemic structures of the body [21].

Ratios of length, wideness and peripheral length of the body parts inform us about who is more advantageous as mechanically in sport activities. Thus, these ratios have to be measured in every sports branch [4].

For determining the effects of trainings on morphological structure and following the performances of athletes, anthropometric measures have to be done [8].

Recent searches have shown the effects of anthropometry on the trainings [5]. It is connected with stature, body weight, arm and leg lengths, joint mobility, flexibility levels and especially performance and strength [8].

During the evaluation of anthropometric measurements, determining body structure and body composition, determining the ratios of body parts, determining body weight and specifying the adaptation between the sports branch and training schedule on anthropometric structure [13].

In the light of the recent studies, morphological parameters that provide an advantage in sports were

examined in common and an average model was created for every branch. Structurally, parameters like height, weight, samotype, body composition and fibril composition affect the ability and functional factors in sports branches [13]. Heredity is the most important factor that specifies the body structure. However, nobody can estimate the winner of the competition with only regarding the appearance of the competitors. Length, width and peripheral length ratios of body parts bring us some datum about who is more advantageous as mechanically in the race. For example, long arms and legs provide an advantage to artistic gymnastics athletes and the length of lower extremities provide an advantage to high jumpers [13]. After searches, researchers found that specific body types are succeed in specific branches [3]. For this reason, it is important to prefer anthropometric methods and to determine the samotype and body fat of the athletes for body structure studies.

Starting from this, knowing anthropometric structure and performance values of athletes is necessary for preparing quality training programs and determining the athlete selection criteria. These values also have to be used in sport sciences researches. Thus, sport anthropometry is very important [13, 6].

Growth and maturing processes of adolescent athletes should be followed. After those periods, starting of branch out and private training period is important for following the connection between the body structures and performances of athletes [14].

MATERIAL AND METHOD

18 rowers and 18 sedentaries, who are work within Galatasaray Sports Club, whose ages are between 16-18 and who are national athletes, participated in this research. All of the participants are male and all of them participated voluntarily. Sedentary participants were selected from Isparta Milli Piyango Anatolian High School and rowers were selected from Galatasaray Sports Club and all of which have been doing this sport approximately for 4 years. They had been informed about this researches main purpose and importance before the measurements were made. Length, width, peripheral length and subcutaneous fat thickness of the athletes were measured.

All measurements were taken from the right side of the subject and average value was recorded. At peripheral length measurements, a steel tape measure of which degree of accuracy is 0,1 cm and width is 7 mm. and which is flexible, was used. During the measurements the tape measure was applied to body parts vertically and any tissues were not compressed [20]. At length measurements, all measurements were taken twice from right side of the subject when he was at anatomical position [14]. For determining the oil rate, a skinfold caliper (Holtain) which exerts 10 g/sq mm pressure at all angles, was used. Measurements were taken from right side of the subject at the time he was standing. Measurements were made with an anthropometric set. Before the measurements were made, measured areas had been determined with fingers. The device was contacted with bone [17].

For making statistical analysis “SPSS for Windows” package program was used. Paired comparisons and variables that do not show normal distributions are evaluated with Mann-Whitney U Test. Statistical significance level was considered of $p<0.05$.

FINDINGS

Average age of the subjects is 17.05±0.53 ($p>0.05$). Also, average length of elite athletes is 183.94±4.30, average weight of them is 75.86±6.53. Average length of sedentaries is 174.27±5.52, average weight of them is 65.94±6.43. Distinction between them is significant as statistical ($p<0.05$). There are not any significant distinction between the subjects as age, because all of them were selected from 16-18 age group ($p>0.05$).

Table 1: Comparing the demographical findings of the subjects.

Demographical Findings	Groups		t value*
	Athlete n=18	Sedentary n=18	
	ORT±SS	ORT±SS	
Age(year)	17.05±0.53	17.05±0.53	1.000

Weight(kg)	75.86±6.53	65.94±6.43	.000*
Length(cm)	183.94±4.30	174.27±5.52	.000*

Table 2: Comparing the fat measurement area of elite rowers and sedentaries.

Skinfold Fat Measurement Areas	**Groups**		**t value***
	Athlete n=18	**Sedentary n=18**	
	ORT±SS	**ORT±SS**	
Biceps	6.36±2.10	3.86±1.14	.000*
Triceps	9.34±3.03	8.20±2.80	.235
Pectoral Muscle	7.79±2.42	7.26±2.19	.558
Sub scapular	11.26±2.12	7.56±1.84	.000*
Abdomen	14.63±6.06	10.15±3.04	.029*
Suprailiac	10.67±4.05	5.64±1.70	.000*
Femur(upper leg)	11.18±3.95	9.69±2.40	.288

At the comparison of the suprailiac, arm (biceps), sub scapular, abdomen and fat measurement area values of elite rowers and sedentaries there were significant distinction ($p<0.05$). However, there are not any significant distinction between elite athletes and sedentaries about pectoral, triceps and femur (upper leg) fat measurement areas ($p>0.05$).

Table 3 : Comparing the peripheral lengths of elite rowers and sedentaries.

Peripheral Length Measurement Areas	**Groups**		**t value***
	Athlete n=18	**Sedentary n=18**	
	ORT±SS	**ORT±SS**	
Shoulder Circumference	110.23±17.15	103.52±4.05	.000*
Chest normal	91.98±17.71	86.83±3.20	.001*
Chest inspiration	95.65±15.67	91.58±3.29	.001*
Chest expiration	88.66±14.82	85.47±3.41	.001*
Abdomen	79.37±13.60	78.19±4.48	.055

Circumference			
Sciatic Circumference	96.75±4.90	91.63±4.80	.005*
Arm Circumference	28.73±1.72	25.88±1.82	.000*
Triceps Circumference	31.19±1.78	29.38±2.01	.015*
Forearm Circumference	26.21±4.13	25.66±1.21	.018*
Forearm Muscles Circumference	28.08±1.41	27.49±4.31	.737
Femur Circumference	54.19±8.88	52.94±2.65	.057
Femur Muscles Circumference	54.70±8.79	53.44±3.02	.064
Leg Circumference	35.76±5.62	35.86±1.31	.250
Leg Muscles Circumference	36.16±5.65	36.16±1.36	.192

After being compared with Mann-Whitney U Test, shoulder, breast normal, breast inspiration, breast expiration, sciatic, arm, triceps and forearm peripheral lengths of elite rowers and sedentaries were found significant ($p<0.05$). After being compared with Mann-Whitney U Test, abdomen, forearm muscles, femur, femur muscles, leg and leg muscles of elite rowers and sedentaries were not found significant ($p>0.05$).

Table 4: Comparing the width measurement areas of elite rowers and sedentaries.

Width Measurement Areas	**Groups**		**t value***
	Athlete n=18	**Sedentary n=18**	
	ORT±SS	**ORT±SS**	
Biacrominal Width	40.80±2.47	39.69±1.99	.248
Chest Width	28.88±3.64	25.05±2.18	.000*
Chest Depth	20.44±1.84	19.88±1.27	.327
Elbow Width	7.44±0.53	7.44±1.09	.599
Wrist Width	6.05±0.16	5.47±0.43	.000*
Metacarpal Width	8.19±0.73	8.75±0.87	.027*
Sciatic Width	34.25±2.46	30.02±1.79	.000*

Knee Width	10.27±0.46	15.52±23.57	.117
Ankle Width	7.91±0.54	8.16±0.45	.116
Metatarsal Width	9.94±0.53	10.58±0.46	.001*

After being compared with Mann-Whitney U Test, chest, wrist, sciatic width, metacarpal and metatarsal width of elite rowers and sedentaries were found significant ($p<0.05$). After being compared with Mann-Whitney U Test, elbow, knee, ankle width and chest depth of elite rowers and sedentaries were not found significant ($p>0.05$).

Table 5: Comparing the length measurement areas of elite rowers and sedentaries.

Length Measurement Areas	Groups		t value*
	Athlete n=18	Sedentary n=18	
	ORT±SS	ORT±SS	
Bust	93.38±3.16	93.66±3.39	.692
Arm	82.55±2.30	66.97±9.59	.000*
Upper Arm	39.36±2.34	33.72±2.16	.000*
Hand	21.80±1.22	19.75±0.52	.000*
Fore Arm	31.25±2.55	27.66±1.50	.000*
Femur	47.83±3.91	45.29±2.17	.040*
Leg	41.30±1.70	41.16±3.68	.886
Foot	28.18±1.22	27.38±1.47	.137
Fathom	187.88±6.49	177.38±7.04	.001*

After being compared with Mann-Whitney U Test, arm, upper arm, hand, fore arm, femur and fathom lengths of elite rowers and sedentaries were found significant ($p<0.05$). After being compared with Mann-Whitney U Test, bust, leg and foot lengths of elite rowers and sedentaries were not found significant ($p>0.05$).

DİSCUSSİON

It is known that every sports branch has its own characteristic features. And also, it is known that athletes that are proper to these features succeed in her/his sports branch [11]. Physical features of the athletes represent their physiological, functional and biomechanical demands about their training schedules. In rowing, proper technique is the most important feature for the athletes and also body composition and body ratio are supplementary factors for success [1]. For being a senior rower in rowing sport, in which physical condition is very important, athletes have to work hard and also they have to have some physical features [10]. In rowing, success criterion for an athlete is her/his place at the end of the race. There are many factors that affect athlete's performance during the race. These are physical and physiological parameters and technical and other factors [19]. Connection between development and engine performance depends on anthropometric factors in general and it contributes to performance improvement [16].

