

THE EFFECT OF ANXIETY OF CATCHING THE NOVEL CORONAVIRUS ON NUTRITIONAL STATUS AND DIET QUALITY IN ATHLETES IN DIFFERENT SPORTS BRANCHES

FARKLI SPOR DALLARI İLE İLGİLENEN SPORCULARDA COVID-19'A YAKALANMA KAYGISININ BESLENME DURUMU VE DİYET KALİTESİ ÜZERİNE ETKİSİ

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ABSTRACT

This study was guided to determine the relationship between the nutritional status and diet quality of the anxiety of catching Covid-19 in different sport branches. 92 athletes, including 31 football players, 32 rowers and 29 handball players, participated in the study. In order to determine the anxiety levels of the athletes Athlete's Anxiety to Catch the Novel Coronavirus Scale was applied. In order to measure the nutritional status of the athletes, 24-hour food consumption records were taken on a trained day and evaluated. The Healthy Eating Index-2015 was used to evaluate the diet quality of the athletes. The score of the rowing group was found to be significantly higher than the Football and Handball groups. The score of the Handball group was also found to be significantly higher than the Football group. There is a significant relationship between the Covid-19 Anxiety Scale scores of the football players and the seafood and vegetable protein scores. ($r: 0.451, p=0.011, p<0.05$). A important results were found in the same direction between the Covid-19 Anxiety Scale score of the rowers and the amount of protein consumption (%), total vegetable consumption, dark green leafy vegetables and legumes consumption, and total protein food consumption score ($r:0.524, r=0.002, p<0.01; r:0.407, p=0.021, p<0.05; r:0.523, p=0.002, p<0.01; r: 0.533, p=0.002, p<0.01$, respectively). A important results were found in the opposite direction between the Covid-19 Anxiety Scale score and the consumed total fruit and whole grain consumption score ($r: -0.374, p= 0.035 p<0.05, r:-0.442, p:0.016; p<0.05$, respectively). More research is required to clarify the relation between athletes' anxiety levels, nutritional status, and quality of diet.

Keywords: Anxiety, Covid-19, Diet Quality, Nutrition, Team Sports.

ÖZET

Bu çalışma, farklı dallardan sporcuların Covid-19'a yakalanma kaygısının beslenme durumu ve diyet kalitesi ile ilişkisini saptamak amacıyla yapılmıştır. Çalışmaya 31 futbolcu, 32 kürekçi ve 29 hentbolcu, toplam 92 sporcu katılmıştır. Sporculara kaygı düzeylerini belirlemek için Sporcuların Yeni Tip Koronavirüse Yakalanma Kaygısı Ölçeği uygulanmıştır. Beslenme durumlarının değerlendirilmesi için antrenmanlı bir günde 24 saatlik besin tüketim kayıtları alınarak değerlendirilmiştir. Diyet kalitelerinin değerlendirilmesinde de Sağlıklı Yeme İndeksi-2015 kullanılmıştır. Kürek grubunun Covid-19 kaygı puanı futbol ve hentbol gruplarından, hentbol grubunun puanı da futbol grubundan anlamlı şekilde yüksek saptanmıştır. Futbolcuların Covid-19 Kaygı Ölçeği puanı ile deniz ürünleri ve bitkisel proteinler puanları arasında aynı yönlü anlamlı ilişki bulunmaktadır ($r:0.451, p=0.011, p<0.05$). Kürekçilerin Covid-19 Kaygı Ölçeği puanı ile protein tüketim miktarı (%), toplam sebze, koyu yeşil yapraklı sebze ve baklagil ve toplam protein yiyecekleri tüketim puanları arasında aynı yönlü anlamlı sonuçlar bulunmuştur (sırasıyla; $r:0.524, r=0.002, p<0.01; r:0.407, p=0.021, p<0.05; r:0.523, p=0.002, p<0.01; r: 0.533, p=0.002, p<0.01$). Covid-19 Kaygı Ölçeği puanı ile tüketilen toplam meyve ve tam tahıl tüketimi puanı arasında ters yönlü anlamlı sonuçlar bulunmuştur (sırasıyla; $r:-0.374, p=0.035, p<0.05; r:-0.442, p:0.016; p<0.05$). Sporcuların Covid-19'a yakalanma kaygılarıyla beslenme durumu ve diyet kalitesi arasındaki ilişkinin değerlendirilmesi için daha geniş kapsamlı çalışmaya ihtiyaç vardır.

