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An Investıgatıon Of The Nutrıtıonal Knowledge Levels Of Indıvıduals Who Regularly Use Fıtness Centers

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Abstracts: *Regular exercise and proper nutrition are two important components of a healthy life. People who exercise should be aware of proper nutrition in order to meet their increased fluid loss and energy needs and to increase their performance. The aim of this study was to measure the level of nutritional knowledge of individuals using fitness centers for at least three months in Istanbul. This study was conducted with 305 volunteer participants, 145 women and 160 men. During the study, a personal information form including demographic information and the Sports Nutrition Knowledge Scale were used. The average of the participants' responses to the statements of the Sports Nutrition Knowledge Scale was found to be 34.03. Participants' gender status, marital status, age, and training duration did not significantly differ with Sports Nutrition Knowledge. It was determined that the mean level of poor Sports Nutrition knowledge (35.68) of the participants with bachelor's degree was higher than the mean level of poor Sports Nutrition knowledge (32.64) of the participants with high school graduates. It was determined that the mean of the sub-dimension weak weight control knowledge level (17.71) of the participants with bachelor's degree was higher than the mean of the sub-dimension weak weight control knowledge level (7.91) of the participants with postgraduate degree. It was determined that the mean of the sub-dimension weak weight control knowledge level (17.71) of the participants with bachelor's degree was higher than the mean of the sub-dimension weak weight control knowledge level (7.91) of the participants with postgraduate degree. It was determined that the mean of the sub-dimension weak Sports Nutrition knowledge level (28.41) of the participants with bachelor's degree was higher than the mean of the sub-dimension weak Sports Nutrition knowledge level (21.88) of the participants with postgraduate degree. The mean level of poor Alcohol knowledge (29.34) of the participants with undergraduate degree was higher than the mean level of poor Alcohol knowledge (23.73) of the participants with high school degree. It was determined that the mean of the sub-dimension weak Macronutrients knowledge level (47.82) of the participants whose income was equal to their expenses was higher than the mean of the sub-dimension weak Macronutrients knowledge level of the participants whose income was less (41.83) and more (42.71) than their expenses. It was determined that the mean of the sub-dimension weak Sports Nutrition knowledge level (27.35) of the participants whose income was more than their expenses was higher than the mean of the sub-dimension weak Sports Nutrition knowledge level (21.88) of the participants whose income was less than their expenses. It was determined that the mean level of poor Alcohol knowledge (27.59) of the participants practicing individual sports was higher than the mean level of poor Alcohol knowledge (21.05) of the participants practicing group sports. It was determined that the mean of the sub-dimensional poor Sports Nutrition knowledge level (27.59) of the participants practicing individual sports was higher than the mean of the sub-dimensional poor Sports Nutrition knowledge level (21.05) of the participants practicing group sports. The fact that athletes have poor nutritional knowledge level may cause them not to meet their nutritional needs as they should and thus their health and performance may be negatively affected. In order to maximize the performance and health status of exercisers, it may be useful for them to receive training from dietitians specialized in sports nutrition.*
Keywords: *Fitness, Athlete Nutrition, Nutrition knowledge level, Nutrition Knowledge*