Knowing physical features during ability choice of successful athletes may be a good model. And also, length,

peripheral length and other measurements should be made. Especially, physical structure plays a crucial role in the sense of performance. Body structure and oil rate of rowers are important for the performance. Also, physical and physiological features are different between the rowers. In our country, there are very few sources can be found about physical and physiological features of young rowers. On the other hand, as in the other sports, rowing has its own physical, physiological, psychological and biometrical features and these features can be used during the chosen of new athletes [11].

In this research, physical differences of rowers are presented with comparing anthropometric measurements of subcutaneous fat thickness, width, length and peripheral length of young elite rowers and sedentaries. Owing to our research was made on young national athletes, age group was chosen as 16-18. Thus, there is not a significant difference in the conclusions from the point of the age of the subjects. However, there is a significant difference between elite rowers and sedentaries from the point of weight measurements and tall statures. Elite rowers are weightier and taller than sedentaries.

Length and weight measurements that constitute some parts of anthropometric measurements are used in defining and comparison the physical structures of people that come from different countries. Length and weight measurements create a standard value for clinic evaluations. Length and weight values are distinct factors for creating norms to different sport groups [9].

In our research, average age of athletes and sedentaries is 17.05±0.53 (p=1). Also, average length of the athletes that do sports as elite is 183.94±4.30, and their average weight is 75.86±6.53. Average age of sedentaries is 74.27±5.52 and their average weight is 65.94±6.43. The difference between them is significant as statistical (p<000). As for these findings athletes that do rowing, are taller and weightier than sedentaries. Bourgois and his friends did a research in 2000 and their research supports our finding. In their research, they analyzed 383 young national rowers that attended 1997 World Championship and they found that average age of rowers is 17.8, their average length was 187 cm and their average weight is 82.2 kg. And also in their research, they compared the anthropometric measurements and they found that rowers were 15.5 kg weightier than sedentaries and also they were 12.0 cm taller than sedentaries. Meesonnier and his friends made a research in 1997. They analyzed 12 French male rowers and they found that average length of the rowers was 182 ± 5 cm. Cosgrove and his friends made a research in 1999. They analyzed 13 male rowers and they found that average length of the rowers was 180.5 ± 4.6 cm. Hanel and his friends made a research on 8 mal Danish rowers of which average age was 19 in 1993. They found that their average weight was 81 kg and their average length was 186 cm. Parkin and his friends made a research on 20 rowers in 2001. They found that average length of the rowers was 1.88 ± 2.7. Ditter and Nowacki made a research on 27 young national rowers of Germany in 1975. Average age of these rowers was 18 and they found that their average length was 186,6 cm and their average weight was 81.6 kg. (These findings have parallelism with the findings of our research).

Koutedakis and Sharp made a research on 8 players of national rowing teams of England and Greece in 1986. Average age of these 8 rowers was 17.6.They found that the average length of rowers was 190.2 cm and their average weight was 83.1 kg. Steinacker and his friends made a research on 19 German rowers. Average age of these rowers was 17.5. They found that their average length was 191,5 cm and their average weight was 83,7 kg.

Beneke made a research on 9 rowers in 1995. He found that their average body weight was 81.1± 6.3 kg. Hagerman made a research on 30 rowers in 1992. He found that average weight of heavyweight rowers was 88 kg. Russell and his friends made a research on 19 rowers in 1997. They found that average weight of rowers was (1997) 85 ± 8 kg. When comparing our research with the older ones, you can see that our weight findings are lower that the others.

In our day, average length of elite heavyweight male rowers is 197 cm, their average weight is 95 kg and their oil rate is %8 [18].

Koutedakis and Sharp made a research on 8 players of national rowing teams of England and Greece in 1985. They found that their average age was 17.6, their average length was 190.2 cm and their average weight was 83.1 kg.

J.Bourgois and J.Vrijens made a research on 10 athletes of Belgium National Rowing Team in 1988. They found that their average age was 17.0, their average length was 186.8 cm and their average weight was 81.2 kg.

RESULT

Growth and maturing processes of adolescent athletes should be followed. After those periods, starting of branch out and private training period is important for following the connection between the body structures and performances of athletes [15].

In our research, we compared anthropometric measurements of elite rowers and sedentaries and we aimed to

present that these two groups are different at their anthropometric features and also we wanted to present scientifically the anatomic changes of rowers.

18 rowers and 18 sedentaries, who are work within Galatasaray Sports Club, whose ages are between 16-18 and who are national athletes, participated in this research. All of the participants are male and all of them participated voluntarily. Sedentary participants were selected from Isparta Milli Piyango Anatolian High School and rowers were selected from Galatasaray Sports Club and all of which have been doing this sport approximately for 4 years. They had been informed about this researches main purpose and importance before the measurements were made. After comparing personal characteristics, successes and failures of people come up in parallel with their weaknesses and strong features. Specifying these weak and strong features is an important factor that determines the result especially in national team competitions [5].

When viewed from this aspect, in our research, with comparing anthropometrical measurements of the young athletes and sedentaries we aimed to present that these two groups are different at their anthropometric features and also we wanted to present scientifically the anatomic changes of rowers. When demographic features of young national team rowers and sedentaries are analyzed, there is not any significant differences between them as their age ($p>0,05$). On the other hand, elite rowers are taller and weightier than sedentaries.

In our research we found that all of subcutaneous fat thickness values of elite rowers are higher than values of sedentaries. However, there were not any statistical differences between skinfold, biceps skinfold, sub scapula skinfold and abdomen skinfold values of these two groups.

In peripheral length measurements, measurements of elite athletes are higher than sedentary group except for leg length measurements. However, only statistical differences are found in shoulder, chest normal, chest inspiration, chest expiration, sciatic, arm, biceps and forearm measurements.

When we compare the width of elite rowers and sedentaries, we found that chest, wrist and sciatic width of elite rowers are significantly higher than sedentaries and on the other hand, metatarsal width of elite rowers is significantly lower than sedentaries.

In our research, we found that all length measurements of elite rowers were higher than sedentaries but only statistical differences were found in arm, upper arm, hand, forearm, femur and fathom measurements.

When this research and similar researches will be ended, gained results from the athletes should be shared with researchers, trainers and people who will be considered necessary. We think that our research will be an advisor for them when they create personal training schedules.

REFERENCES

1. Battısta RA, Pıvarnık JM, Dummer GM, Sauer N, Malına RM. Comparisons of physical characteristics and performances among female collegiate rowers. Journal of Sports Sciences. 2007; 651-657.

2. Bourgois J, Claessens AL, Janssens M, Renterghem BV, Loos R, Thomis M, Philippaerts R, Lefevre J, Vrijens J, Anthropometric characteristics of elite female junior rowers, Journal of Sports Sciences 2001, 19, 195-202.

3. Cureton TK, Physical Fitness of Champion Athletes. University of Illinois Press. Urbana, Am J Public Health Nations Health. April; 42(4): 1951; 463.

4. Cakiroglu M, Ulucam E, Cıgalı BS, Yilmaz A, Eltopu oyuncularında vücut ölçümlerinden elde edilen oranlar, Trakya University Medical Faculty Journal, Number:19(1), Edirne, 2002; 35-38.

5. Cankaya C, Karakuş S, İkiz İ, Akça C, Akça A, Türkiye.Romanya ve Bulgaristan genç badmintoncularına ait bazı antropometrik ölçümler. Gazi University Beden Eğitimi ve Spor Bilimleri Dergisi. 3: 2002; 8-11.

6. Çebi, M., Eliöz, M., Canikli, A., Kaldırımcı, M., Biçer, Y.S., Gürkan, A.C.. Genç futbol ve basketbol takımlarının seçilmiş fizyolojik ve antropometrik özelliklerinin karşılaştırılması. Doğu Anadolu Bölgesi Araştırmaları;2004; 6-13.

7. Dağıstanlı MA, Spor Kitabı, Oyunlar kurallar taktikler teknikler. NTV Publications. İstanbul, 2008; 256-260.

8. Duyul M. Hentbol voleybol ve futbol üniversite takımlarının bazı motorik ve antropometrik özelliklerinin başarıya olan etkilerini karşılaştırılması, Samsun, Ondokuz Mayıs University Sağlık Bilimleri Enstitüsü, Beden Eğitimi Ve Spor Anabilim Dalı, Yüksek Lisans Tezi, 2005.

9. Fry RW, Morton AR. Physiological and kinanthropometric attributes of elite flatwater kayakists. Medicine and Science in Sports and Exercise. 23:1991; 1297-1301.

10. Gözcelioğlu B. Bir Dayanıklılık Sporu Kürek, Bilim ve Teknik Dergisi, S. 60-61, Ekim, 2009.

11. Kılınç, F., Çocuklarda ekstiremite uzunluk ve çevre ölçümlerinin kürek çekme performansı üzerine etkileri, Süleyman Demirel University, Tıp Dergisi, 2008; 30-33,.

12. Koutedakis Y, Sharp NCC. A modified Wingate test for measuring anaerobic work of the upper body in junior rowers. Br J Sports Med., 1986;20:153–6.