Anahtar Kelimeler: Beslenme, Covid-19, Diyet Kalitesi, Sporda kaygı, Takım Sporu.

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INTRODUCTION

Meeting the increased energy and nutrient requirements with physical activity and exercise is important in ensuring health, adaptation to exercise, weight management, and exercise performance. It also affects processes such as nutrition, energy systems, and recovery after exercise (Jeukendrup and Gleeson, 2018). Athlete nutrition has proven to be a very good tool that can be used in any athlete's training or match program (Potgieter, 2013). The energy cost of the athlete's training is determined by considering many factors. The size of the area where the sport is performed, the duration and frequency of the matches, the length of the season, the training phase, as well as the specific rules of each sport, the athlete's position/position-specific duties, weather conditions, game level, gender, and age affect the energy and nutrient needs of the athlete (Holway and Spriet, 2011).

The World Health Organization (WHO) declared the Covid-19 epidemic, which started in China and grew rapidly around the world, as an "International Public Health Emergency" on 30.01.2020 and as a "Global Epidemic (pandemic)" on 11.03.2020. (Zanke et al. , 2020). The first case of coronavirus in our country was observed on 11.03.2020. However, the first studies on this issue were started before the case was seen. In the light of the recommendations given by the Scientific Advisory Board, the necessary measures were taken to combat the epidemic on 22.01.2020 (Sağlık Bakanlığı, 2020). Situations such as the fact that the time of the end of the epidemic cannot be known and there is no exact treatment method, a crowd of information about the epidemic and its effects, a decrease in people's social relationships, recommendations or prohibitions such as isolation as much as possible at home can adversely affect people's mental health. As a matter of fact, it has been observed that symptoms such as anxiety, depression, fear, stress, and sleep problems have started to appear more frequently during the Covid-19 pandemic (Özdin, 2020).

Due to the dramatic changes in the world of sports during the pandemic, one of the professional groups most heavily affected by the Covid-19 pandemic has been elite athletes (Håkansson et al. , 2020). Due to the rapid spread of Covid-19 in Turkey and other countries, the news that athletes, coaches, and managers in various branches have contracted Covid-19 has caused the postponement or cancellation of matches or any sports organization (Demir et al. , 2020).

Studies in the literature have shown that there is a negative relationship between anxiety and performance, achievement, cognitive performance, and motivation. In this context, it is important to determine the anxiety levels of people who are engaged in sports about catching Covid-19. A study conducted in 2020 aimed to develop a valid and reliable measurement tool that can determine the level of anxiety of athletes about catching the new type of coronavirus (Covid-19) (Demir et al. , 2020). It can be thought that the increase in anxiety that sports performances may be affected increases the pressure on the athlete and that major changes in lifestyle, especially sleeping and eating behavior, may affect the athletes' health and performance. During the pandemic period, the consumption of foods high in refined carbohydrates, sugar, and fat was detected due to the mental state of individuals, increased anxiety, and decreased physical activity (Dietz and Santos-Burgoa, 2020). This study aimed to investigate the anxiety caused by Covid-19 in athletes and the effect of this anxiety on their nutritional status and diet quality.

METHOD

Participants

This research was conducted with individuals involved in 3 different branches (football, rowing, and handball) from 8 different sports clubs who volunteered to take part in the research between October 2021 and December 2021. A written consent form was obtained from the athletes regarding their voluntary participation in the study. Ninety nine adolescents were enrolled but the study was completed with 92 adolescents. Thirty-one professional football players who agreed to participate in the research were from Istanbul Başakşehir Football Club Youth, Aytemiz Alanyaspor Youth, Baskent University Alanya Kestelspor, Hekimoğlu Trabzon Football Club; 32 professional rowing athletes were from Fenerbahçe Sports Club Rowing Branch, Galatasaray Sports Club Rowing Branch, Adana Youth, and Sports Club Rowing Branch; 29 professional handball players were from Ankara Metropolitan Municipality Ego Sports Club Women's Handball Team and Karabük Yenişehir GSK Men's Handball Team. Exclusion criteria of the study are the presence of any chronic disease in the athletes, any disease that may affect their nutritional status, and the presence of Covid-19 infection during the research period.