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I. Introduction

The major causes of death worldwide are non-communicable diseases that can be prevented through a healthy lifestyle that includes a balanced diet, regular exercise, stress management and self-care (Barbosa et al. 2016). Prevention of non-communicable diseases such as cardiovascular diseases, cancer and type 2 diabetes is important for all countries. In 2012, it was reported that non-communicable diseases were responsible for 38 million (68%) of 56 million deaths in the world (Schoeppe et al. 2016). Economic and social development of a society is only possible with mentally and physically healthy individuals. The most important basic condition for raising healthy individuals is to raise awareness of balanced nutrition in the society(Özpınar; 2011). Lifestyle behaviors, including unhealthy diet and sedentary life, are the main modifiable risk factors for non-communicable diseases, and improving these behaviors is thought to be necessary to reduce the financial and health burden of these non-communicable diseases (Schoeppe et al. 2016). In this sense, one aspect that can improve quality of life is to increase society's ability to understand the phenomena related to healthy lifestyles (Barbosa et al. 2016). Since humans have physiological systems regulated by genes selected in the ages when physical activity was mandatory, regular exercise ensures that homeostatic mechanisms in the body work within the physiological limits (Mitat et al. 2016). It is known that regular physical activity reduces the incidence and mortality rate of diseases such as cardiovascular diseases, obesity and its complications, colon cancer, increases social cohesion, and positively affects emotional state and quality of life (Karaca et al. 2008). (Karaca et al. 2008). "Physical activity" is "any kind of body movement produced by skeletal muscle contraction that increases energy expenditure above basal level". "Exercise" has the characteristics of being "planned, structured, repetitive and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the goal." "Sport" is "a subset of exercise that can be performed individually or as part of a team, where participants adhere to common rules or expectations and have a defined goal" (Oja et al. 2015). Defined as a state of health and well-being characterized by the ability to perform daily physical activities or exercise, fitness and basic physical fitness exercises can contribute to reducing the risk of other musculoskeletal disorders (e.g. overloading of the lumbar spine, instability of the hip extensors, atrophy of the paraspinal muscles) that are the result of incorrect postures and sedentary lifestyles (Lozano and Muyor, 2020). Physical activities are classified as mild, moderate and vigorous according to their intensity. Moderate intensity physical activities are sufficient for health protection and improvement (ALPÖZGEN et al. 2016). For healthy individuals aged 18-65 years, at least 30 minutes of moderate-intensity aerobic physical activity at least 5 days a week or at least 20 minutes of (high) intensity aerobic physical activity at least 3 days a week is recommended (KARACA et al.2008) One of the most prominent effects of regular exercise is on the regulation of blood glucose. Regular physical activity of the right duration and intensity improves insulin sensitivity and reduces insulin resistance (Mitat et al. 2016). According to a study by Oja and colleagues, inconclusive evidence has been shown for the benefits of having an exercise capacity of 10 METs or more on bone mineral density and postural balance (Oja et al.2015). It has also been suggested that serum lipid parameters and both aerobic exercise and strength training alone can improve most liver function and that longer exercise duration generally has a better improvement effect (SARIAKÇALI et al. 2015). (SARIAKÇALI et al. 2021) Bone mineral content and density increase with increasing physical activity, provided that it does not exceed physiological levels. There is a positive relationship between the strengthening of bones in terms of mineral content and density and body lean mass and muscle size (Scerpella et al. 2018). People who are more physically active and have better fitness levels are less likely to suffer from mental illnesses such as depression and anxiety (Marquez et al.2021). Physical activity increases the amount of Serotonin in the body (KILINÇARSLAN 2019). (KILINÇARSLAN 2019) Dopamine (DA), which constitutes a large part of catecholamines in the central nervous system and is known to be modulated by physical activity and whose amount in blood and urine increases during physical activity, is a neurotransmitter identified by Arvid Carlsson about 50 years ago (Sayın, 2008) (Marquez et al.2021) Dopamine has important roles in maintaining balance in the central nervous system, regulating motor neurons, memory function, motivation and learning (Marquez et al.2021). Regular exercise also increases the amount of the hormone serotonin, which increases the physical strength and fitness of the person, allowing him to adapt to life more positively. (KILINÇARSLAN 2019) Individuals with insufficient serotonin levels experience fatigue, boredom and depressive mood. (Eken et al. 2021) In addition to exercise, nutrition is recognized as a central component of a healthy lifestyle (Crowley et al. 2019). Individual nutritional requirements are influenced by a number of factors such as age, gender, body mass, height, growth and development needs (Thomas et al. 2016). Adequate nutrition is important for normal growth and development, maintaining health and well-being, reducing the risk of disease and injury, and improving sports performance (Thomas et al. 2016). Understanding the level of nutritional knowledge and its relationship to nutrition is crucial, as healthy eating is the cornerstone of health maintenance as well as the management and prevention of

a wide range of medical conditions (Spronk et al. 2014). In addition to genetic structure and appropriate training, proper nutrition is an important factor affecting the performance of athletes (HEPYÜKSELEN et al.2020). A carefully planned nutrition program has significant positive effects on athlete performance (Trakman et al.2016). Physical activities increase the rate of energy expended and the body's fluid loss. To meet these losses, athletes should consume the right foods in the right amounts (Benardot 2021). Although it is recognized that the specific contribution of nutritional knowledge to the overall quality of food intake is complex and influenced by many demographic and environmental factors, a person must first have nutritional knowledge in order to meet their nutritional needs correctly (Spronk et al.2014). Since nutrition knowledge is one of the few modifiable determinants of nutritional behaviors, sports dietitians generally focus on nutrition education to ensure proper nutrition in athletes (Trakman et al.2016). In a study conducted by Canpolat and Çakıroğlu with 46 volunteer fitness coaches, it was found that 30.4% of the coaches had inadequate, 45.7% had moderate and 23.9% had good nutrition knowledge (Canpolat and Çakıroğlu 2016). In another study conducted on 376 participants, it was concluded that the nutritional knowledge level of individuals who exercise regularly is insufficient, they are undecided in their general attitudes towards ergogenic support, the average score obtained from the Athlete Nutrition Knowledge scale is 43.83 and 69.9% of the participants have poor knowledge level (BOZKURT 2022). According to the study titled "Investigation of Nutrition Habits and Knowledge Levels of Physical Education Teachers" in which a total of 201 physical education teachers (53 female, 148 male) participated, the nutritional knowledge levels of physical education teachers who eat slowly, receive nutrition education, do sports and define their nutritional status as good were found to be significantly higher, but the nutritional knowledge levels of physical education teachers were found to be insufficient (KAYALI et al. 2023). In a study of university students who actively participated in sports, it was found that the average score of the students who participated in team sports was 23.17±6.79 and the average score of the students who participated in individual sports was 26.51±7.05; the majority of the students in both groups (88.6%) had a "poor" level of knowledge about sports nutrition (UZLU et al. 2021). The aim of this study was to examine the nutritional knowledge levels of people who regularly do fitness and to reveal the mistakes made in this regard. In this study, it was aimed to determine the nutritional awareness of people who do sports in fitness centers.

