

Determination of the Physical Activity Levels of Taekwondo Coaches

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Abstract

The aim of this study is to determine the physical activity levels of taekwondo trainers. The total of 544 (132 women, 412 men) coaches participated in the trainer development seminars organized by Turkey Taekwondo Federation participated as volunteers in this research. The physical activity levels of the participants were determined with the short form of the International Physical Activity Questionnaire (UFAA). SPSS 22.0 statistical package program was used to evaluate the data obtained within the scope of the research. The data were analyzed by Kolmogorov-Smirnov test for normality. The Mann-Whitney U test was used because the data were not distributed normally and the significance level was accepted as 0.05. According to the research findings, 3.2% of the trainers had low physical activity level, 61.4% had moderate and 35.5% had high physical activity level. There were statistically significant differences in mean age, height and body weight ($p < 0,05$), no significant difference was found between male and female trainers in sitting, walking, moderate physical activity, high intensity physical activity and total physical activity scores ($p > 0,05$). It can be said that most of the taekwondo coaches have moderate physical activity levels.

Key words: Taekwondo, Coache, International Physical Activity Questionnaire

INTRODUCTION

Extreme sedentary behavior became a dominant and common feature of modern life. As chronic diseases and premature mortality rates increase, the negative effects of increasing sedentary lifestyle on public health increase (1). In adults, there is strong evidence that there is a relationship between mortality rate due to sedentary or inactive life, fatal and non-fatal cardiovascular diseases, type 2 diabetes, and metabolic syndrome, as well as there is evidence of a moderate association with ovarian, colon and intrauterine cancers (5,14). The World Health Organization (WHO) has reported that inadequate physical activity is one of the most important risk factors for death worldwide, globally, one in four adults are not sufficiently active, and more than 80% of the world's adolescent population is physically inactive (34).

Physical activity levels are often monitored to assess the health attitudes of the population and their relationship to health status, including mortality and disease rates. It is required to assess physical activities accurately to determine current

activity levels and changes in the population and to determine the effectiveness of interventions designed to increase activity levels (26).

Physical activity surveys have practical value to identify conditions in which increase in physical activity would be beneficial and to monitor changes in population activity. However, this use may be made possible by the development of standard tools to record low-intensity activities specific to sedentary populations and bring consistent biological meanings to terms such as light, moderate and heavy exercise (29). The short form of the International Physical Activity Questionnaire (IPAQ) is a frequently used method for assessing physical activity in large-scale epidemiological studies (3,25,28).

Regularly performed physical activities are becoming more and more important within the scope of betterment and protection of the health. It is important for the coaches who have undertaken great tasks in improving the performances of their athletes and creating a sports culture to lead a healthy life and to convey this exemplary life to their

athletes. The aim of this study is to determine the physical activity levels of taekwondo coaches.

MATERIAL & METHOD

Population of the study and sample group:

While population of the study is consisting of 3500 taekwondo coaches working in Turkey, the sample group is consisting of a total of 544 coaches (132 females, 412 males) who have participated to the Taekwondo Federation of Turkey organized seminars.

Data Collection Tools: In order to obtain personal data, the information form created by the researcher was used, while the physical activity levels of the participants were determined by the International Physical Activity Questionnaire (IPAQ) short form.

International Physical Activity Survey (IPAQ):

IPAQ- short form was used to determine the physical activity level of the subjects. This questionnaire, which was developed to find out the types of physical activity of the individual during daily life, includes questions related with the time spent for physical activity with the last 7 days. It questions how often an individual does sports, exercise or recreational activities in his spare time, at work, at home, and going from one place to another. For this survey, the validity and reliability study in Turkey was conducted on university students by Öztürk (22). Information is obtained about the time spent in sitting, walking, moderate intensity physical activity (MIPA) and high intensity physical activity (HIPA). The evaluation of all activities is based on the fact that each activity is performed at least 10 minutes at a time. A score of "MET-minutes/week" is obtained by multiplying the minutes, days and MET value (multiples of rest oxygen consumption). Physical activity levels are classified as low (<600 MET-min/week), moderate (600-3000 MET-min/week) and high (> 3000 MET-min/week) (11).