For this study, the 'Ethics Committee Approval' dated 04.11.2021 and numbered 2021-21/33 was obtained by the Clinical Research Ethics Committee of Acıbadem Mehmet Ali Aydınlar University.

Procedure

The study was carried out in a single stage, and at this stage, a questionnaire form consisting of 3 different titles was applied. In the first section of the questionnaire created by the researcher; the athlete's age, body weight, height, and anthropometric measurement information of the sport they deal with, how long they are in sports, training duration, and content-specific information that may include multiple-choice and/or open-ended questions are included. In the second questionnaire form, The Athletes' Anxiety of Conceiving a New Type of Coronavirus (SYTKYKÖ) Scale, developed by Gönül Tekkurşun Demir et al. (Demir et al. , 2020), was used. In the last questionnaire form, 24-hour food consumption from a trained day was requested to evaluate the athletes' nutritional status and to score the diet quality. Due to the high frequency of training of the athletes, it was decided that a training day reflects the whole of their week, and therefore it was decided to record from a trained day. In order to keep the records more accurate, a sample food consumption record was shared with the athletes by the researcher

The analysis of daily food consumption records taken from the athletes was made by using the computer program "Computer-Aided Nutrition Program, Nutrition Information Systems (BEBIS)" developed for Turkey by the researcher. In this way, the average energy and nutrient intake of the athletes were evaluated.

Statistical Analysis

While evaluating the findings obtained in the study, IBM SPSS Statistics 22 program was used for statistical analyses. The suitability of the parameters to the normal distribution was evaluated by Kolmogorov-Smirnov and Shapiro Wilks tests. While evaluating the study data, in addition to descriptive statistical methods (mean, standard deviation, frequency) in comparison to quantitative data, the Oneway Anova test was used for the comparison of the parameters with normal distribution between groups. The Tukey HSD test was used if the variances of the groups were homogeneous, and the Tamhane's T2 test was used to determine the group that caused the difference. Kruskal Wallis test was used to compare the parameters that did not show normal distribution, and Dunn's test was used to determine the group that caused the difference. Student's t-test was used for comparing normally distributed parameters between two groups, and Mann Whitney U test was used for comparing two groups of parameters that did not show normal distribution. The Chi-Square test was used to compare the qualitative data. Pearson correlation analysis was used to examine the relationships between parameters conforming to the normal distribution Significance was evaluated at the $p < 0.05$ level.

RESULTS

Table 1. Evaluation of anthropometric properties in men by groups

Man	Football	Rowing	Handball	p
	AVG±SD	AVG±SD	AVG±SD	
Age (years)	23,32±4,7	24,31±3,77	21,82±3,66	0,339
Weight (kg)	75,03±6,98	80,5±8,4	77,36±13,34	0,141
Height(cm)	181,52±6,36	182,06±7,15	179,82±5,23	0,656
BMI (kg/m ²)	22,74±1,32	24,23±1,18	23,83±3,41	0,028*

Oneway ANOVA Testing

* $p < 0.05$

There was no statistically significant difference between the groups in terms of the average age, weight, and height of the men ($p < 0.05$ it must be ($p > 0.05$)). There was a statistically significant difference between the groups in terms of men's mean body mass index ($p: 0.028$; $p < 0.05$). As a result of the Post-Hoc Tamhane's T2 test conducted to find out which group caused the difference, the rowing group's BMI average was significantly higher than the football group ($p: 0.001$ $p < 0.01$). There was no significant difference between the other groups ($p < 0.05$ it must be ($p > 0.05$)).

Table 2. Evaluation of anthropometric properties of women by groups

Woman	Rowing	Handball	p
	AVG±SD	AVG±SD	
Age (years)	19,69±0,95	28,5±5,32	0,001**
Weight (kg)	62,13±6,94	66,14±10,8	0,213
Height(cm)	173,19±6,04	170,67±7,89	0,308
BMI (kg/m ²)	20,66±1,37	22,63±2,68	0,011*

Student t-Test * p<0.05 ** p<0.01

The average age of women in the handball group is statistically significantly higher than in the Rowing group (p:0.001 p<0.01). The average BMI of women in the handball group is statistically significantly higher than in the Rowing group (p:0.011; p<0.05). There was no statistically significant difference between the groups in terms of the average weight and height of the women (p>0.05).