II. Materials and Methods

Ethics Committee permission for this study was obtained with the decision numbered B.30.2.AYD.0.00.00-050.06.04/69 of Istanbul Aydın University Non-Interventional Clinical Research Ethics Committee. The study was conducted between July 2023 and October 2023 with a total of 305 volunteer participants, 145 women and 160 men, who used the fitness centers in the Istanbul region for at least 3 months. In this study, which was conducted to describe the nutritional knowledge levels of individuals who regularly do fitness in gyms, the "Sports Nutrition Knowledge Scale (SBBÖ)" survey system, which was conducted by Onur Çırak and Funda Pınar Çakıroğlu in 2018-2019, was used. SBBÖ consists of a total of 68 statements and 6 sub-dimensions titled Weight Control (3 statements), Macronutrients (22 statements), Micronutrients (12 statements), Sports Nutrition (11 statements), Supplements (11 statements), and Alcohol (9 statements). The items of the scale are multiple choice and 3-point Likert type (agree-disagree-not sure; effective-not effective-not sure) (Çırak & Çakıroğlu, 2019). The total score for 68 items was accepted as 100% and the scoring system was evaluated as "low" knowledge (0-49%), "average" knowledge (50-65%), "good" knowledge (66-75%) and "excellent" knowledge (75-100%) (Trakman et al., 2017). IBM SPSS 25.0 program was used for all statistical analyses. When examining the differentiation of group scores of variables according to the personal information of the participants, "independent sample t test" was used in two-group comparisons of variables that meet the assumption of normal distribution, and "ANOVA" was used in three or more group comparisons. Post Hoc test was performed for group differences using parametric tests. In the dimensions where the differences between the groups were significant, Bonferroni test was applied to determine from which group or groups the significant difference originated and the significance level was tested as 0.05. Results

Personal information of the 305 participants is presented below.

Table 1 **Distribution of Participants According to Personal Characteristics (N=305)**

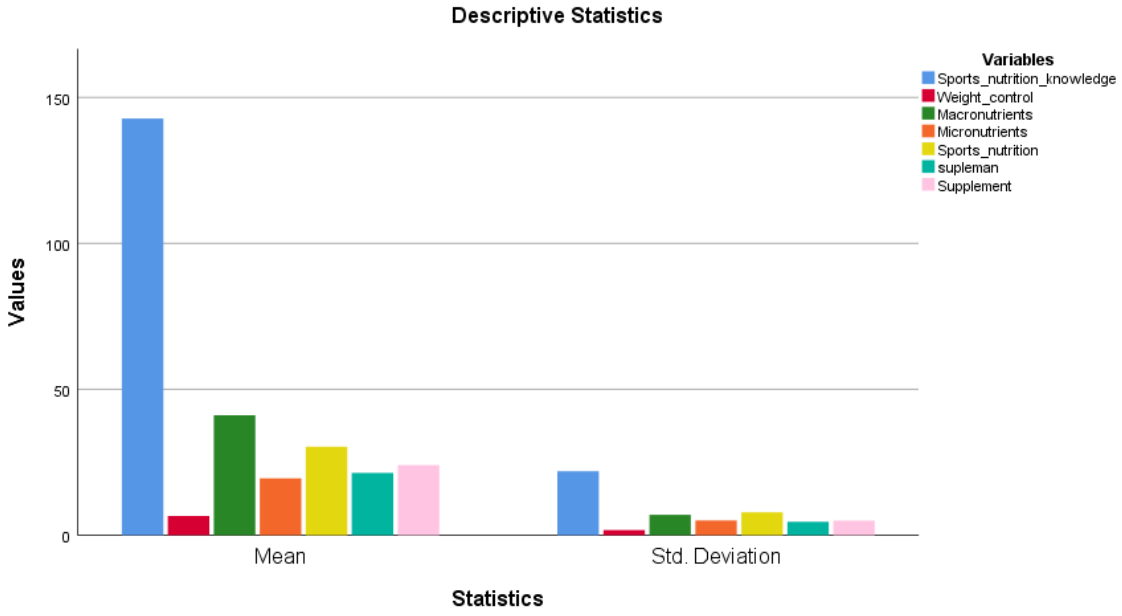
	Personal Characteristics	n	%
Gender	Woman	145	47,5
	Male	160	52,5
Age	20-30	209	68,5
	31-40	65	21,3
	41+	31	10,2
Sport Branch	Individual Sports	172	56,4
	Group Sports	133	43,6
Marital Status	Married	62	20,3
	Single	219	71,8
	Widow	24	7,9

