Original article

Evaluation of Nutrition Knowledge Levels and Sporting Status of Faculty of Sport Sciences Students

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Abstract. *Study Objectives:* Considering that both physical and psychological effects of nutrition and exercise are important on students, this study aimed to evaluate the nutritional knowledge levels and exercise status of the students of the faculty of sports sciences. *Methods:* 199 students, 146 (73.4%) male, and 53 (26.6%) female, studying at Sivas Cumhuriyet University Faculty of Sport Sciences participated in the study. The scale consists of 20 items on the "Basic nutrition and food-health relationship" scale, and 12 items on the "Food preference" scale. One-Way Analysis of Variance (ANOVA) and independent t-test were used because the data showed normal distribution. Pearson Correlation test was used to determine the relationship between the nutritional knowledge levels of the individuals participating in the study and the age and bodyweight groups. *Results:* There was no significant finding when the total points of basic nutrition and food preference were compared according to the regular exercise status of the participants ($p>0.05$). A significant finding was found when the total scores of basic nutrition and food preference were compared according to the participants' status of taking nutrition lessons at their schools ($p<0.05$). *Conclusion:* In the study, it was revealed that the nutritional knowledge level of the students of the faculty of sports sciences who received nutrition education was sufficient. When the status of doing regular sports is evaluated, it has been revealed that there is no difference between the students who do sports and those who do not, and they have similar nutritional knowledge levels.

Key words: Nutrition Knowledge Level, Student, Sport Sciences, Exercise

Introduction

Nutrition; It is the use of nutrients for the growth and development of the individual, maintaining a healthy life, and living a quality life for a long time (1,2). It is the conscious consumption of the nutritional resources that the body needs in order to protect and develop health and to lead a quality life (3). It is a habit that must be followed throughout life. Growth and physical development are important factors in terms of mental development, giving health and vitality. Nutritional knowledge includes information on nutritional processes, diet and health, diet and disease, major nutrient sources of foods, and dietary recommendations. This definition can be changed from person to person or from society to society in case of need (4). Inadequate nutritional information paves the way for the emergence of many diseases. There is a close relationship between an individual's eating habits and health. Wrong eating habits; increases the likelihood of many diseases such as obesity, diabetes, hypertension, and weakness. In order to prevent the

formation of these diseases and to maintain a healthy and long life, it is necessary to have an adequate and balanced diet. It is thought that individuals of all ages, genders, and occupations should receive training on nutrition in order to acquire the right nutrition habit (5-9). Due to the lack of nutritional knowledge, faulty eating habits can be established in individuals and it is very difficult to get rid of these habits. Therefore, it is necessary to know about nutrition (10,11). Nutrition knowledge has a fundamental role in acquiring healthy eating habits. However, studies have failed to show that the level of nutrition knowledge is effective in changing nutritional behavior (12). One of the risky groups related to unhealthy nutrition is university students. Studies show that students generally do not pay attention to meals, eat only one meal, and consume more foods such as sandwiches and bagels (13,14). It has been suggested that economic difficulties are also effective in the problem of insufficient and unbalanced nutrition and that the students living in the dormitories are not fed well due to the dormitory conditions and they only feed themselves (13-15). Although studies show a lack of nutritional knowledge at the high school level, it can also be seen at the university level (16). It has been reported that students have important unhealthy eating habits and carry significant risk in this regard (17). In addition, it has been determined that individuals consume fast food, snacks, and foods with high carbohydrate content too much and do not pay attention to food diversity (18,19). Nutrition is the balanced and reasonable consumption of the nutrients necessary for the growth, survival, and protection of the individual's health. Healthy nutrition is the ability to meet the nutritional needs of the individual, taking into account the gender, age, and physiological structure of the individual. Healthy eating behaviors are affected by gender, age, economic status, marital status, and education level. Societies can reach their targeted quality of life by raising awareness of nutrition. Studies examining the nutrition and health habits of university students have revealed that the regular diets of university students contain excessive amounts of saturated fat, cholesterol, and sodium, and the frequency of smoking among students is among the highest reported in the literature (20-22). Positive changes are observed in the nutritional level of students receiving sports training. For example, personality traits in education change positively with nutrition. Students' hopelessness levels can increase their stress levels (23,24). Increased stress levels have negative consequences on both the body and mind. Stress levels can negatively affect nutritional status (25). It is known that a student can develop his/her body and maintain his/her health only with a balanced, regular, and purposeful diet (26). Considering the physical and psychological effects of nutrition and exercise on students, this study aimed to evaluate the nutritional knowledge levels and exercise status of the students of the faculty of sports sciences.