Table 3. COVID-19 anxiety scale score assessment by groups

	Football	Rowing	Handball	p
	AVG±SD	AVG±SD	AVG±SD	
Covid-19 Anxiety Score	36,74±11,42	57,59±10,63	50,55±13,37	0,001**

Oneway ANOVA Testing

According to the groups, a significant difference was found between the Covid-19 Anxiety scores (p<0.01). As a result of the Post-Hoc tests performed to determine which group the difference originated from, the football group's anxiety score was significantly lower than that of the rowing and handball groups (p1:0.001; p2:0.001; p<0.01). There was no significant difference between the Rowing and handball groups (p>0.05).

Table 4. The relationship between macronutrients and covid-19 anxiety scale score

	Football		Rowing		Handball	
	r	p	r	p	r	p
Energy (Kcal)	-0,339	0,062	-0,243	0,179	-0,129	0,506
Protein (g)	-0,298	0,104	-0,111	0,544	-0,223	0,244
Protein (%)	0,036	0,846	0,524	0,002**	-0,200	0,297
Animal Protein (g)	0,047	0,804	-0,214	0,239	-0,084	0,665
Vegetable Protein (g)	-0,349	0,054	0,082	0,655	-0,217	0,257
Oil (g)	-0,342	0,059	-0,240	0,185	-0,112	0,565
Oil (%)	-0,187	0,313	-0,169	0,355	0,086	0,658
Polyunsaturated Fat	-0,166	0,371	-0,191	0,295	0,024	0,903
Monounsaturated Fat	-0,347	0,055	-0,224	0,218	-0,118	0,543
Saturated Fatty Acids	-0,334	0,066	-0,320	0,074	-0,156	0,420
Carbohydrates (g)	-0,234	0,205	-0,285	0,113	-0,054	0,782
Carbohydrate (%)	0,140	0,451	-0,171	0,350	0,047	0,807
Fiber (g)	0,022	0,909	-0,228	0,209	-0,175	0,363
Water Soluble Fiber (g)	0,176	0,344	-0,158	0,387	-0,171	0,375
Insoluble Fiber in Water (g)	0,072	0,700	-0,130	0,477	-0,113	0,560

r: Pearson Correlation Coefficient

**p<0.01

There was no significant relationship between macronutrients and Covid-19 Anxiety Scale score in the football group (p<0.05). In the rowing group, a similar, moderate (52.4%) significant correlation was found between the protein (%) consumption rate and the Covid-19 Anxiety Scale score (p:0.002; p<0.01). As the level of anxiety increases, the level of protein consumed (%) also increases. There was no significant relationship

between other macronutrients and the Covid-19 Anxiety Scale score ($p>0.05$). There was no significant relationship between macronutrients and Covid-19 Anxiety Scale score in the handball group ($p>0.05$).

Table 5. The relationship between diet quality scores and covid-9 anxiety scale score

	Football (n=31)		Rowing (n=32)		Handball (n=29)	
	r	p	r	p	r	p
Total Fruit Consumption	0,107	0,565	-0,374	0,035*	-0,123	0,526
Full Fruit Consumption	-0,071	0,704	-0,241	0,183	-0,230	0,230
Total Vegetable Consumption	0,243	0,188	0,407	0,021*	0,115	0,552
Dark Green Leafy Vegetables and Dried Legumes	-0,069	0,713	0,523	0,002**	-0,004	0,984
Whole Grains	-0,164	0,378	-0,422	0,016	0,044	0,823
Milk and milk products	0,037	0,843	0,167	0,360	-0,110	0,570
Total Protein Foods	0,060	0,749	0,533	0,002**	-0,189	0,326
Seafood and Vegetable Proteins	0,451	0,011*	0,281	0,119	0,059	0,761
Fatty Acids	0,035	0,852	-0,101	0,584	-0,233	0,223
Refined Foods	-0,052	0,783	-0,137	0,455	-0,017	0,932
Sodium	-0,021	0,912	-0,229	0,208	-0,013	0,948
Added Sugar	0,021	0,911	0,045	0,805	0,083	0,670
Saturated Fat	0,186	0,317	-0,171	0,351	0,016	0,934
Total Diet Quality Score	0,066	0,726	-0,155	0,398	-0,136	0,483