Education Status	High School	118	38,7
	License	128	42
	Postgraduate	59	19,3
Income	Income less than expenditure	108	35,4
	Income equal to expenditure	86	28,2
	Income more than expenditure	111	36,4
Training Age (Year)	1	74	24,3
	2	81	26,6
	3	44	14,4
	4	106	34,8

As seen in Table 1, 52.5% of the participants were male and 47.5% were female, 68.5% were 20-30 years old, 21.3% were 31-40 years old and 10.2% were 41 years old or older, 56.4% practiced individual sports and 43.6% practiced group sports.

It was determined that 20.3% of the participants were married, 71.8% were single and 20.3% were widowed, 38.7% were high school graduates, 42.0% were undergraduate and 19.3% were postgraduate graduates, 35.4% had income less than expenses, 28.2% had income equal to expenses and 36.4% had income more than expenses, 24.3% had a training age of 1 year, 26.6% had 2 years and 14.4% had 3 years. The variable of the study consists of Sports Nutrition Knowledge and its sub-dimensions. In this part of the study, descriptive statistics about the variables are given

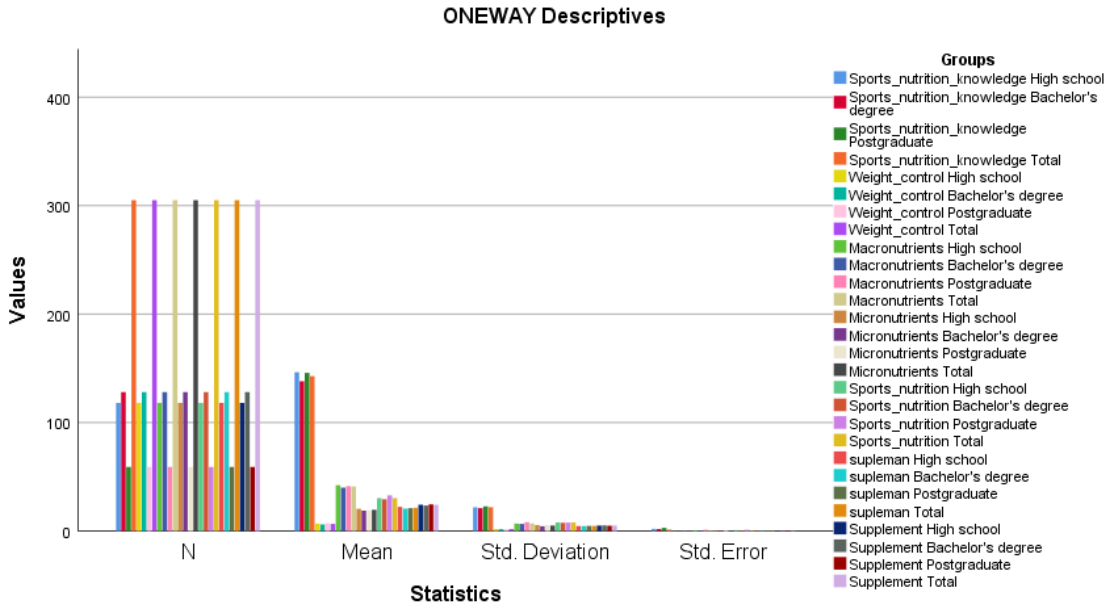
Figure 1 Descriptive Analysis Results for Variables



The average of the participants' responses to the statements of the Sports Nutrition Knowledge scale was found to be 34.03. The mean total score of the Weight Control Scale was 14.97, the mean of the responses to the statements of Macronutrients was 43.78, the mean of the responses to the statements of Micronutrients was 41.24, the mean of the responses to the statements of Sports Nutrition was 24.74, the mean of the responses to the statements of Supplement scale was 27.75, and the mean of the responses to the statements of Alcohol was 26.15.

