



**INVESTIGATION OF FITNESS TRAINERS'
AFTER EXERCISE RECOVERY KNOWLEDGE LEVELS
IN TERMS OF VARIOUS VARIABLES**

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Abstract:

The aim of this study is to examine the post-exercise recovery knowledge levels of fitness trainers in terms of various variables. 150 fitness trainers (103 men, 47 women) were included in the study on a voluntary basis. A structured questionnaire consisting of two parts was used as the data collection method in the research. In the first part of the form, a questionnaire consisting of questions determining the descriptive features was applied, and in the second part, the Sports Recovery Knowledge Test developed by Aydemir et al. was used. The validity and reliability study of the scale was conducted by Aydemir et al. in 2020. SPSS statistical program was used for the statistical analysis of the obtained data. As a result of the analysis of the data, no significant difference was found between the participants' knowledge levels of recovery in sports in terms of gender variable ($p < 0.05$). On the other hand, a significant difference was found between the age variable and the level of recovery knowledge in favor of the groups aged 26 and over ($p < 0.05$). Similarly, when educational status, level of experience and experience, and recovery knowledge levels were compared, a statistically significant difference was found in favor of those with good education, advanced level and high experience ($p < 0.05$). As a result; It can be said that fitness trainers with good education, experienced and upper-level coaching certificates have better recovery knowledge levels. Based on this result, it is thought that increasing the training levels of fitness trainers, as well as raising their levels and increasing their experience, may contribute to the increase in quality.

Keywords: trainer, fitness, recovery knowledge level

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1. Introduction

Fitness means that the individual is physically and mentally healthy. Physically, fitness is the form that the individual can do with the possibilities and skills of the musculoskeletal system, with or without tools (1). The aim of this study; The aim of this study is to examine the post-exercise recovery knowledge levels of fitness trainers in terms of various variables.

The recovery of the body after physical activity is described as recovery. Recovery is the best and most efficient way to relieve the fatigue that occurs after the training or work of people who do sports or are sedentary (non-sports), and it is explained as the regeneration and recovery of the physical and psychological state of the athlete or sedentary after an activity or work (2).

It is very important for the athlete, trainer and sports science to delay the fatigue a little more and recover quickly in sports with high performance. Rapid recovery of muscle damage that occurs with exercise is gaining importance today. Physical activity, i.e. muscle damage during exercise, is not considered among athlete injuries, but it can change the physical and mental structure of the athlete, and his performance at training or competition levels (3).

It is thought that determining the recovery knowledge levels of the coaches in order to raise the sport and the athlete to a higher level and quality will contribute to the training and development of the trainers. Trainers will find the opportunity to improve themselves with their self-evaluations and will be more successful with a more expert approach about the recovery techniques and methods that they will apply and keep in their future training programs or private sessions (4).

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2. Material and Method

In this study, the knowledge of fitness trainers about recovery and the methods they use were investigated. In this study, the cross-sectional method and scanning model were preferred. Due to the Covid-19 period, we are currently in, the online survey method was used for the difficulty of reaching the trainers and for the precaution.

2.1 Collection of Data

The universe of the research is the trainers in the SEE, Eastern Anatolia, Marmara region. The sample of the study is the trainers located in the mentioned regions and can be reached by questionnaire. The research was selected by convenience sampling method

and applied to 150 trainers. The questionnaire form created in the research consists of 3 parts. In the first part, general information about fitness trainers, namely their questions: age, gender, athlete history, education level, and coaching level was learned. In the second part, the ways of accessing information about recovery, the methods used in recovery and the frequency of the methods used. In the third part, the sports recovery knowledge test (STBT) was included. It is a measurement tool that measures the level of recovery knowledge and gives information about whether there is knowledge about recovery and at what level. The validity and safety study of the test was conducted with 150 participants between the ages of 19-50. In the sports recovery knowledge test, there are 14 questions that measure the knowledge level of the athlete. The mean of the test was found to be $X = 8.80$, standard deviation $S = 3.48$, mean difficulty = 0.62, and KR-20 reliability coefficient 0.80. It can be said that the "Sport Recovery Knowledge Test (STBT)", which was prepared in accordance with the test development technique, is a 4-choice multiple-choice test aimed at measuring the recovery knowledge levels of the athletes, and the test is easy, sufficiently distinguishing between those who know and those who do not know, and it is a valid and reliable test. Evaluation of the test is carried out on a system of 100. Equal (7.14) points were given to each question in the scoring. Scoring is done on correct answers. Participants who score between 0-20 points are "very weak", participants with 21-40 points are "weak", participants with 41-60 points are "moderate", and participants with 61-80 points are "good" and 81-100 points are evaluated as "very good" knowledge level.

2.2 Statistical Analysis

The SPSS statistical program (SPSS for Windows, version 20.0, 2008, SPSS Inc. Chicago, Illinois, USA) was used in the analysis of the data. The results obtained from the data were evaluated according to the 95% confidence interval ($p < 0.05$). Mean value, maximum, minimum and standard deviation were used as descriptive parameters. Kolmogorov-Smirnov and Shapiro-Wilk tests for data set required in normality distribution tests of the data; Levene's Test of Homogeneity tests was used to control the homogeneous distribution.