Statistical Analysis

SPSS 22.0 statistical package program software was used to evaluate the data obtained within the scope of the research. An analysis by Kolmogorov-Smirnov test was conducted to determine whether data has normal distribution. Mann Whitney U test was used because the data did not show normal distribution and significance level was accepted as 0.05.

RESULTS

75.7% (n = 412) of the coaches participated in the study were male and 24.3% (n = 132) were female participants. It was found that 45.6% (n = 248) of the participants were 41 years and older, while 32.5% (n = 177) were between 31-40 years of age. It was observed that the majority of the coaches were mainly consisting of participants graduated from primary, secondary and high schools (Table 1).

Table 1. Distribution of personal information of taekwondo coaches

Variables		f	%
Gender	Male	412	75.7
	Female	132	24.3
Age	20-30 years old	119	21.9
	31-40 years old	177	32.5
	41 and older	248	45.6
Income status	500-1500 TL	96	17.6
	1501-2500 TL	155	28.5
	2501-3500 TL	145	26.7
	3501 TL	148	27.2
Education status	Primary School-Middle School-High School	317	58.3
	Associate Degree-Bachelor's Degree-Postgraduate degree	227	41.7

According to the body mass index values of the participants, it was found that 72% of females were normal, 17.4% were overweight and 3.8% were obese. It was found that 35.7% of the males were normal, 49.5% were overweight and 13.8% were obese (Table 2).

Table 2. Distribution of body mass index values of taekwondo coaches by gender variable

		Body Mass Index				Total
		Thin	Normal	Over-weight	Obese	
Male	f	4	147	204	57	412
	%	1.0 %	35.7 %	49.5 %	13.8 %	100.0 %
	Total %	0.7 %	27.0 %	37.5 %	10.5 %	75.7 %
Female	f	9	95	23	5	132
	%	6.8 %	72.0 %	17.4 %	3.8 %	100.0 %
	Total %	1.7 %	17.5 %	4.2 %	0.9 %	24.3 %

It was found that the majority of both male and female coaches (61.4 %) participated in the study had minimum active physical activity level (Table 3).

Table 3. Physical activity levels of taekwondo coaches by gender variable

		Physical Activity Level			Total
		Inactive	Minimum Active	Very Active	
Male	f	15	253	144	412
	%	3.6 %	61.4 %	35.0 %	100.0 %
	Total %	2.8 %	46.5 %	26.5 %	75.7 %
Female	f	2	81	49	132
	%	1.5 %	61.4 %	37.1 %	100.0 %
	Total %	0.4 %	14.9 %	9.0 %	24.3 %

As a result of examining the coaches by gender variable, a significant difference was observed in the mean of age, height and body weight in favor of male participants ($p < 0.05$), but no significant difference was found between the HIPA, MIPA, walking, sitting and total PA averages ($p > 0.05$) (Table 4).

Table 4. Mean, standard deviation and mann whitney u test results of taekwondo coaches by gender variable

	Gender	N	Mid.	Z	U	P
Age	Male	412	40.6	-5.449	18633.5	0.000*
	Female	132	35.3			
Height (cm)	Male	412	174.7	13.653	5792	0.000*
	Female	132	164.4			
Body weight (kg)	Male	412	80.5	13.482	6020	0.000*
	Female	132	62.3			
HIPA (MET-min/week)	Male	412	914.4	-0.191	26907	0.848
	Female	132	904.5			
MIPA (MET-min/week)	Male	412	877.7	-0.712	26086	0.476
	Female	132	958.6			
Walking (MET-min/week)	Male	412	885	-1.501	24843	0.133
	Female	132	964.9			
Sitting (MET-min/week)	Male	412	544.4	-0.208	26662.5	0.835
	Female	132	546.4			
Total PA (MET-min/week)	Male	412	2677	-1.448	24917	0.148
	Female	132	2828.1			