13. Özer K. Antropometri sporda morfolojik planlama. Kazancı Matbaacılık. İstanbul. 1993;9-16, 18-22, 36-65, 115-126.

14. Pazarözyurt İ. (2008) Elit bayan basketbolcularda antropometrik özellikler, dikey sıçrama ve omurga esnekliğinin mevkilere göre incelenmesi, Çukurova University Sağlık Bilimleri Enstitüsü, Beden Eğitimi Ve Spor Anabilim Dalı, Yüksek Lisans Tezi Adana.

15. Pekel HA, Bağcı E, Güzel NA, Onay M, Balcı ŞS, Pepe H. Spor yapan çocuklarda performansla ilgili fiziksel uygunluk test sonuçlarıyla antropometrik özellikler arasındaki ilişkilerin değerlendirilmesi, Kastamonu Eğitim Dergisi,Cilt:14 No:1, Mart, 2006; 299-308.

16. Saka T, Yıldız Y, Tekbaş ÖF, Aydın T. Genç erkeklerde spor okulu eğitim programının bazı antropometrik ve fonksiyonel testler üzerine etkisi. Niğde University Beden Eğitimi ve Spor Bilimleri Dergisi, Cilt 2, Sayı 1, 2008.

17. Sönmez E. Adölesan dönemi voleybolcu çocukların antropometrik ölçümlerinin belirlenmesi ve sedanter çocuklarla karşılaştırılması, Fırat University Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, Elazığ, 2006.

18. Topsakal N. Su üzerinde ve kürek ergometresinde egzersiz öncesinde ve sonrası performans ve kan paremetlerinin karşılaştırılması, Marmara University, Sağlık Bilimleri Enstitüsü, Beden Eğitimi Ve Spor Anabilim Dalı,Yüksek Lisans Tezi, 1996.

19. Topsakal N. Kürek sporunda ekip performansına bireysel katkının araştırılması, Marmara University, Sağlık Bilimleri Enstitüsü, Beden Eğitimi Ve Spor Anabilim Dalı, Doktora Tezi, İstanbul, 2007.

20. Zorba E, Ziyagil M.A. Vücut kompozisyonu ve ölçüm metodları, Gen Matbaacılık, 1995; 44-68, 227-235.

21. Zorba E. Vücut yapısı ölçüm yöntemleri ve şişmanlıkla başa çıkma. Morpa Kültür Publications, Istanbul, 2005;13-31, 71-83, 107-135.

Examination Of The Relationship Between Aerobic Capacity And Body Composition Of Turkish Folk Dancers

Kemal GÖRAL [1], Ender ŞENEL[2], Özcan SAYGIN[3], Kürşat Karacabey[4],

[1] Muğla Sıtkı Koçman University School of Physical Education and Sport

[2] Muğla Sıtkı Koçman University School of Physical Education and Sport

[3] Muğla Sıtkı Koçman University School of Physical Education and Sport

[4] Duzce University School of Physical Education and Sport

ABSTRACT

The aim of this study is to examine the relationship between aerobic capacity and body mass index of Turkish folk dancers. 14 female and 16 male students in Mugla Sıtkı Koçman University participated in this study. Height, weight, body composition was measured and 20 meter shuttle run test was applied. Collected data was analyzed in SPSS 16.0. Mann Whitney U test was used to analyze differences between male and female Turkish folk dancers in terms of variables. Pearson Product Correlation Test was used to analyze the relationship between variables. Significance level was accepted as $p<0.05$. Consequently, significant differences were found between male and female dancers in terms of height, weight, body mass index, body fat percentage ($p<0.01$). No significant correlation was found between aerobic capacity, body mass index and body fat percentage of Turkish folk dancers ($p>0.05$).

Keywords: Turkish folk dances, aerobic capacity, body composition.

INTRODUCTION

Oreb et al., (2011) stated that folk dance is an unknown field. Because of its' noncompetitive nature, performers have the training process in which they are adapted to be prepared for performances and the development of motor skills is neglected.

Aerobic capacity is defined as maximal oxygen used by one's body. Reaching oxygen consumption level comprises 2 – 3 minutes of exercise duration. More oxygen is needed to meet energy need in this duration (Günay and Yüce, 2008). Birch et al., (2005) defined maximal oxygen consumption as the maximal rates that body consume oxygen during physical activity at sea level. In another definition, Whyte (2006) stated that the highest rate at which oxygen could be extracted, transported and consumed In the process of ATP synthesis was maximal oxygen uptake (VO_{2max}). Jones et al., (2004) suggested that the transport of oxygen from the inspired air to the muscles and its role in oxidative metabolism involves a series of events. They stated that these events could be divided as delivery and utilization.

Aerobic power, VO_2 max and aerobic capacity are some terms that used to define maximal oxygen consumption in literature. Kenny et al., (2011) defined aerobic power as the rate of energy by cellular metabolic processes that depend upon the availability and involvement of oxygen. According to their statement, maximal aerobic power refers to the maximal capacity for aerobic resynthesizes of ATP, and this statement is consistent with the definition of Whyte (2006).

Whyte (2006) suggested that precision was more important issue than accuracy, and one test was better than two where athletes had limited times. Measurement of maximal oxygen consumption has been seen an important issue in literature. According to Kenny et al., (2011), abbreviated VO_{2max} is one of the keystone measurements in exercise physiology. It was conceptualized as an individual's maximal oxygen uptake or maximal aerobic capacity. Maximal volume of oxygen that an individual can utilize during tiring and intensive aerobic exercise is an important physiological measurement. VO_{2max} is measured in liters per minute or L/min.

Body composition consists of fat, bone, muscle cells, other organic substance and extracellular plasma. Factors affecting body composition that is important for human life can be categorized age, gender, muscle, physical activity, diseases and nutrition. Body fat percentage of adult males constitutes 15% - 17% of body weight while body fat percentage of adult females constitutes 25% of body weight. Fat cells are not used to produce ATP; basic aim of fat

cells is to store lipid. Surplus body fat is detrimental for performance (Zorba and Saygın, 2013; Günay, Tamer and Cicioğlu, 2006).

The aim of this study was to examine the relationship between aerobic capacity and body mass index of Turkish folk dancers.

METHOD

14 female and 16 male students in Mugla Sıtkı Koçman University participated in this study. Height, weight, BMI was measured and 20 meter shuttle run test was applied.

Height and weight measurement: Electronic weighbridge in the sensitivity of 0.1 kg was used to measure weight; digital height measurement tool in the sensitivity of 0.01 cm was used to measure height.

Body Mass Index (BMI): The following formula was used to measure body mass index (Tamer, 2000; Zorba and Saygın, 2013).

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

20 Meter Shuttle Run Test: A voice record in which signal range increased 0.5 km/s at every minute was used for this test. Athletes were asked to touch the line at the end of 20 meter at every signal. Test was ended for the athletes who could not touch the lines in front of 20-meter lines twice. The results reported as ml/kg/min (Tamer, 2000).

Body Composition Measurements: Skinfold caliper was used to measure body fat percentage. Durninng-Womersly and Siri formulas were used for calculation after measurement of four different parts (Biceps, triceps, suprailiac ve subscapula) of subjects' body while they stood up (Özer,2001; Tamer,2000; Zorba and Saygın, 2013).

Durning-Womersley formula:	***Siri Formula:***
BD= 1.1620 – 0.0630 x X (Male 17-19 year-old)	Fat% = (4.95/BD - 4.50) x 100
BD= 1.1631 – 0.0632 x X (Male 20-29 year-old)	bi = biceps skinfold thickness
BD= 1.1422 – 0.0544 x X (Male 30-39 year-old)	tr = triceps skinfold thickness
BD=Body Density	si = suprailiac skinfold thickness
Log X = (bi+tr+ss+si)	sc = subscapula skinfold thickness

Statistical Analysis: Collected data was analyzed in SPSS 16.0. Mann Whitney U test was used to analyze differences between male and female Turkish folk dancers in terms of variables. Pearson Correlation Test was used to analyze the relationship between variables. Significance level was accepted as $p<0.05$.

RESULTS

The aim of this study is to examine the relationship between aerobic capacity and body mass index of Turkish folk dancers. 30 Turkish folk dancers participated in the tests. All the values were examined and displayed in tables.

Table1. Descriptive analysis of Turkish folk dancers

Variables	**Female** (n=14)		**Male** (n=16)			
	X	**S.D.**	**X**	**S.D.**	**Z**	**P**
Age (years)	21.64	1.59	22.06	2.08	-0.613	>0.05
Height (cm)	161.21	0.57	174.12	0.34	-4.546	<0.01*
Body Weight (kg)	58.07	4.81	76.81	3.54	-4.663	<0.01*
Body Mass Index (kg/m2)	22.36	1.84	25.35	1.41	-3.619	<0.01*
Aerobic capacity (ml.kg / min)	35.94	2.03	48.26	3.94	-4.661	<0.01*
Body Fat Percentage (%)	19.49	1.71	9.6	1.2	-4.802	<0.01*
Lean Body Weight (kg)	46.81	4.52	69.14	3.37	-4.663	<0.01*

Fat Weight (kg)	11.26	0.92	7.67	1.27	-4.471	<0.01*
Biceps skinfold thickness (mm)	4.65	0.51	4.59	0.56	-0.438	>0.05
Triceps skinfold thickness (mm)	9.55	1.23	6.49	0.59	-4.661	<0.01*
Suprailiac skinfold thickness (mm)	10.17	1.68	7.38	0.73	-4.472	<0.01*
Subscapularis skinfold thickness (mm)	6.22	0.59	4.79	0.97	-3.309	<0.01*

*P<0.05

Significant differences were found between male and female folk dancers in terms of height, body weight, body mass index, aerobic capacity, body fat percentage, lean body weight, fat weight, triceps, supscapula and suprailiac skinfold thickness (p<0.01). No significant differences were found between age and biceps skinfold thickness (p>0.05).