In data sets with 2 groups, Independent Sample T-test was used for normally distributed data sets, and the Man Whitney U test was used for data sets that did not show normal distribution. OneWay ANOVA test was used for data sets with normal distribution in which the number of groups is more than 2, the Kruskal Wallis test was used for data sets that did not show normal distribution, and the LSD test was used to determine which group the significance was in.

3. Results

Table 1: Distribution of Volunteers Participating in the Study by Some Characteristics (n=150)

Variables		N	%
Gender	Male	103	68,7
	Female	47	31,3
Age	18-25	79	52,7
	26-33	64	42,7
	34-41	6	4,0
	42 ages and above	1	0,7
Educational Status	Middle School	35	23,3
	High School	39	26
	College	70	46,7
	Under graduate	5	3,3
	Doctorate	1	0,7
Level of Coaching Certificate	1	82	54,7
	2	54	36
	3	13	8,7
	4	1	0,7
Experience	1-5	98	65,3
	6-10	45	30
	11-15	5	3,3
	16 ages and above	2	1,3
Employed Institution	Public	20	13,3
	Private	130	86,7

When Table 1 is examined, 103 of the fitness trainers (n: 150) participating in the study are men, and more than half of the 52.7% (n: 79) are between the ages of 18-25. 46.7% (n:70) of the fitness trainers have a bachelor's degree and 54.7% (n:82) have a 1st level coaching certificate. In addition, it was found that 65.3% (n: 98) of the fitness trainers participating in the research had 1-5 years of work experience and 86.7% (n: 130) were working in the private sector ($p<0.05$).

Table 2: Comparison of the scores of the participants from the recovery knowledge scale according to the gender variable (Independent Sample T-Test)

Dependent variables	Independent variables				p
	Female (N= 47)		Male (N=103)		
	Mean.	S.Dev. (±)	Mean.	S.Dev. (±)	
Recovery knowledge level	88.93	8.46	88.59	10.08	0.840

When Table 2 is examined, no statistically significant difference was found between the total score of the participants' level of recovery knowledge according to the independent variable of their gender status and their gender status ($p<0.05$).

Table 3. Comparison of the participants' scores from the recovery knowledge scale according to the age variable (Oneway Anova)

Dependent variables	Independent variables						p	Difference
	1 st group (18-25) (N = 79)		2 nd group (26-33) (N = 64)		3 rd group (34-41) (N = 7)			
	Mean.	S.Dev. (±)	Mean.	S.Dev. (±)	Mean.	S.Dev. (±)		
Recovery knowledge level	84,54	9,321	93,15	7,678	94,86	6,79	0,001	1-2, 1-3

When Table 3 is examined, a statistically significant difference was found between the total score of the participants' recovery knowledge level according to the independent variable of age and age, between the 1st group and the 2nd group in favor of the 2nd group, and between the 1st group and the 3rd group in favor of the 3rd group. On the other hand, there was no statistically significant difference between the 2nd group and the 3rd group ($p < 0.05$).

Table 4: Comparison of the scores of the participants from the recovery knowledge level according to the education level variable (Oneway Anova)

Independent variables	N	Mean.	S.Dev. (±)	F	p	Difference
Middle School (1)	35	87,60	8,816	2,360	,026	1-4, 2-4, 3-4
High School (2)	39	86,78	8,596			
College (3)	70	89,45	10,318			
Undergraduate (4)	6	98,77	2,91			
Total	150	88,70	9,580			

When Table 4 is examined, a statistically significant difference was found between the total score of the recovery knowledge level and the educational status according to the independent variable of the educational status of the participants but no significant difference was found between the other groups ($p < 0.05$).

Table 5: Comparison of the scores of the participants from the recovery knowledge level according to the variable of the coaching certificate level status (Oneway Anova)

Independent variables	N	Mean.	S.Dev. (±)	F	p	Difference
1 st Tier (1)	82	84,50	7,146	3,68	0,01	1-2, 1-3, 2-3
2 nd Tier (2)	54	92,95	8,596			
3 rd Tier (3)	13	96,90	10,318			
Total	150	88,70	9,580			

When Table 5 is analyzed, there is a statistically significant difference between the total score of the participants' recovery knowledge level and the level of their coaching certificate according to the variable of their coaching certificate level status, in favor of the 3rd level between the 3rd level and the 1st and 2nd level, and in favor of the 2nd level between the 2nd level and the 1st level a difference was found ($p < 0.05$).

Table 6: Comparison of the participants' scores from the recovery knowledge level according to the variable of experience (Oneway Anova)

Independent variables	N	Ort.	S.Sap. (±)	p	Difference
1-5 years (1)	98	84,51	9,108	0,001	1-2, 1-3
6-10 years (2)	45	94,57	7,325		
11 years and above (3)	7	96,90	5,618		
Total	150	88,70	9,580		

When Table 6 is examined, a statistically significant difference was found between the total score of the recovery knowledge level and the experience status according to the experience level variable of the participants however, no statistically significant difference was found between the other groups. ($p < 0.05$).