*($p < 0.05$), HIPA: High intensity physical activity, MIPA: Moderate intensity physical activity, PA: Physical activity, Total PA = HIPA + MIPA + Walking

DISCUSSION & CONCLUSION

In this study conducted to determine the physical activity levels of the Taekwondo coaches, it is found that 3.2% of the participants were inactive, 61.4% were minimum active, 35.5% were very active and there was no significant difference between male and female coaches in respect of high physical activity, moderate physical activity, in walking, sitting and total physical activity scores.

In studies conducted on different occupational groups, Hartung et al. (10) reported that, 62% of adult, male cooks and 58% of office workers were in over weighted/obese group for their body mass index average. In a different study conducted on office workers, 0.4% of the participants were considered to be underweight, 57.3% were normal, 37.3% were overweight and 5.1% were obese (19). Pappas et al. (24) found that the health profiles of nurses in Greece were relatively weak for this occupational group. The researchers also reported that approximately one third of nurses ($n = 353$, age = $36 \pm 5,6$) were overweight or obese, which could have a negative impact on their ability to improve health in the patient population. In a study conducted on academic members, 2.8% of the participants were underweight, 44.8% were normal, 41% were overweight and 11.4% were obese (12). When the gender variable is taken into consideration, it is reported that female teachers and academic members in different disciplines were normal weight and male teacher and academic members were overweight (4,21,30). According to World Health Organization data, 39% of adults aged 18 and older are reported to be overweight and 13% are obese (35). In our study, 41.7% of the coaches were found to be overweight and 11.4% were found to be obese. According to gender variable, 17.4% of female coaches were overweight, 3.8% were obese, 49.5% of male coaches were overweight and 13.8% were obese. It was seen that our results matched up with these studies.

Many researchers examined physical activity levels of employees in different occupational groups. Kayapınar (15), in her study determined the healthy lifestyle behaviors and physical fitness levels of football coaches, established that the participants were conscious about healthy lifestyle behaviors, however they were not able to apply them in their social lives and physical activities of those were insufficient, their body composition parameter were at health risks limits, especially obesity is increasing rapidly after their active athletic periods come to the end. Similarly, it was reported that 68.9% of tennis referees had low physical activity levels, 24.4% were adequate and 6.7% were inactive. When physical activity levels were examined according to gender, 70.5% of females have low, 20.7% have adequate and 8.8% have inactive levels and 67.8% of male individuals have low, 26.8% have adequate and 5.4% have inactive levels (18). In our study, 3.2% of the coaches have

inactive level, 61.4% have minimum and 35.5% have very high activity level. According to the gender variable, it was observed that the majority of male and female individuals had minimum activity level.

In a study conducted on teachers from different disciplines, it was reported that 17.1% were not physically active, 63.9% had low physical activity level and 19% had sufficient physical activity level to protect their health (30). It was observed that male physical education teachers had higher levels of physical activity compared to females, whereas moderate physical activity rates were similar in both genders (6).

In a study examining the participation of the academic members serving in different faculties to the physical activity, 57.5% of the faculty members of the Faculty of Theology and Education Faculty, 55% of the academic members of the Faculty of Medicine and 22.5% of the academic members of the Faculty of Agriculture did not have physical activity during the day (31). In a different study, physical activity participation rates of academic members were at 39% inactive, 50% less active, 11% physically active levels (12). Contrary to these studies, Özüdoğru (23) reported that both academic (75.9%) and administrative staff (81.9%) defined themselves as very active.