Table 2. Correlation analysis of aerobic capacity, body fat percentage and BMI of female Turkish folk dancers

Values		Aerobic Capacity (lt)	BMI	Body Fat Percentage (%)
Aerobic Capacity (lt)			,183	,001
			,531	,999
			14	14
BMI		,183		,067
		,531		,820
		14		14
Body Fat Percentage (%)		,001	,067	
		,999	,820	
		14	14	

No significant correlations were found between aerobic capacity, body fat percentage and BMI of female Turkish folk dancers (p>0.05).

Table 3. Correlation analysis of aerobic capacity, body fat percentage and BMI of male Turkish folk dancers

Values		Aerobic Capacity (lt)	BMI	Body Fat Percentage (%)
Aerobic Capacity (lt)			,302	-,028
			,255	,918
			16	16
BMI		,302		,304
		,255		,253
		16		16
Body Fat Percentage (%)		-,028	,304	
		,918	,253	
		16	16	

No significant correlations were found between aerobic capacity, body fat percentage and BMI of male Turkish folk dancers (p>0.05).

DISCUSSION AND CONCLUSION

The aim of this study is to examine the relationship between aerobic capacity and body mass index of Turkish folk dancers. Age, height, body weight and BMI means of female folk dancers were found to be 21.64±1.59, 161.21±0.57 cm, 58.07±4.81 kg, 22.36±1.84 kg/m^2, respectively. Age, height, body weight and BMI means of male folk dancers were found to be 22.06±2.08, 174.12±0.34 cm, 76.81±3.54 kg, 25.35±1.41 kg/m^2, respectively (Table, 1).

Macura et al. (2007) found BMI means to be 23.9±1.7 kg/m^2 in male folk dancers having height means of 185.96±6.15 cm and weight means of 82.69±7.96 kg, and BMI means to be 19.3±1.3 kg/m^2 in male folk dancers having height means of 169.78±5.0 cm and weight means of 55.61±4.91kg. Bozkuş (2013) found height, weight and BMI means of folk dancers having age means of 20.6±2.03 in university to be 171.9±7.4 cm, 61.7±9.5 kg and 20.9±2.3 kg/m^2, respectively. Ocak and Tortop (2013) found BMI means to be 21.6±2.16 kg/m^2 in female folk dancers having height means of 162.36±5.38 cm, weight means of 56.85±6.07 kg and age means of 20.45±1.22. Karacabey et al., (2008) found weight and height means of male Turkish folk dancers who do dance of Halay region and have age mean of 19.25±2.34 and training age mean of 9.8±2.9 to be 72.3±6.8 kg and 175.0±0.5 cm, respectively and weight and height means of male Turkish folk dancers who do dance of Horon region and have age mean of 20.12±1.86 and training age mean of 9.4±2.2 to be 67,6±1,9 kg and 176,0±0,2 cm, respectively.

In this study, aerobic capacity of female Turkish folk dancers was found to be 35.94±2.03 ml.kg/min, body fat percentage was found to be 19.49%±1.71. Aerobic capacity of male Turkish folk dancers was found to be 48.26±3.94 ml.kg/min, body fat percentage was found to be %9.6±1.2 (see Table 1). Ünveren (2005) found aerobic capacity of female Turkish dancers, who have age mean of 23.3±2.61 and have danced for 7.1±2.87 years, to be 37.2±5.84 ml.kg/min. In the same study, Ünveren found aerobic capacity of male Turkish dancers, who have age mean of 22.4±1.93 and have danced for 8.5±4.84 years, to be 48.6±5.16 ml.kg/min. Maciejczyk and Fec (2013) found aerobic capacity (VO_{2max}) of female folk dancers to be 43.43±3.81 ml.kg/min and male folk dancers to be 51.8±7.39 ml.kg/min. Macura et al. (2007) found aerobic capacity (VO_{2max}) of female folk dancers to be 42.15±4.03 ml.kg/min and male folk dancers to be 45.34±4.11 ml.kg/min. Kaya (2011) found aerobic capacity of folk dancers doing Zeybek dance to be 38.87±6.21 ml.kg/min, dancers doing Horon dance to be 40.27±8.51 ml.kg/min. Ocak and Tortop (2013) found aerobic capacity of female folk dancers to be 28.55±5.99 ml.kg/min. Macura et al (2007) found body fat percentage of male and female folk dancers to be 18.15%±3.07 and 24.44%±2.14, respectively. In the study in which zeybek and horon dancers participate, Kaya (2011) found body fat percentage of zeybek and horon dancer to be 15.64%±4.64 and 11.68%±4.16, respectively. Bozkuş (2013) found body fat percentage of Turkish folk dancers in university to be 10.1%±4.1. Ünveren (2006) found body fat percentage of Turkish folk dancers to be 11.22%±1.2.

Agbuga et al (2007) found negative correlation between body mass index and aerobic capacity (20 meter shuttle run). Afolabi and Akanbi (2013) suggested that increase in aerobic capacity could result in decrease in body mass index. Gerek (2007) found that there was significant difference between male Turkish folk dances and students having sport education in terms of VO_{2max} while females showed no differences. There studies in literature in which negative correlations were found between aerobic capacity and body mass index (Lloyd et al, 2003; Nassis et al, 2005; Stratton et al., 2007; Kamtsios, 2008; Agiovlasitis et al, 2011; Héroux et al, 2013). There are different results examining correlation between body mass index, aerobic capacity and body composition in literature. In our study, there were no significant differences between these variables.

Consequently, significant differences were found between male and female dancers in terms of height, weight, BMI, body fat percentage ($p<0.01$). No significant correlation was found between aerobic capacity, BMI and body fat percentage of Turkish folk dancers ($p>0.05$). Although no significant relations were found between aerobic capacity and body composition of Turkish folk dancers, it is important to consider these properties for Turkish folk dancers. It can be stated that these aerobic capacity and body composition have important place in Turkish folk dances because Turkish folk dances have all the characteristics of a physical activity. It can be thought that relationships between physical fitness properties of Turkish folk dancers should be examined to reveal more information about benefits of Turkish folk dances. Bigger sample size can involve in future studies.

REFERENCES

Afolabi, B.O., Akanbi, O.G. (2013). Effects of body mass index on aerobic power (VO_{2max}) and energy expenditure (EE): A case of manual load lifting in agro-processing. *International Journal of Scientific & Engineering Research, 4*(5), 1718 – 1721.

Agiovlasitis, S., Pitetti, K., Guerra, M., Fernhall, B. (2011). Prediction of VO_2 Peak from the 20-m Shuttle-Run Test in Youth with Down Syndrome. *Adapted Physical Activity Quarterly*, 28, 146-156.

Ağbuğa, B., Konukman, F., Yılmaz, İ., Köklü, Y., Alemdaroğlu, U. (2007). 8-12 Yaş Arası Çocukların Aerobik Kapasiteleri ile Beden Kitle İndeksleri Arasındaki İlişkinin İncelenmesi. *Hacettepe Journal of Sport Sciences, 18*(3), 137 – 146.

Birch, K., McLaren D., George, K. (2005). *Sport and Exercise Physiology*. Garland Science/BIOS Scientific Publishers: New York.

Bozkuş, T. (2013). An evaluation of the relationship between physical activity, healthy lifestyle behaviors,

anaerobic performance, muscle strength and sprint performance in folk dancers. *International Journal of Academic Research Part A, 5*(5): 151-157.

Günay M., Tamer K., Cicioğlu İ. (2006). *Spor Fizyolojisi ve Performans Ölçümü.* Gazi kitabevi: Ankara.

Günay, M., Yüce, A.İ. (2008). *Futbol Antrenmanının Bilimsel Temelleri*. Gazi Kitapevi: Ankara.

Héroux, M., Onywera, V., Tremblay, M. S. Adamo, K. B., Taylor, J.L., Ulloa, E. J., Janssen, I. (2013). The Relation between Aerobic Fitness, Muscular Fitness, and Obesity in Children from Three Countries at Different Stages of the Physical Activity Transition. *ISRN Obesity,* 1 – 10.

Jones, D., Round, J., Haan, A. (2004). *Skeletal Muscle from Molecules to Movement: A Textbook of Muscle Physiology for Sport, Exercise, Physiotherapy and Medicine*. Churchill Livingstone: London.

Kamtsios, S. (2008). Physical fitness, nutritional habits and daily locomotive action of 12-year-old children with different body mass index. *SAJSM*, *20*(1), 32 – 36.

Karacabey, K., Durgun, R., Sönmez, E., Adiloğulları, İ., Özmerdivenli, R. (2008). Halay ve Horon Yöresi Halk Oyuncularının Antropometrik Ölçümlerinin Belirlenmesi ve Karşılaştırılması. *Doğu Anadolu Bölgesi Araştırmaları*, *6*(3): 56-61.