Table 7: Comparison of the scores of the participants from the recovery knowledge level scale according to the variable of the institution they work at (Independent Sample T-Test)

Dependent variables	Independent variables				p
	Public (N = 20)		Private (N = 130)		
	Mean.	S.Dev. (±)	Mean.	S.Dev. (±)	
Recovery knowledge level	87.82	7.71	88.83	9.85	0.197

When Table 7 is examined, no statistically significant difference was found between the total score of the participants' recovery knowledge levels according to the variable of the institution they work for and the institution work for ($p < 0.05$).

4. Discussion

This study was conducted to examine the post-exercise recovery knowledge levels of fitness trainers working in Turkey in terms of various variables and to determine the recovery techniques they use.

Of the fitness trainers participating in the study, 103 were men and 47 were women. Canbolat and Çakıroğlu reported that 82.6% of the participants were male and 17.4% were female, in their study named "Determination of the nutritional knowledge level of trainers working in bodybuilding and fitness centers" (5). Kayğusuz and Karagün reported that 67.8% of the participants were male and 37.2% were female, in their study titled burnout, coping with stress and helping-seeking attitudes of fitness trainers on the European side of Istanbul (6). When the literature is examined, it has been observed that the number of male fitness trainers is higher than the number of female fitness trainers in similar studies. The findings of our study are supported by the literature. Although fitness attracts more attention from men, it can also be preferred by women. In this respect, it is thought that encouraging studies to increase the number of female trainers will be beneficial.

It was observed that 52.7% of the trainers were in the 18-25 age range, 42.7% were in the 34-41 age range, and 4% were 42 years old and over. Kayğusuz and Karagün stated that 75% of their participants were 29 years old or younger in their study called burnout, coping with stress and helping-seeking attitudes of fitness trainers on the European side of Istanbul (6). A similar result was obtained in our study. Considering that fitness is preferred more by young people, it is thought that this result may be normal.

Considering their educational status, it is seen that 46.7% of them have undergraduate degrees, 26% have associate degrees, 23.3% have secondary education, and 3.3% have postgraduate education. Between the education level and the results of the sports recovery knowledge test, the higher the education level, the higher the scores, in other words, the education level; When the trainers at undergraduate and postgraduate levels are compared with those with secondary education and associate degree, it is seen that the trainers with postgraduate education get higher scores. Therefore, it can be said that the level of efficiency of the coaches with higher education levels from the recovery techniques they will apply will also be more efficient. Aydemir et al. stated that there is a positive correlation between the education level of the athletes and the recovery knowledge level in their study titled "Sports Recovery Knowledge Test: Validity and Reliability Study" (7). Kelman et al., in their study examining the subject of sportive performance and recovery, stated that there is a positive relationship between the level of knowledge about recovery and sportive performance (8). In their study called Exercise and Fatigue, Ament and Verkerke stated that one of the important factors delaying the recovery of athletes after training was due to the lack of recovery knowledge of trainers (9). Recovery may occur at different times depending on the intensity, frequency and scope of the training (10). However, post-workout nutrition, fluid intake, ergogenic aids, massage, etc. With these applications, recovery can be achieved and its duration can be shortened (11). Considering that fitness trainers' knowledge of recovery is directly related to their education level, it is thought that the data we obtained from our study is based on this. It is thought that coaches with good recovery knowledge can contribute positively to the performance of their athletes.

When the coaching level status of the fitness trainers participating in the study was evaluated, it was observed that most of them were 1st level fitness trainers. In addition, when the level of recovery knowledge was compared with the level of coaching, it was observed that there was a significant difference in favor of the 2nd and 3rd level fitness trainers. Considering this situation, it is thought that it may be beneficial for fitness trainers to complete the necessary training to increase their levels. In addition, it is thought that it may be beneficial for the relevant federation to increase the number of courses and offer affordable courses.

When the gender variable and the recovery knowledge levels of the fitness trainers participating in the study were compared, it was observed that there was no statistical difference between the recovery knowledge levels in terms of the gender variable. It is thought that this result may be encouraging women to be very successful as fitness trainers.

When the experience variable and recovery knowledge levels of the fitness trainers participating in the study were compared, a statistically significant difference was found between the recovery knowledge levels in terms of the experience variable. It has been concluded that more experienced trainers have higher recovery knowledge levels. It is thought that experience has an important place in fitness coaching, as in all areas of life. It is thought that the finding obtained in our study may be related to this.

When the accessible literature is examined, it has been concluded that there are not enough studies related to the recovery knowledge levels of fitness trainers. It is thought that it would be beneficial to conduct more scientific studies in this area.

As a result, it can be said that fitness trainers with good education, experienced and senior coaching certificate have a better recovery knowledge level. Based on this result, it has been concluded that increasing the training levels of fitness trainers, as well as raising their levels and increasing their experience, can contribute to the increase in quality.

Conflict of Interest Statement

There are no potential conflicts of interest in this article.

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