According to the results of the analysis, the participants' gender status, marital status, age and training duration do not differ significantly with Sports Nutrition Knowledge ($p>0.05$). According to the result of the analysis, participants' gender status, marital status, age and training time do not significantly differ with Weight Control, Macronutrients, Micronutrients and Sportsman Nutrition, Supplement and Alcohol ($p>0.05$).In other words, participants' gender status, marital status, age and training time do not affect their Weight Control, Macronutrients, Micronutrients and Sportsman Nutrition, Supplement and Alcohol scores.

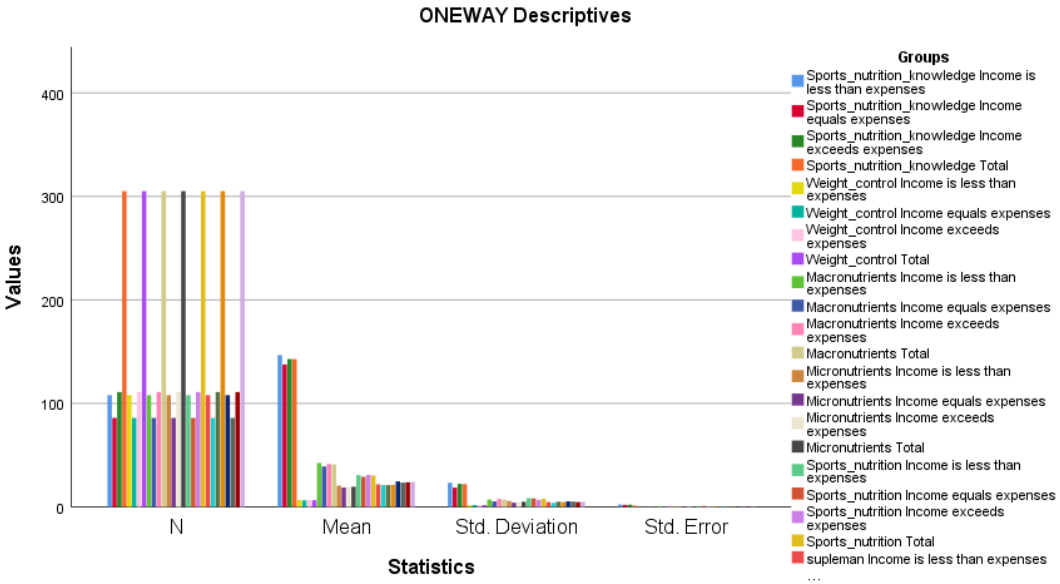
Figure 2. ***Comparison of the Mean Scores Obtained from the Sports Nutrition Knowledge Scale and its Subscales According to*** Educational Status Variable



According to the results of the analysis, there is a significant difference between education variable and Sports Nutrition Knowledge (F:3.911, p<.05), Weight Control (F:4.058, p<.05), Sports Nutrition (F:6.649, p<.05) and Alcohol (F:3.369, p<.05) (p>0.05).