Material and Method

Participants

199 students, 146 (73.4%) male, and 53 (26.6%) female, studying at Sivas Cumhuriyet University Faculty of Sport Sciences participated in the study. The mean age of the participants was 20.85±2.10 years, height 173.79±7.82 cm, and body weight 73.31±10.63 kg.

Collection of Data

The questionnaire form was filled out by the researchers using the face-to-face interview technique, which is a first-hand data collection method. The scale developed by Batmaz (2018) consists of 20 items on the "Basic nutrition and food-health relationship" scale, and 12 items on the "Food preference" scale. Participants gave one of the answers to 20 propositions under the heading "Basic nutrition and food-health relationship" and 12 statements under the heading "Food preference" with one of the answers: I strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. As seen in Table 2, the knowledge level of the

Table 1. Body measurement and age parameters of the study participants

Variable	N	Mean ± S.D.
Age	199	20.85±2.10
Height (cm)	199	173.79±7.82
Weight (kg)	199	73.31±10.63

participants with basic nutrition scores less than 45 was evaluated as poor, those with a score of 45-55 as medium, those with a score of 56-65 as good, and those with a score above 65 as very good. The knowledge level of the participants with a food preference score less than 30 was evaluated as poor, those with a score of 30-36 as moderate, those with a score of 37-42 as good, and those with a score above 42 as very good (27).

Statistical Analysis

The collected data were analyzed using the SPSS 22 package program. Data on variables such as age, height, and bodyweight of the participants were analyzed descriptively. The Kolmogorov-Smirnov test was used for the normality tests of the values taken from the data since the sample group was larger than 50. One-Way Analysis of Variance (ANOVA) and independent t-test were used because the data showed normal distribution. Pearson Correlation test was used to determine the relationship between the nutritional knowledge levels of the individuals participating in the study and the age and bodyweight groups since the data showed a normal distribution. Statistical values were evaluated at 95% confidence interval and $p<0.05$ and $p<0.01$ significance levels.

Table 2. Evaluation criteria of the nutritional knowledge level scale

Score Range	Classification
Basic Nutrition (total score 80)	
<45	Bad
45-55	Medium
56-65	Good
>65	Very Good
Food Preference (total score 48)	
<30	Bad
30-36	Medium
37-42	Good
>42	Very Good

Results

The basic nutrition total score of the participants (n=199) was 50.07±8.38 and the food preference total score was 36.67±6.15.

According to Table 3, no significant finding was found when the total scores of basic nutrition and food preferences of the participants were compared according to gender ($p>0.05$). In the table, it is seen that the basic nutrition score is high in women (50.18±7.76), while it is higher in men (36.93±6.12) in food preference.

According to Table 4, no significant finding was found when the total scores of basic nutrition and

Table 3. Comparison of basic nutrition and food preference total scores by gender

Variable	Gender	N	$\bar{x}$	F	t	df	p
Basic Nutrition	Male	146	50.02±8.62	0.091	-0.120	197	0.905
	Female	53	50.18±7.76				
Food Preference	Male	146	36.93±6.12	0.847	0.963	197	0.337
	Female	53	35.98±6.24				

Table 4. Comparison of basic nutrition and food preference total scores according to regular exercise status

	Regular Exercise	N	$\bar{x}$	SD	F	t	df	p
Basic Nutrition	Yes	96	50.87	8.20	0.234	1.309	197	0.192
	No	103	49.32	8.52				
Food Preference	Yes	96	37.16	6.33	0.360	1.081	197	0.281
	No	103	36.22	5.98				

food preference were compared according to the regular exercise status of the participants (p>0.05). In the table, it is seen that the total score of basic nutrition (50.87±8.20) and food preference (37.16±6.33) is high in participants who do sports regularly.

According to Table 5, no significant finding was found when the total scores of basic nutrition and food preference were compared according to the smoking status of the participants (p>0.05). In the table, it is seen that the total score of basic nutrition (50.09±8.36) and food preference (37.15±6.28) is higher in non-smokers.

According to Table 6, a significant finding was found when the total scores of basic nutrition and food preference were compared according to the status of the participants taking nutrition lessons at their schools (p<0.05). It can be said that the significant finding in basic nutrition and food preference is in favor of those who take nutrition courses.

According to Table 7, no significant finding was found when the total scores of basic nutrition and food preference were compared according to how the participants defined their nutritional status (p>0.05). In the table, it is seen that the total score of basic nutrition (50.09±8.36) and food preference (37.15±6.28) is high in participants who define their nutritional status as good.