Kaya, İ. (2011). Zeybek ve Horon Halk Oyunları Topluluklarında Oynayan Erkek Halk Oyuncuların Vücut Yağ Yüzdeleri ve Fizyolojik Özelliklerinin Karşılaştırılması. *Selçuk Üniversitesi Beden Eğitimi ve Spor Bilim Dergisi, 13*(3): 378-382.

Kenney, W.L., Wilmore, J., Costill, D. (2011). *Physiology of Sport and Exercise*. Human Kinetics: USA.

Lloyd, L. K., Bishop, P.A., Walker, J.L., Sharp, K.R., Richardson, M.T. (2003). The influence of body size and composition on FITNESSGRAM Test Performance and the Adjustment of FITNESSGRAM Test Scores for Skinfold Thickness in Youth. *Measurement in Physical Education and Exercise Science, 7*(4), 205 - 226.

Maciejczyk, M., Fec, A. (2013). Evaluation of Aerobic Capacity and Energy Expenditure in Folk Dancers. *Human Movement, 14* (1), 76-81.

Macura, M., Pešić, K., Đorđević-Nikić, M., Stojiljković, S., Dabović, M. (2007). Morphological Characteristics And Functional Abilities of An Elite Folk Ensemble Dancer. *Physical Culture, Belgrade, 61*(1-2): 112-117.

Nassis, G.P, Psarra, G., Sidossis, L.S. (2005). Central and total adiposity are lower in overweight and obese children with high cardiorespiratory fitness. *European Journal of Clinical Nutrition*, 59, 137–141.

Ocak, Y., Tortop, Y. (2012). Kadınlarda halk oyunları çalışmalarının bazı fiziksel uygunluk parametreleri üzerine etkisinin incelenmesi. *Spor ve Performans Araştırmaları Dergisi, 4*(1): 46-54.

Oreb, G., Vlašić, J., Zagorc, M. (2011). The Efficiency of Dance Training on Some Motor Abilities of Folk Dancers. *Sport Science, 4*(1), 96-100.

Özer, K. (2001). *Fiziksel Uygunluk*. Nobel Yayın Dağıtım, Ankara.

Stratton, G., Canoy, D., Boddy, L. M., Taylor, S. R, Hackett, A. F, Buchan, I. E. (2007). Cardiorespiratory fitness and body mass index of 9–11-year-old English children: A serial cross-sectional study from 1998 to 2004. *International Journal of Obesity, 31*, 1172-1178.

Tamer, K. (2000). *Sporda Fiziksel-Fizyolojik Performansın Ölçülmesi ve Değerlendirilmesi*. Bağırgan Yayımevi, Ankara.

Ünveren, A. (2005). *Türk Halk Oyuncularının Fiziksel Aktivite Düzeylerinin Belirlenmesi*. Gazi University, Health Sciences Institute, Physical Education and Sport Department, Doctorate Dissertation, Ankara.

Whyte, G. (2006). *The Physiology of Training: Advances in sport and exercise science series*. Churchill Livingstone: London.

Zorba, E., Saygın Ö. (2013). *Fiziksel Aktivite ve Fiziksel Uygunluk*. Fırat Matbaacılık: Ankara.

Effect of Walking with a Dog on quality of life of Older Adults

Gülşah ŞAHİN[1], M. Kamil ÖZER[2]

[1] Canakkale Onsekiz Mart University School of Physical Education and Sport,Çanakkale

[2] Gedik University, Sport Science Faculty, İstanbul

+90 286 218 23 13

nazgulsah@hotmail.com

ABSTRACT

Objective: The purpose of this study was to examine the quality of life of older adults walking with the dog.

Method: The participants were 62 dog owners (64% men, 36% women) and 86 non owners (54% men and 46% women) in Canakkale Turkey. Participants were randomly selected in their walking with dog area. The quality of life scale was applied to participant. Dog ownership, dog walking, education, height, weight and social economics status form and SF-36 quality of life scale were used.

Findings: Dog owners physical functioning, role-emotional, social functioning and mental health were higher than non owners ($p<.05$). No difference between dog walkers and non owners in the role-physical, vitality, general health and bodily pain ($p>.05$).

Result: Regular walking with dog may effective role on the physical functioning, emotional role, social functioning and mental health.

Keywords: Quality of life, physical activity, dog walking, older

INTRODUCTION

Features of their environment have been influential on activity levels of individuals (Jackson 2003). In recent years, dog ownership and physical activity related to the increase in health research (Cutt et al. 2008; Bauman et al 2001; Timperio et al 2008; Coleman et al. 2008; Cutt et al 2007; Thorpe et al. 2006; Pashana et al. 2005). Human and animal interactions to improve the mental health of individual and particularly to a method of treatment is known to be used to increase the quality of life (Cevizci 2009).

Previous research, those who have a dog more active, social environment better, feel better about themselves show (Cutt et al. 2008; Shintani et al 2010). However, according to some research, is not necessary to indicate that having a dog and according to their results that 60% of dog owners did not do walk with the dogs (Bauman et al. 2001). According to another study conducted on elderly individuals, being the owner of the animal indicates that animal health-related benefits of having not reported (Parslow et al. 2005). Dogs could play in increasing levels of physical activity among owners. Interventions designed to increase the proportion of dog owners who regularly walk with their dogs at recommended levels of physical activity are warranted. If successful, these programs have the potential to produce considerable health, community, and economic benefits (Cutt et al. 2008).

Features of the environment they are living (walking path, etc.), individuals can become active, or become the owner of the dog is important for increasing motivation.

There is no research that shows the quality of life in Canakkale/Turkey dog owners. The purpose of this study was to examine the quality of life of older people walking with the dog.

MATERIALS AND METHODS

Participants: The participants were 62 dog owners (64% men, 36% women) and 86 non owners (54% men, 46% women) in Canakkale Turkey. They were randomly selected in their walking with the dog area. The quality of life scale was applied to participants. Table 1 demographic characteristics of participants and characteristics of dogs are shown.

Measures: SF-36 was used for quality of life. SF-36, both positive and negative aspects of health to measure the total, consisting of 36 questions, a short, general, and is a comprehensive survey. The subscales are referred to as physical functioning (PF), role-physical (RP), emotional role (RE), body pain (BP), social functioning (SF), mental health (MH), vitality (VT), and general health(GH). We calculated and a total of eight scores were obtained. SF-36 has been

applied in Turkey, showed high validity and reliability (Basaran 2005; Pinar 1995).

Data Analysis: Normally distributed subscales such as vitality and mental were analyzed by *t*-test. The other subscales, which were not normally distributed such as physical function, role limitations due to physical, role limitations due to emotional, pain, general health and social function, were analyzed by Mann -Whitney U test.

RESULTS

Table 1 shows characteristics for participants presented by dog owners and non owners.

Variables	Dog walker n=62	Non-owners n=86
Female %	36 %	46%
Male %	64 %	54%
Education		
High school and before	32 %	44%
University	68 %	56%
Age /years	50.95±9.60	53.43±9.65
Height /cm	172.75±10.44	171.37±8.2
Weight / kg	73.36±12.83	72.00±12.11
Job		
Not working	39%	46%
Working	61%	54%
Home		
Apartment	50%	92%
Garden House	50%	8%
Cholesterol and lipid levels		
High	19%	50%
Normal	81%	50%

Diabetes		
Yes	2%	15%
No	98%	85%
The frequency of dog walking		
< 7 day/week	32%	
≥ 7 day/week	68%	
Time of dog walking		
≤ 7 hour/day	50%	
> 7 hour/day	50%	
The physical activity (dog walk except)	11%	
% No	48%	
% moderate	41%	
% too much		
Time to have a dog		
≤ 3 years	50%	
≥ 4 years	50%	
Years of dog		
≤ 2 years	48%	
≥ 3 years	52%	
Weight of dog		
≤ 10 kg	23%	
≥ 11 kg	77%	

Table 1. Demographic characteristics for dog walker and non-owners

Thirty six percent of dog owners were women and 64% of men, 54% of non owners were women and 46% of non-dog owners were male. There was no significant differences age (p =.798), height (p =.483) and weight (p =.601) between dog walkers and non owners (p>.05). Sixty eight percent of dog owners had graduated from university, 32% had graduated high schools and an earlier degree, 44% of non owners completed university, 56% had graduated from high school and earlier degree. Sixty one percent of have a dog was work, 39% did not work. Fifty four percent of non owners who working, 46% did not work.

Fifty percent of dog walkers in the apartment and 50% of in houses with gardens, 54% of non owners in the apartment and 46% were living in houses with gardens. Time to have a dog in the group had been distributed evenly. Forty eight percent of the dogs they have in two years and younger, 52% were aged 3 years and older. Twenty three percent of dogs were less and 10kg, 77% of dogs was 11 kg and more weight. More than 68% of dog owners seven days a week had been walking with the dog. Eleven percent did not do other activities outside the dog walk. Forty eight percent of dog owners had been doing moderate physical activity on the other. Forty one percent of dog owners had been made a high level of physical activity.

The majority of those who have dogs (81%) had normal cholesterol and lipid levels. There was an equal distribution of the non owner. Ninety eight percent of dog walkers and 85% of non owners did not have diabetes.