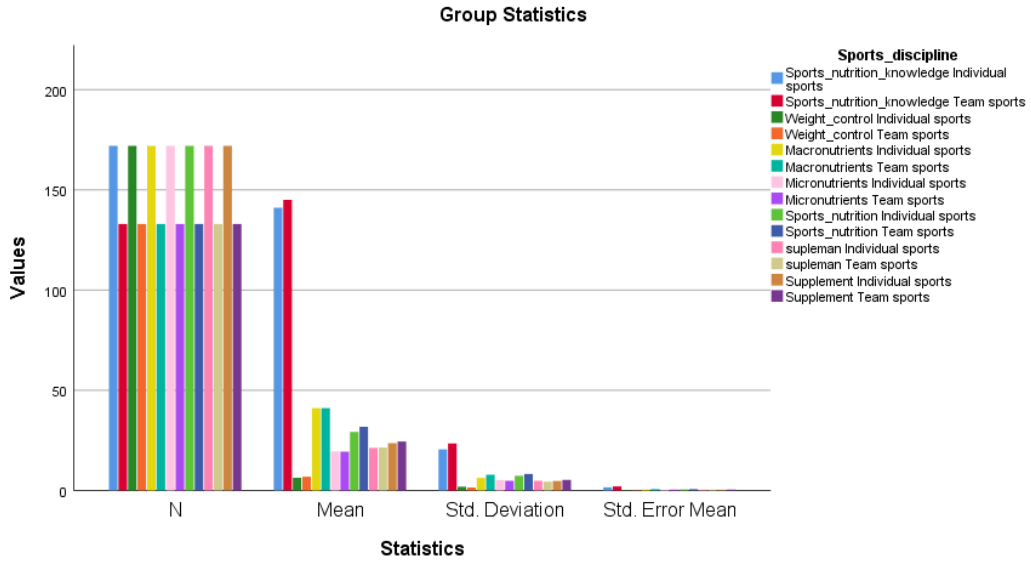
According to the results of the analysis, Macronutrients (p>0.05), Micronutrients (p>0.05) and Supplement (p>0.05) did not differ significantly with the education variable (p>0.05). In other words, it was determined that the education variable did not affect the Macronutrients, Micronutrients and Supplement scores. It was determined that the mean level of poor sports nutrition knowledge (35.68) of the participants with bachelor's degree was higher than the mean level of poor sports nutrition knowledge (32.64) of the participants with high school graduation. It was determined that the mean of the sub-dimension weak weight control knowledge level (17.71) of the participants with bachelor's degree was higher than the mean of the sub-dimension weak weight control knowledge level (7.91) of the participants with postgraduate degree. It was determined that the mean of the sub-dimension weak weight control knowledge level (17.71) of the participants with bachelor's degree was higher than the mean of the sub-dimension weak weight control knowledge level (7.91) of the participants with postgraduate degree. It was determined that the mean of the sub-dimension weak Sports Nutrition knowledge level (28.41) of the participants with bachelor's degree was higher than the mean of the sub-dimension weak Sports Nutrition knowledge level (21.88) of the participants with postgraduate degree. It was determined that the mean level of poor Alcohol knowledge (29.34) of the participants with undergraduate degrees was higher than the mean level of poor Alcohol knowledge (23.73) of the participants with high school degrees.

Figure 3 ***Comparison of the Mean Scores Obtained from the Sports Nutrition Knowledge Scale and its Subscales According to*** Income Status Variable



According to the results of the analysis; while there is a significant difference between income status and Macronutrients (F: 5.198, p<.05) and sub-dimension Sports Nutrition (F: 3.601 p<.05), there is no significant difference in Sports Nutrition Knowledge, Weight Control, Micronutrients and Sports Nutrition Supplement and Alcohol (p>0.In other words, it was determined that income status did not affect the scores of Sports Nutrition Knowledge, Weight Control, Macronutrients, Micronutrients and Sports Nutrition, Supplement and Alcohol. It was determined that the mean of the sub-dimension weak Macronutrients knowledge level (47.82) of the participants whose income was equal to their expenses was higher than the mean of the sub-dimension weak Macronutrients knowledge level of the participants whose income was less (41.83) and more (42.71) than their expenses. It was determined that the mean of the sub-dimension weak Sports Nutrition knowledge level (27.35) of the participants whose income was more than their expenses was higher than the mean of the sub-dimension weak Sports Nutrition knowledge level (21.88) of the participants whose income was less than their expenses.

Figure 4 ***Comparison of the Mean Scores Obtained from the Sports Nutrition Knowledge Scale and its Subscales According*** to the Variable of Sports Branch



According to the results of the analysis, the mean scores of the participants' Sports Nutrition (t:3,798, p<.05) and Alcohol (t:3,049, p<.05) differ significantly according to the sport branch. In other words, it was determined that the sport branches of the participants affected their Sports Nutrition and Alcohol scores. It was determined that the mean level of poor alcohol knowledge (27.59) of the participants practicing individual sports was higher than the mean level of poor alcohol knowledge (21.05) of the participants practicing group sports. It was determined that the mean of the sub-dimension weak Sports Nutrition knowledge level (27.59) of the participants practicing individual sports was higher than the mean of the sub-dimension weak Sports Nutrition knowledge level (21.05) of the participants practicing group sports. According to the results of the analysis (See Table 13), there is no significant difference between the participants' sport branch and Supplement (p>.05), Weight Control (p>.05), Macronutrients (p>.05), Micronutrients (p>.05) and Supplement (p>.05). In other words, it was determined that the sport branch status of the participants did not affect their Sports Nutrition Knowledge, Weight Control, Macronutrients, Micronutrients and Supplement scores.

III. Discussion

The aim of this study is to examine the nutritional knowledge levels of individuals who regularly do fitness in gyms. Individuals who do fitness in gyms need to make the right choices to meet their nutritional needs. The lack of sufficient information about the nutritional needs of people who do sports leads them to make wrong choices about nutrition, thus creating the risk of malnutrition or consuming commercial products for athletes when they do not actually need them.