According to Table 8, no relationship was found between the age and body weight of the participants and their basic nutrition and food preferences (p>0.05).

Table 5. Comparison of basic nutrition and food preference total scores according to smoking status

	Smoking Habit	**N**	**x̄**	**SD**	**F**	**t**	**df**	**p**
Basic Nutrition	Yes	71	49.80	8.32	0.154	-0.236	196	0.814
	No	127	50.09	8.36				
Food Preference	Yes	71	35.66	5.71	0.509	-1.657	196	0.099
	No	127	37,15	6.28				

Table 6. Comparison of the total points of basic nutrition and food preference according to the status of the participants taking nutrition lessons at their schools

	Take a Nutrition Lesson	**N**	**x̄**	**SD**	**F**	**t**	**df**	**p**
Basic Nutrition	Yes	124	53.66	6.06	9.944	8.631	121.419	0.0001
	No	75	44.12	8.34				
Food Preference	Yes	124	38.49	5.46	1.375	5.764	197	0.0001
	No	75	33.68	6.08				

Table 7. Multiple comparisons of basic nutrition and food preference total scores according to how participants describe their nutritional status

		N	**x̄**	**SD**	**F**	**p**
Basic Nutrition	Good	88	50.15	8.36	0.076	0.927
	Medium	93	50.12	8.38		
	Bad	18	49.33	8.95		
	Total	199	50.07	8.38		
Food Preference	Good	88	37.38	5.67	1.268	0.284
	Medium	93	35.94	6.72		
	Bad	18	37.00	5.07		
	Total	199	36.67	6.15		

Table 8. The relationship between the age-body weight of the participants and the total scores of basic nutrition and food preference

		Basic Nutrition	Food Preference
Age	**R**	0.039	0.037
	P	0.580	0.601
	N	199	199
Body Weight	**R**	0.042	0.018
	P	0.560	0.799
	N	199	199

Discussion and Conclusion

In this study, it was aimed to evaluate the nutritional knowledge levels and exercise status of the students studying at the faculty of sports sciences. Most of the participating students both continue their university education and exercise by continuing their sports life in various clubs. As a result of the data collected from the participants of the study, it was determined that the basic nutrition (50.07±8.38) and food preferences (36.67±6.15) status of the participants were moderate (Table 2). Çongar and Özdemir (2004) investigated the knowledge levels of physical education teachers working in Sivas center about nutrition and sports nutrition in general and found that teachers' nutritional knowledge levels were insufficient (28). In the study conducted by Uzlu et al. (2021), in order to evaluate the athlete's nutrition knowledge levels of university students who do active sports according to the sports branch they do (team or individual), the nutritional knowledge levels of 88.6% of the athletes in both groups were found to have "poor knowledge (%)" about sports nutrition. 0-49)" level in their studies (29). In the study of Ozdogan and Ozcelik (2011) more than half of the participants (56.3%) answered the statement "eating carbohydrates makes you fat" incorrectly. Again, in the same study, most of the participants correctly answered that glycogen is stored in the muscle and that glycogen levels affect the energy used during exercise (30). In another study, the majority of men (74.0%) and women (75.0%) answered the same statement correctly (31). When compared with the literature in this study, the total score average of the nutritional knowledge level of the participants in this study was found to be "moderate" and it can be said that the participants had some nutrition knowledge. It is thought that the reason why the knowledge level of the participants is moderate may be due to the fact that some of the students participating in the study took nutrition lessons, they are licensed athletes in sports clubs, and the use of technological mass (television, internet) tools and social media in this age group today. It is known that inadequate and unhealthy nutrition will cause cardiovascular diseases, cancer, respiratory diseases, and some endocrine disorders. One of the risky groups in terms of unhealthy nutrition problems is university students (32). In this study, no significant finding was found when the total scores of basic nutrition and food preference of the participants were compared according to gender ($p>0.05$). It is seen that the basic nutrition score is higher in women (50.18±7.76), and food preference is higher in men (36.93±6.12) (Table 3). When we examine the literature, Özgür and Uçar (2020) concluded that the nutritional knowledge levels and nutritional preferences of female university students participating in their study are bad (33). Hendrie et al. (2008), it was determined that the nutrition score of female students was higher than that of men (34). Zaborowicz et al. In the study where students (2016) measured diet behaviors and nutritional knowledge levels, they reported that both genders had sufficient nutritional knowledge and 34.7% of female students had good nutrition knowledge (35). In the study conducted by Uzlu et al. (2021), no significant relationship was found between gender and the level of knowledge of athlete nutrition ($p<0.05$). In addition, the nutritional knowledge scores of male and female athlete students were 24.79±7.05 and 23.48±7.28, respectively, and the students for both genders found that they had a "weak" knowledge level (29). When the results of this study and the literature are examined, it can be said that women are more interested and knowledgeable about nutrition. This may be due to the fact that women are careful about their body weight. According to the results of this study, there was no significant finding when the total points of basic nutrition and food preference were compared according to the regular exercise status of the participants ($p>0.05$). It is observed that the total score of basic nutrition