The physical functioning (p=.000), role-emotional (p=.042), social functioning (p =.001) and mental health (p=.000) scores of dog walkers were higher than non owners (p<.05).

Table 2. Scores of quality of life

		Dog walker n=62	Non-owners n=86	p -value
SF – 36	Physical functioning	92.40(8.92)	74.90(2.59)	.000*
	Role physical	94.32(14.13)	90.10(19.12)	.333*
	Role emotional	92.42(18.83)	85.41(20.52)	.042*
	Social functioning	71.98(18.61)	58.07(18.85)	.001*
	Mental health	73.27(13.52)	62.75(12.81)	.000#
	Vitality	67.39(13.87)	62.40(11.94)	.069#
	General health	72.23(18.07)	68.56(15.02)	.230*
	Body pain	81.61(17.68)	76.46(15.62)	.072*

*# T-test; *Mann-Whitney U test*

The role-physical (p=.333), vitality (p=.069), general health (p=.230) and body pain (p=.072) scores of dog walkers were also higher than the non owner, but the difference was not significant difference (p>.05) (Table 2).

Table 3. Being a dog owner by the time the quality of life

		≤ 3 years n=30	≥ 4 years n=32	p -value
SF – 36	Physical functioning	93.33(7.47)	90.21(14.01)	.370
	Role physical	94.56(15.62)	94.56(12.96)	.905
	Role emotional	90.95(1	98.55(	.

	4.68)	6.95)	*032**
Social functioning	75.83(18.51)	68.47(18.41)	*194*
Mental health	75.61(11.30)	71.13(15.20)	*277*
Vitality	70.47(13.12)	64.56(14.21)	*160*
General health	76.00(16.77)	68.78(18.87)	*189*
Body pain	80.90(17.45)	82.26(18.25)	*803*

** p<.05*

The role emotional scores of 4 years longer have a dog were higher than less than three years have a dog (p<.05).

DISCUSSION

The results of this study that walking associated with dog improves physical functioning, emotional role, social functioning and mental health. Walking with the dog is no effect on bodily pain, general health, role-physical and vitality. The duration of having a dog also does not create a big difference in quality of life.

Dog walking is an important and unique potential benefit of dog ownership in terms of helping people physically active for health benefits (Bauman 2001). Dog ownership stimulated physical activity and enhanced social contacts. Additionally, emotional changes as a consequence of the contact with and caring for the dog may have played a role in the regression of depression. Dog ownership allows the discontinuation of drugs and contributes considerably to cardiovascular and mental health (Tatschl et al. 2010).

In this study, role emotional and mental health was higher than non- owners. In addition, walking with a dog can provide owners with a greater feeling of safety, particularly when walking at night or in an unsafe neighborhood (Rossbach&Wilson, 1992; Raymore&Scott, 1998). Compared to non-owners and pet owners were more likely to participate in community events and to exchange favors between neighbors. A Japanese study linked regular exercise habits with better social networking. Social networking was measured by having close friends, community involvement and by taking care of pets (Yosiaki et al. 1999). Therefore, the experiences of dog ownership in childhood were related to the sociality of elderly men, such as the enhancement to companionship with others (Nagasawa&Ohta, 2010).

Our research found that individuals who walk with a dog social functioning were significantly higher than other groups. These results and reference data, which is one of the research hypotheses in terms of motivation for physical activity is important to walk with the dog is supporting.

Dogs could play in increasing levels of physical activity among owners. Interventions designed to increase the proportion of dog owners who regularly walk with their dogs at recommended levels of physical activity are warranted. If successful, these programs have the potential to produce considerable health, community, and economic benefits (Cutt et al. 2008).

50% of dog owners were living in the apartment. 50% were in garden house. The majority of non owners (92%) were living in the apartment. This result, environmental features is seen as a factor in increasing motivation to be dog owner and physically active can point to physical activity and regular walking with the dog owners that this issue was emphasized (Cutt 2008).

According to our results, individuals who walk with dog physical functioning were higher than non-dog owners. According to another study, to be physically active was not necessary to be a dog owner and 60 percent of dog owner were not walking with their dogs (Bauman et al. 2001). Dog around, but physical activity was one of the predisposing

factors of motivation research was showing (Coleman et al. 2008).

Schofield el al. (2005) found that walking with the dog may make changes on the physical activity habits were identified in their research. Dog walking, but with the frequency, duration and type of dog involved in the requirements of the research was concluded. Especially when the dogs walk with participants selected according to their responses, 68% of the participants were walking with the dog every day of the week. 50% of the participants at least 7 hours a week was walking with the dogs and the other 50% of participants were walking for more than 7 hours. This is to protect the general health of at least 60 minutes a day walking or physical activity recommendations can be considered as an appropriate activity. Participants of dog owner were walking with at least 7 hours per week. However, compared to individuals who do not have a dog in general health and physical pain did not differ between them. This result may be due to their physical activity habits. Because individuals are not dogs, they could be thought to have followed the general health promoting practices.

Our research is limited to quality of life. Another study, do not make regular physical activity and non-dog of individuals can be compared to walking with the dogs. But this is a fact that as a result of our research role-physical, role- emotional, social functioning and mental health of individuals walking the dog regularly was higher than non owners.

Is there a dog on the quality of life impact of having a period? According to the results of this study, role emotional of group 1 (3 years, and less dog owner) and 2.group (4 years, and more time dog owner) were different. But there were no significant differences between other quality of life subscales. Type, weight and age of dogs are taken into consideration other researches will bring clarity to this issue.

Our investigation involved 23% of dogs' was 10kg and less weight, 77% of the dogs' weight was 11kg and more. 48% of dogs 2 and younger, 52% were aged 3 and older and difference in the results of these changes is thought to be created. A more reliable way to determine the effects of being the owner of the dog to the dog owner who is considered a long-term follow-up should be done.

CONCLUSION

Regular walking with dog may effective role on the physical functioning, emotional role, social functioning and mental health of older adults.

REFERENCES

- Basaran S, Guzel R, Sarpel T. 2005. Yasam Kalitesi ve Saglik Sonuclarini Degerlendirme Olcutleri. Romatizma. 20 (1):55-62.

- Bauman AE, Russell SJ, Furber SE, Dobson AJ. 2001. The Epidemiology of Dog Walking: An Unmet Need for Human and Canine Health. MJA,175**:**632-634.

- Cevizci S, Erginoz E, Batlas Z. 2009. Ruh Sagliginin Iyilestirilmesinde Destek bir Tedavi Yaklasimi: Hayvan Destekli Tedavi. Nobel Med. 5(1):4-9.

- Coleman KJ, Rosenberg DE, Conway TL, Sallis JF, Saelens BE, Frank LD, Cain K. 2008. Physical Activity, Weight Status, and Neighborhood Characteristics of Dog Walkers. Prevantive Med. 47: 309–312.

- Cutt H, Giles-Corti B, Knuiman M, Timperio A, Bull F. 2008. Understanding Dog Owners' Increased Levels of Physical Activity: Results from RESIDE. APHA. 98**:**66-69.

- Cutt H, Giles-Corti B, Knuimana M, Burke V. 2007. Dog Ownership, Health and Physical Activity: A Critical Review of the Literature. Health&Place. 13:261–272.

- Cutt HE, Knuiman MW and Giles-Corti B. 2008. Does Getting a Dog Increase Recreational Walking? International Journal of Behavioral Nutrition and Physical Activity.5:17.

- Jackson RJ. 2003. The Impact of the Built Environment on Health: An Emerging Field. American Journal of Public Health,93**:**1382.

- Nagasawa M. and Ohta M. 2010.The influence of dog ownership in childhood on the sociality of elderly Japanese men. Animal Science Journal 81, 377–383.

- Pachana NA, Ford JH, Andrew B, and Dobson AJ. 2005. Relations Between Companion Animals and Self-Reported Health in Older Women: Cause, Effect or Artifact. International Journal of Behavioral Med. 12(2):103-110.

- Parslow RA, Jorm AF, Christensen H, Rodgers B, Jacomb P. 2005. Pet Ownership and Health in Older Adults: Findings from a Survey of 2,551 Community-Based Australians Aged 60-64.Gerontology. 51(1):40-47.

- Pinar R. Diabetes Mellitus'lu Hastaların Yasam Kalitesini Etkileyen Faktorlerin Incelenmesi. Yayınlanmamis Doktora Tezi. 1995. İstanbul Universitesi Saglik Bilimleri Enstitusu Hemsirelik Anabilim Dalı.

- Raymore L. and Scott D. 1998. The Characteristics and Activities of Older Adult Visitors to a Metropolitan Park District, Journal of Park and Recreation Administration.. 16: 1–21.

- Rossbach KA and Wilson JP. 1992. Does a Dog's Presence Make a Person Appear more Likeable?: Two Studies. Anthrozoos.5: 40–51.

- Schofield G, Mummery W, Steele RM. 2005. Dog Ownership and Human Health-Related Physical Activity: An Epidemiological Study. Health Promotion Journal of Australia. 16(1):15-19.

- Shintani M, Senda M, Takayanagi T, Katayama Y, Furusawa K, Okutani T, Kataoka M and Ozaki T. 2010. The Effect of Service Dogs on The Improvement of Health-Related Quality of Life. Acta Med. Okayama, 64(2):109-113.