General and Sports Nutrition Information

As a result of this study, the average of the participants' responses to the statements of the Athlete Nutrition Knowledge scale was determined as 34.03 (poor knowledge). In this study, it was determined that the participants' gender status, marital status, age and training period did not affect the total scores of Athlete Nutrition Knowledge and the sub-dimensions Weight Control, Macronutrients, Micronutrients and Athlete Nutrition, Supplement and Alcohol scores. In a study conducted with 364 athletes actively engaged in endurance sports branches (cycling, marathon, mountaineering) at the national team level, it was concluded that the athletes had a very good knowledge (66.5%) about recognizing nutrients and sports nutrition (Akıl, 2017 Konya).In another study conducted on students studying at the School of Physical Education and Sports, it was determined that the average score of the nutrition knowledge level SBBÖ was 53% in men and 61.4% in women. According to a study conducted by Spronk et al. (ÇAKIR et al. 2022;105-118), it is thought that women tend to have a higher level of nutritional knowledge than men, regardless of whether they do sports or not, and this difference is attributed to the fact that women play a more dominant role in food purchasing and preparation or that men are less interested in nutrition. According to the same study, those with higher education or socio-economic status were reported to have higher levels of nutritional knowledge. (Spronk et al.2014;1713-1726) In a study involving 38 male and 8 female fitness coaches, the nutritional knowledge level scores of male coaches were found to be higher than female coaches (Canpolat and Çakıroğlu 2016). Yılmaz Although no difference was found in the comparison of athlete nutrition knowledge according to gender variable, it was determined that men's averages were higher in all sub-dimensions except micronutrients (Yılmaz et al.2021). In another study conducted on 90 e-athletes, it was determined that 98.9% of the participants had poor nutritional knowledge and 1.1% had an average level. The average athlete nutrition knowledge scale score of e-athletes was 24.88 (Arlı 2022).

In a study in which crawler swimming and swimming athletes participated. It was determined that the nutritional knowledge levels of the athletes who had undergraduate education or continued their education were higher than the nutritional knowledge levels of the athletes who had high school education or continued their education. In the study, no statistically significant difference was found between the nutritional knowledge levels of male and female athletes. In the study, it was determined that the nutritional knowledge levels of national athletes were higher than those of non-national athletes. As a result, it was determined that elite paddle swimmers had an average level of knowledge about nutrition (49.57 points), while elite swimmers had deficiencies and poor knowledge about nutrition (42.52 points) (ARSLAN et al, 2023). In the study conducted by Bozkurt, it was determined that education and income levels had no effect on nutritional knowledge (BOZKURT 2022).

Weight Management and Energy Balance

In the sports nutrition knowledge scale questionnaire, there are three items related to weight and energy balance.The mean total score of the Weight Control Scale was 14.97. There was no significant difference between the participants' sport branch and Weight Control (p>.05). There was a significant difference between the participants' educational status and Weight Control (F:4.058, p<.05). It was determined that the mean of the sub-dimension weak Weight Control knowledge level (17.71) of the participants with bachelor's degree was higher than the mean of the weak Weight Control knowledge level (7.91) of the participants with postgraduate degree. The income status of the participants and Weight Control did not differ significantly (p>0.05). According to the study conducted by Trakman et al. in most of the studies, athletes have knowledge about safe weight loss practices based on current recommendations (Trakman et al. 2012). In a study conducted with e-athletes, 26.7% of the participants correctly answered the question "in endurance sports, being at the lowest possible weight is beneficial for long-term performance", 15.6% of the participants correctly answered the question "the main dietary change required when only muscle gain is desired is to increase the amount of protein in the diet", and 23.3% of the participants correctly answered the question "which do you think is the best lunch option for an athlete aiming for muscle gain" (Arlı 2022).

Macronutrient

Twenty-two statements assessing the level of knowledge of macronutrients were included; There was no significant difference between the participants' sport branch and educational status and their level of knowledge of macronutrients (p>.05). It was determined that the mean of the sub-dimension weak Macronutrients knowledge level (47.82) of the participants whose income was equal to their expenses was higher than the mean of the sub-dimension weak Macronutrients knowledge level of the participants whose income was less (41.83) and more (42.71) than their expenses. In another study, it was found that e-athletes had inadequate knowledge about their daily carbohydrate needs and misinterpreted the need for protein as an increase in protein intake would improve their performance (ARLI 2022). According to a systematic review by Trakman and colleagues, only 21% and 25% of collegiate athletes, respectively, knew what proportion of energy should come from fat; 41% knew what proportion of energy should come from protein (Trakman et al.2016).