(50.87±8.20) and food preference (37.16±6.33) is higher in participants who regularly do sports (Table 4). When the literature is examined, Doğruluk-Çelebi (2019) concluded that individuals who do sports in the football branch make their eating habits more conscious. He concluded that football players are conscious of the increase in sports performance when their nutritional habits are regular and sufficient (36). In the study conducted by Uzlu et al. (2021), the average nutritional knowledge level of the students doing team sports was 23.17±6.79, while the students doing individual sports were found to be 26.51±7.05 points. It was stated that the majority of the athletes (88.6%) in both groups had a "poor" knowledge level about athlete nutrition (29). In the study, no significant finding was found when the total scores of basic nutrition and food preference were compared according to the smoking status of the participants ($p>0.05$). It is observed that the total score of basic nutrition (50.09±8.36) and food preference (37.15±6.28) was higher in non-smokers (Table 5). A significant finding was found when the total scores of basic nutrition and food preference were compared according to the participants' status of taking nutrition lessons at their schools ($p<0.05$). It can be said that the significant finding in basic nutrition and food preference is in favor of those who take nutrition courses (Table 6). In the study of Akıl and Gürbüz (2005), a significant difference was found between the nutritional information of individuals who received nutrition education (37). In the study of Tütüncü and Karaismailoğlu; it was determined that there was no significant difference between the level of nutrition knowledge and having received nutrition education (38). According to another study conducted on 394 volunteer students studying at the Faculty of Sport Sciences, it was found that students who both took nutrition courses (37.11±8.22) and those who did not (22.67±8.29) had poor knowledge (39). In the study of Yılmaz and Karaca (2019), the nutritional knowledge of university students who took nutrition courses was 78.23±16.90, and the average of nutrition knowledge of university students who did not take nutrition courses was 72.44±14.98. In the study, it was determined that there was a significant difference between the students who took nutrition lessons and those who did not, and this difference was in favor of the students who took nutrition lessons (40). Jones et al. (2015) stated that the nutritional knowledge levels of the students who took nutrition courses were significantly higher than the others (41). It can be said that the results of this study are similar to other studies in the literature. It can be said that the nutritional knowledge levels of the students who take the nutrition course are positively affected. In this study, no significant finding was found when the total scores of basic nutrition and food preference were compared according to how the participants defined their nutritional status ($p>0.05$). In the table, it is seen that the total score of basic nutrition (50.09±8.36) and food preference (37.15±6.28) is high in participants who define their nutritional status as good (Table 7). There was no relationship between age and bodyweight of the participants and basic nutrition and food preferences ($p>0.05$) (Table 8). Sanlier et al. (2017) found a negative correlation between BMI (body mass index) and knowledge of healthy and unhealthy eating habits (42). Bayindir Gumus et al. (2019) found that there was a negative correlation between age and BMI and basic nutritional knowledge score, and this was statistically significant (43). Özgür and Uçar (2020) found in their study that there is a negative correlation between the age and BMI of female university students and their basic nutritional knowledge score (33). It is seen that some literature results are not in line with our study. This may be due to the fact that the sample group of this study was different from other studies.

In the study, it was revealed that the nutritional knowledge level of the students of the faculty of sports sciences who received nutrition education was sufficient. When the status of doing regular sports is evaluated, it has been revealed that there is no difference between the students who do sports and those who do not, and they have similar nutritional knowledge levels. There was no difference in the level of nutritional knowledge according to the gender, the definition of nutritional status, and smoking status of the participants. When we look at the relationship between age and body weight, there was no significant relationship between the participants. There is a remarkable effect on the level of nutrition knowledge among the students of the faculty of sports sciences, compared to the students who do not take nutrition courses, so that the

students of the faculty of sports sciences or other faculties can receive nutrition education as a compulsory or the course hours can be increased.

Conflicts of interest: The authors declare that there is no conflict of interest in this manuscript.

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