- Tatschl C, Finsterer J, Stöllberger C. 2006. Back to the Dogs. American Journal of Preventive Medicine. 30(4):362.

- Thorpe RJ, Simonsick EM, Brach JS, Ayonayon H, Satterfield S, Haris TB, Garcia M, Kritchevsky SB. 2006. Dog Ownership, Walking Behavior, and Maintained Mobility in Late Life. The American Geriatrics Society. 54:1419-1424.

- Timperio A, Salmon J, Chu B and Andrianopoulos N. 2008. Is dog ownership or dog walking associated with weight status in children and their parents? Health Promotion Journal of Australia,19:60-3.

- Yosiaki S,Takeuchi K,Ohta A,Tajima K, Suzuki S. 1999. Relationship Between Regular Exercise and Life Style, Social Network, Education and Subjective Symptoms in Japanese Middle Aged and Elderly Residents, Japanese Journal of Public Health. 46:624–637.

Evaluation of 11th Grade High School Students' Attendance at Recreational Activities and Recreation In Terms Of Sports

Yılmaz KURUMLU

ABSTRACT

This thesis investigates the attendance of 11th grade high school students at recreation activities and recreation in terms of sports. For this purpose, eight schools; two state school and two private schools in Ankara and two state and two private schools in Polatlı were randomly chosen. A questionnaire which was developed by Zorba (2001) and improved by Yaşartürk (2013) was administered to 518, 11th grade students studying in these schools in Ankara and Polatlı. Before the administration, a piloting was done. The researchers formed the administered version of the questionnaire after making the necessary changes according to the output obtained from the piloting session. The results were analyzed in SPSS 21.0. Chi-square significance test was administered in order to compare results in terms of school type that students study at (private-state) and the settled area that students live in (Province-Ankara / Town-Polatlı). Furthermore, frequency numbers and percentages were obtained in order to make comments on the results got out of the questionnaires about students' attendance at recreational activities. The results illustrate that there are many kinds of differences in terms of attendance at recreational activities between private school students and state school students and also between students living in Ankara and Living in Polatlı

Keywords: *Sports*, *Recreation*, *Activities*

INTRODUCTION

Urbanization and industrialization in today's world made people to adopt a problematic and a slow lifestyle which is under social and psychological pressure. Industrialization and technology provides improvement in business performance and life becomes easier; however, it also brings about dissatisfaction, fatigue and disharmony in people's business life. In an environment like this, people have to cope with daily and business stress and gradual monotony and some other physiological and psychological problems. This situation obliges us to evaluate our leisure time more effectively and productively in order to eliminate all these problems. Therefore, theoretically meaning "to go over an illness and to be rejuvenated"; now recreation has an important place in people's life.

Ramazanoğlu, Altungül and Özer describe recreation as activities people voluntarily attend in their leisure time in order to have personal satisfaction. It has several varieties according to its place applied and its features. Besides, sports have a special place in recreation since it forms the most comprehensive and interesting area of recreation. Thus, this study investigates high school students' leisure time evaluation tendency. In order to do this, it aims to find out which activities students attend in their leisure time, the amount of time they reserve for these activities, the reason of attending these activities and finally to find out how they evaluate their leisure and how they attend to recreational activities. Therefore, the research questions and the hypotheses below are formed.

Research questions:

Which recreational activities do high school students between ages of 16-18 studying at 11th grade in Ankara and Polatlı and what are the factors affecting their attendance?

Problems:

- Which recreational activities do students attend in their leisure time?
    - Does their abode (living in Ankara or Polatlı) have an impact on their attendance at recreational activities?
    - Does their school type (state-private) have an impact on their attendance at recreational activities?
- What amount of leisure time do students have and how much time do they reserve for doing sports?
- What are the students' opinions about doing recreational activities?
- Which recreational sport activities do students attend in their leisure time?
    - If students do not do sports as a recreational activity in their leisure time, what are their reasons?

In this study, what students think about recreation, which activities they attend, whether their abode and their school type have an impact on their attendance at recreation is being investigated. With this research, by defining the differences in these aspects, we can find out students' expectations about recreation and we can find solutions to provide their needs. Therefore this study will provide the required and useful information for the researchers, managers and planning administrators. However, it has to be stated that the participants of study is limited to 11th grade students studying at 8 different high schools in Ankara and the results are restricted to the output obtained from the questionnaire administered to the students.

To be able to make people live in a conscious way, work, rest and have fun, they have to have proficiency in all aspects. While working make us feel tired, doing personal interest always make us feel fresh. Therefore, effective and productive leisure time evaluation becomes a crucial factor in one's healthy personality development and being happy.

Recreation is a mean of teaching social life to human beings and developing the sense of belonging and the personality so that we can protect and improve human resources and develop our life standard (Yaşartürk, 2013).

1. Methodology

1.1. Participants

All the students studying at 11th grade in all high schools in Polatlı and Ankara constitute the the target population of the study. The main reason of choosing 11th grade students as the participant is to focus on a small extent in terms of age and to eliminate other confounding factors. As it is not to possible to take all students as the participants, a random sampling was done. Two private schools and two state school in Ankara city center and two private school and two state schools in Polatlı were chosen. In total 518 students were chosen as the sample of the study and were distributed the questionnaires.

1.2. Instruments

In order to evaluate high school students' attendance at recreational activities, a questionnaire consisting of three main parts was used. The questionnaire was developed by Zorba (2001) in order administer for government officers working in Turkey and to evaluate their attendance at recreational activities. Then, Yaşartürk (2013) improved it and administered the questionnaire to university students.

The version of the questionnaire used in this study is prepared by the researcher and since it has many changes, a reliability calculation was done for the 62 items involving in the questionnaire. The Cronbach Alpha significance stands for 0,815. Since literature suggests significance over 0,7 (Arseven, 2001) , it can be stated that the questionnaire is found out to be significant to administer.

First part of the questionnaire asks for information about demographics such as age, school type, students' family income and their abode. Second part is related to students' opinions about recreation, which activities they do at home or outside home as recreation and the amount of time students reserve for recreation and the facilities the schools provide students. The last part of the questionnaire is about recreational sport activities done at school or at home by the students the reasons if students do not attend at recreational sport activities.

1.3. Piloting and Procedure

In order to evaluate the understandability of the task itself, a piloting session was held. 50 students not included in the real sample administered the questionnaire. 50 students were chosen as the piloting group because the literature suggests the number of participants in the piloting group to be 1/10 rate of the real sample (which is 500 in our case). The required changes were done according to the output obtained from the piloting results.

The questionnaire administration was done to the participants was done by the researchers himself and in the process, I gave the required information to the students.

1.4. Data Analysis

The results obtained on the basis of research aims and purposes were evaluated through SPSS 21.0. Firstly, demographical results were presented with frequency numbers and percentages. Students' answers about their attendance at recreation activities were also illustrated with the usage of frequency numbers and percentages. Besides, in many parts of the questionnaire, students' answers were compared according to two different variables: School type and their living place. The comparison was calculated with Chi-square significance tests.

2. Results and Discussion

In this part of the article and the results and the relevant literature are presented. Recall that 518 students studying at 8 different high schools in Polatlı and Ankara participated in the study; however, it was seen that 20 of the questionnaires were not fully filled in. Thus, they were extracted from the study and all the examinations were done out of 498 questionnaires administered.

The results are presented in according with the research questions. Here, first information about demographics is presented.

2.1. Demographic Results

When we examine age factor as can be seen from Graphic 1, it can be observed that a great majority of the students (84,5%) are at the age of 17. There are also students who are 16 and they make 5,8% of the total participants. The rest are at the ages of 18 (9,6%).

While 51,6% of the participants are female students, the rest 48,4% constitute male students. 244 students (49%) are studying at state schools whereas 254 (51%) students study at private high schools. When we examine the participants in terms of school type they study at, we see equal number of participants in both groups. 249 students attended to the study in Polatlı and the same number of students participated to the research in Ankara.

The questionnaire also asks for students' family incomes. We observed that 1,6% of the participants have income in the range of 500-100TL; 11,6% of the students have income in the range of 1001-2000 TL; 19,3% of the student have income in the range of 2001-3000; 26,3% of the students have income in the range of 3001-4000TL and the rest 41,2% of the students have income over 4000TL. This illustrates that majority of the students have family income about 4000TL and over.

2.2. Which recreational activities do students attend at home or outside home in their leisure time?

A great majority of the students are found out to watch TV (90,2%) in their leisure time at home. In second place, we observe playing computer games with the rate of 84,1%. Students are interested in domestic chores (30,3%) and

handcraft (10%) at least when they have leisure time at home. If we examine recreational activities done outside home, we can observe that the results intensify in the sports section (63,9%). Most of the students stated that they spend time by doing sports outside home and in the second place we see touristic trips (58,8%). Students report that they have long or short kind of trips when they have leisure time. However, we see talent-improving activities in the lowest rate (17,7%). Students are interested with these kinds of activities at least.

Gökalp (2007) had a study in which he also examined youth' recreational activities done at home in Tunceli and also had a similar result. He observed that teenagers generally spend time at home by watching TV. However, in Gökalp's study, we observe different results. In his study, teenagers reported that they attend computer courses when they have leisure time outside home. The difference may stem from the areas that the studies are done and students' needs.