In the study conducted to determine the healthy lifestyle behaviors of health professional, the lowest score was taken from the exercise sub-dimension, while only 22.8% of the participants were interested in sports and 58.9% did not exercise at all (33). Likewise, it was reported that the lowest score of the nurses was taken from the exercise sub-dimension and only 4.3% of them performed regular physical exercise (20). In a different study, it was determined that 32.1% of the nurses were not physically active, 48% had low physical activity level and 19.9% had sufficient physical activity level (16). In the study conducted on Catalan health personnel, 31.5% of the medical group, 28.1% of the support staff, 24.7% of the nurses and 19% of the administrative staff were reported to have a low activity level (17). In terms of physical activity level, 53.9% of the female individuals working at the hospital desk were not active, 61.4% of the males had low activity and only 5.8% of the whole group had sufficient physical activity. Researchers point out that the study revealed that low level of physical activity led to a sedentary lifestyle and increased the risk of obesity (7).

In the research carried out on employees working at desks and working on feet in different occupational groups in public and private organizations, it was reported that the participation of males in sports activities was higher than that of females, there was an accumulation of moderate activities in both female and male individuals and there was no participation in very high levels of physical activities by female individuals (13). Similarly, it is reported that 48.6% of office workers are inactive, 43% have low level and 8.2% have sufficient activity level (19). Esin and Aktaş (8) reported that as a result of the systematic review, the overweight rate of the employees was between 36% -56% and the physical activity level of 42.5% was insufficient. The researchers established that although the health behaviors of individuals working in different business lines differ, the factors related to the individual and working conditions affecting health behaviors are similar and therefore these factors should be taken into consideration when planning occupational health programs to improve the health of the employees.

No significant difference was found between male and female coaches in our study in sitting, walking, moderate physical activity, high physical activity and total physical activity scores according to the results obtained from IPAQ. However, unlike our study, Mutlu et al. (18) concluded that total, highly intense, moderate and moderately intense physical activity levels and walking activities of male tennis referees were higher than female referees. They did not find any significant difference in the sitting time variable. Similarly, in a different study, it was found that intense physical activity, total physical activity score, and walking score averages of male individuals working at a desk had higher values than female individuals. It was found that there was no significant difference in moderate physical activity and sitting time (32). Moreover, while the duration of intense, moderate and total physical activity of young adult males was higher than that of females, no statistically significant difference was found between walking and sitting periods of females and males (9). In addition to assessing physical activity and sedentary behavior, assessing sitting time is a new and important area for preventive medicine. Population surveys that monitor lifestyle behaviors should include sitting time measurements in physical activity screenings. Moreover, particularly low and middle income level countries that initiated

monitoring activities, the use of objective measures to detect sedentary and physical activity behaviors is encouraged (3). Şanlı and Atalay Güzel (30) reported that the sitting time of female teachers (319.6 min) was significantly higher than that of male teachers (278.1 min). Likewise, Arıkan and Revan (2) found that the sitting time of female individuals (409.6 min) was significantly higher than that of male individuals (353.3 min) in their studies investigating the relationship between physical activity levels and body composition of students studying at the faculty of sports sciences. Contrary to these studies, no significant difference was found between male and female individuals in respect of the sitting time variable of Turkish tennis referees (18) and individuals working at desks (32). In our present study, in line with these studies, no significant difference was observed between the sitting time of female (546.4 min) and male (544.4 min) coaches. However, the sitting time of taekwondo coaches is quite high compared to the individuals participating in other studies.

Our study has some limitations. The first is that the study is cross-sectional, and evaluations are performed with the scales that the coaches complete themselves. This circumstance limits the interpretation and generalization of our results. Another limitation is that the physical activity levels of the coaches participating in the research were determined only by the International Physical Activity Questionnaire. Physical activity is a multidimensional behavior and no evaluation method can capture all its dimensions. To obtain a more global estimate of physical activity, multiple assessment methods should be used. The use of multiple methods may contribute to understanding the relationship between different techniques (27).

As a consequence, more than half of the taekwondo coaches were found to be in the overweight/obese group and the majority of them were at least active level group. The physical activity habits of the coaches, which are expected to form an example to the society and their athletes in every aspect, are also important for social development. It may be suggested that coaches, who will be role models for the society in healthy life, try to be a good role model by correcting their negative or incomplete behaviors.

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