Micronutrient

Twelve statements assessing micronutrients.There was no significant difference between the participants' sport branch and Micronutrients (p>.05). There is no significant difference between the participants' educational status and Micronutrients (p>0.05). The income status of the participants and Micronutrient Elements do not differ significantly (p>0.05). In another study, it was found that e-athletes gave predominantly correct answers to questions about calcium, but most of their answers about vitamin C, thiamine and iron were incorrect (ARLI 2022) According to a systematic review by Trakman et al. in one study only 17% of university students were able to identify the difference between water-soluble and fat-soluble vitamins, in another study 67% of men and 72% of women knew that vitamins do not provide energy (Trakman et al. 2016)

Sports Nutrition

There are eleven statements in the athlete nutrition sub-knowledge scale.The mean of the participants' responses to the statements of Athlete Nutrition is 24.74. The mean scores of the participants' sport branch and Athlete Nutrition (t:3,798,p<.05) differ significantly according to the sport branch. It was determined that the mean of the sub-dimensional poor Sports Nutrition knowledge level (27.59) of the participants practicing individual sports was higher than the mean of the sub-dimensional poor Sports Nutrition knowledge level (21.05) of the participants practicing group sports. In another study, no statistically significant difference was found in the sub-dimension scale scores of those who actively practiced individual sports and team sports. According to the sports branch variable, it was determined that individual sportsmen (X=56.33) and team sportsmen (X=57.47) had a moderate level of sports nutrition knowledge (ÇAKIR et al. 2022;105-118)

There is a significant difference between the educational status of the participants and Sports Nutrition Knowledge (F:3.911, p<.05). It was determined that the mean level of poor Sports Nutrition knowledge (35.68) of the participants with a bachelor's degree was higher than the mean level of poor Sports Nutrition knowledge (32.64) of the participants with a high school degree.

There is a significant difference between the educational level of the participants and Sports Nutrition (F: 6.649, p<.05). It was determined that the mean of the sub-dimension weak Sports Nutrition knowledge level (28.41) of the participants with bachelor's degree was higher than the mean of the weak Sports Nutrition knowledge level (21.88) of the participants with postgraduate degree. In this case, it was determined that the level of sports nutrition knowledge of the participants with postgraduate degrees was lower than the participants with undergraduate degrees. There is a significant difference between the income status of the participants and

Sports Nutrition (F: 3.601 p<.05). It was determined that the mean of the sub-dimension weak sports nutrition knowledge level (27.35) of the participants whose income was more than their expenses was higher than the mean of the sub-dimension weak sports nutrition knowledge level (21.88) of the participants whose income was less than their expenses.

Supleman

There are eleven statements in the Supleman scale.The mean of the responses to the statements of the Supleman scale was 27.75, and there was no significant difference between the participants' sport branch and Supleman (p>.05). There is no significant difference between the participants' education level and Supleman (p>0.05). The income status of the participants and Supleman did not differ significantly (p>0.05). In the study conducted by Bozkurt, it was observed that the nutrition knowledge of individuals using ergogenic support was inadequate (BOZKURT 2022).

Alcohol

There are nine statements in the alcohol sub-knowledge scale.The mean of the participants' responses to alcohol statements was 26.15. The mean scores of the participants' alcohol (t: 3.049, p<.05) differed significantly according to the sport branch. It was determined that the mean of poor Alcohol knowledge level (27.59) of the participants practicing individual sports was higher than the mean of poor Alcohol knowledge level (21.05) of the participants practicing group sports. The educational level of the participants and Alcohol (F:3.369, p<.05) differ significantly (p>0.05). It was determined that the mean level of poor Alcohol knowledge (29.34) of the participants with a bachelor's degree was higher than the mean level of poor Alcohol knowledge (23.73) of the participants with a high school degree. The income status of the participants did not differ significantly in terms of Alcohol (p>0.05). In a study, the majority of athletes responded correctly to a question assessing guidelines for safe alcohol consumption (88.9%), while less than half correctly identified a definition of a standard drink according to the type and quantity of alcohol (33.3% and 37.8%, respectively) (Devlin & Belski 2015).

IV. CONCLUSION

In this study, the level of sports nutrition knowledge of individuals who use fitness centers for at least 3 months was evaluated according to their demographic characteristics. As a result of the research, the average of the participants' responses to the statements of the Sports Nutrition Knowledge scale was determined as 34.03 (poor knowledge). Physical activity increases water loss and energy needs in the body, so people who exercise should have a certain level of nutritional knowledge in order to fully protect and improve their health and increase their performance. People who use fitness centers should be provided with basic sports nutrition knowledge by dietitians specialized in sports nutrition.

Limitations of the Study

The participants included in this study were not only those who use fitness centers, but also those who are involved in individual and team sports in addition to using fitness centers. Therefore, the results of the study are not specific to fitness practitioners.

SOURCE

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