In another study, Kırkpınar (2004) investigated 12th grade students recreational tendencies. He observed that most of the students watch TV, listen to music and read magazines and books when they are at home. Balcı also reported similar activities such surfing on the net, watching TV or going to the cinema in his study done in 2003 for university students. Therefore, we can conclude that when students have leisure time both at home or outside home, they generally prefer passive activities.

2.2.1. Does their abode (living in Ankara or Polatlı) have an impact on their attendance at recreational activities?

In this study, I also compared students' attendance at recreational activities at home or outside home in terms of their living place. Recall that there were a number of students living a city center in Ankara and some others living in Polatlı (a town in Ankara). It was observed that activities like watching TV, doing sports, reading books are mostly preferred activities done at home. However, Chi-square test results illustrate that there is significant difference in terms of attendance to the activities as listening to music, reading books, playing computer games and surfing on the net. These activities are the ones mostly preferred by students living in Polatlı. Moreover, there is also a significant difference in some activities done outside home such as touristic trips and talent improving activities. They were also preferred by students living in Polatlı. The reason of this may be given in a research done Karataş (2006). He suggested in his study that in town or small cities since there is not much facilities students generally prefer these kinds of activities.

2.2.2. Does their school type (state-private) have an impact on their attendance at recreational activities?

Chi-square results propose that domestic chores are the activities mostly preferred by students studying at state schools, private school students generally prefer reading books when they have leisure time at home.

As for recreational activities done outside home, Chi-square results illustrate significant difference in social, cultural and artistry activities and touristic trips. It was observed that mostly these activities are preferred by students studying at private high schools. The intensity of these activities in private schools may be related with students' family incomes.

2.3. What amount of leisure time do students have and how much time do they reserve for doing sports?

The researcher examined the amount of leisure time the students have in a week. It was observed that most of the students have leisure time in the range of 8-11 hours (54,8%). This result is consistent with what Gökalp (2007) suggests in his study. He also observed that most of the teenagers living Tunceli (35,1%) have leisure time 7-12 hours in a week.

It also necessary for our study to see what amount of time they reserve for doing sports when they have leisure time. It was seen that 28,3% of the students do not reserve any time for doing sports and 4,6% of the students reserve time in the ranges of 1-3 hours. 23,7% of the participants do sports 4-6 hours in a week. And most of the students (43,6%) do sports over six hours in a week in their leisure time.

The difference between the amounts of leisure time that students have according to school type is also examined. A statistically significant results came up (p=.000). It can be stated that students in private schools have more leisure time when it compared to state schools students' leisure time. On the other hand, when we examine the amount of time specifically reserved for doing sports, students studying at state schools have more leisure time than students studying at private schools. The difference is found statistically significant with Chi-square test calculated (p=,000)

The same calculation was done with the variable students' living place. It was found out that while students living in Ankara have more leisure time, students living in Polatlı reserve more leisure time for doing sports when they have leisure time. In both Chi-square calculations about the amount of leisure time the students have and the amount of time specifically reserved for doing sports in two abodes, we had statistically significant difference. (In both calculations p= .000).

2.4. What are the students' opinions about doing recreational activities?

In order to answer this research question, a part consisting of seven positive statements about doing recreational activities were given and students were asked to select the option which is closer to them. It was seen that most of the students have a positive attitude towards doing recreational activities. Most of the students reported that they see recreational activities as enjoying (78,1%) and the option which was chosen at the lowest rate was "recreational activities provides me social status" (20,1%). These results are consistent with the outcomes obtained from studies done by Ekici (1997) and Gökalp (2007). In both of the studies, the researchers reported students to have a positive attitude towards doing recreation. In both studies, it was stated that recreation gives teenagers enjoyment and it makes them relax.

2.5. Which recreational sport activities do students attend in their leisure time?

In order to examine whether students do sports in their leisure time 11 different sport field was defined: football, basketball, handball, volleyball, aerobics and gymnastics, swimming, folkdance, taekwondo and judo, athletism **,** racket sports, chess. However, according to the output obtained from the piloting session, three more sports are added which are cycling, skiing and futsal**.** When we examine the results as a whole, it was observed that racket sports (44,8%), volleyball (39,2%), football (35,9%) and swimming (35,5%) are the recreational sport activities which are preferred mostly subsequently. Moreover, aerobics and gymnastics (4%), skiing (4,4%) and handball (5,0%) are the ones which are preferred at the lowest rate. These results have a similarity with what Akcan and Bulgu (2003) state in their research on youth between the ages of 15-19. They also preferred that generally teenagers prefer sports like football, basketball and volleyball. This study also suggests these three sport field as the most preferred ones. However, the difference stems from much preference on racket sports. This may stem from the place and the schools that these two studies consider. As racket sports do not necessitate much materials compared to other sport fields and it costs less than others, it may be preferred by students.

Sports activities are also examined in terms of school type and this is an ignored part in many of the articles. If we consider sports in terms of two school types, we see statistically significant difference in volleyball, basketball, racket sports, swimming and futsal. In private schools; swimming, futsal, racket sports and basketball are the recreational sport activities which are mostly preferred; however, in state school students generally prefer volleyball. The difference may be because of the facilities that the schools provide students.

As for living place, we also observe some statistically significant difference in some of the sports fields such as cycling, athletism, playing chess and racket sports. While racket sports and cycling are preferred by students living in Ankara, athletism and playing chess is preferred by students living in Polatlı. This may stem from difference between the fields in the sports tournaments in Polatlı and Ankara.

2.5.1. If students do not do sports as a recreational activity in their leisure time, what are their reasons?

In this study, 141 students which makes (28,31%) of the total participants reported that they were not interested in doing sports when they have leisure time. They were asked to give reason for not attending in sport activities and the most preferred option was the intensity of the courses that students had (32,62%) and reluctance towards doing

sports (26,95%). Pressure from the environment (11,34%) is recorded as the option which was chosen at least. In other studies, students proposed other reasons for not doing sports in their leisure time. These are reported as economical shortage, lack of facilities and places to do sports in Karataş's research done in 2004.

3. Conclusion

In this study, 11th grade high school students' attendance at recreational activities, their tendency to do sports in their leisure time, the amount of leisure time they have and the amount of leisure time they reserve for doing sports is investigated. These situations are examined according to two variables. One is students' living place (in our case Ankara, the capital city of Turkey a province and Polatlı, a considerably small city in Ankara. The second one is students' schools, private high schools where students pay in order to have education and state school schools which are abide by to government conditions and free. It was found out that though passive activities such as watching TV, reading books, listening to music are mostly preferred in most cases, there are considerable differences in some other recreational activities according to context we look for. For instance, the sport activities which cost more compared to other sports are not preferred by students studying at state schools.

However, it has to be stated that these results are limited to the results obtained by a questionnaire administered to the students living in Ankara.

REFERENCES

Ali Arseven. (2001). *Alan Araştırma Yöntemi.* Ankara:Gündüz Eğitim ve Yayıncılık.

Balcı, V. (2003). Ankara"daki Üniversite Öğrencilerinin Boş Zaman Etkinliklerin Katılımlarının Araştırılması. *Milli Eğitim, Kültür ve Sanat Dergisi*, 158-173.

Bulgu, N., Akcan, F. (2003, 22 Mayıs). *Spor Aktivitelerine Katılım: 15 – 19 Yaş Grubundaki Öğrenciler Üzerine Bir Çalışma.* G.Ü. Gençlik Boş Zaman Ve Doğa Sporları Sempozyumunda sunuldu, Ankara.

Ekici S. (1997). Yüksek Öğretim Gençliğinin Boş Zamanlarını Değerlendirme Alışkanlıkları Ve Turizme Katılımları Üzerine Bir Araştırma: Muğla İli Örneği. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi, Sağlık Bilimleri Enstitüsü, Ankara.

Gökalp, H. (2007). *Gençliğin boş zamanlarını değerlendirmesinde spor faaliyetlerinin yeri ve önemi(Tunceli ili örneği.* Yayımlanmamış Yüksek Lisans Tezi, Fırat Üniversitesi, Elazığ.

Kırkpınar, M. (2004). *Lise son sınıftaki öğrencilerin boş zaman faaliyetlerine katılım biçimlerinin araştırılması: Muğla İli örneği.* Yayımlanmamış Yüksek lisans tezi, Muğla Üniversitesi, Sosyal Bilimler Enstitüsü, Muğla.

Ramazanoğlu, F., Altungül, O., Özer, A. (2004). Sportif açıdan rekreasyon etkinliklerinin değerlendirilmesi. *Doğu Anadolu Bölgesi Araştırmaları*, 176-179.

Yaşartürk, F. (2013). *Lise ve üniversite öğrencilerinin Rekreatif eğilimlerinin belirlenmesi Bartın ili Örneği.* Yayımlanmamış yüksek lisans tezi, Gazi Üniversitesi Sağlık Bilimler Enstitüsü, Ankara.

Yavaş Karataş, N. (2006). *Yatılı ilköğretim bölge okullarında okuyan öğrencilerin boş zamanlarını değerlendirme alışkanlıkları*. Yayımlanmamış Yüksek Lisans Tezi. Uludağ üniversitesi Eğitim Bilimleri Enstitüsü, Bursa

Zorba, E. (2001). Kamu Personelinin Rekreatif Eğilimleri (Muğla İli Örneği). Yayımlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi Sağlık Bilimleri Enstitüsü, Ankara.