r: Pearson Correlation Coefficient

** $p<0.01$

* $p<0.05$

In the football group, a similar, moderate (45.1%) significant correlation was found between the seafood and vegetable proteins scores and the Covid-19 Anxiety Scale score ($p:0.011$; $p<0.05$). As the level of anxiety increases, the score of seafood and vegetable proteins also increases. There was no significant relationship between other diet quality scores and the Covid-19 Anxiety Scale score ($p>0.05$). In the rowing group, a significant inverse, moderate (37.4%) correlation was found between the total fruit consumption score and the Covid-19 Anxiety Scale score ($p:0.035$; $p<0.05$). As the anxiety level increases, the total fruit consumption score decreases. A similar, moderate (40.7%) significant correlation was found between the total vegetable consumption score and the Covid-19 Anxiety Scale score ($p:0.021$; $p<0.05$). A similar, moderate (52.3%) significant correlation was found between the dark green leafy vegetables and legumes consumption score and the Covid-19 Anxiety Scale score ($p:0.002$; $p<0.01$). There was an inverse, moderate (42.2%) a significant correlation between the whole grains consumption score and the Covid-19 Anxiety Scale score ($p:0.016$; $p<0.05$). As the anxiety level increases, the whole grains consumption score decreases. A similar, moderate (53.3%) significant correlation was found between the total protein food consumption score and the Covid-19 Anxiety Scale score ($p:0.002$; $p<0.01$). As the anxiety level increases, the total vegetable consumption score, the dark green leafy vegetable, and legume consumption score, and the total protein food consumption score also increase. There was no significant relationship between other diet quality scores and the Covid-19 Anxiety Scale score ($p>0.05$). There was no significant relationship between diet quality scores and Covid-19 Anxiety Scale scores in the handball group ($p>0,05$).

DISCUSSION

In this period, when the anxiety level of the athletes changes, their nutritional status can also change. The research design for this purpose aims to examine the anxiety of contracting Covid-19 in athletes and the effect of this anxiety on their nutritional status and diet quality.

According to the type, duration, and intensity of training that athletes do, the energy they spend may vary; accordingly, the amount and types of nutrient intake may vary. Therefore, the food consumption amounts and nutritional quality of the athletes engaged in football, rowing, and handball may differ.

There are many studies in the literature investigating the nutritional consumption of athletes. However, studies examining the food consumption of handball and rowing players are more limited compared to football. In a study conducted with 43 male athletes (19 football players and 24 volleyball players) aged between 18-35 in 2021, The average energy intake of football players was 3344.87 ± 741.50 kcal, carbohydrate consumption was 337.53 ± 85.33 grams, protein consumption was 134.97 ± 28.57 grams, fat consumption was 150.97 ± 45.71 grams, saturated fatty acid consumption was (%) 11.69 ± 1.83 , MSFA consumption was (%) 14.58 ± 3.30 , PSFA consumption was (%) 10.91 ± 3.77 (Ayhan et al. , 2021). In the study conducted in 2021, it was seen that the amounts of all macronutrients except MSFA and saturated fatty acid, which are the amounts of macronutrients consumed by the football players, were higher than the consumption amounts of the football players in this study.

A study conducted in New Zealand with 62 rowers (28 men, 34 women) examined the macronutrients consumed by athletes as a result of a 7-day nutritional consumption record kept. Macronutrient consumption amounts of the male athletes were found as follows; The amount of energy was 3726 ± 1289 kcal, the amount of carbohydrates was 510 ± 190 grams, the amount of protein was 170 ± 70 grams, and the amount of fat was 110 ± 45 grams. The amount of macronutrient consumption of female athletes was found as follows; energy 2579 ± 906 kcal, carbohydrates 370 ± 160 grams, protein 104 ± 44 (g), fat 91 ± 44 grams (Braakhuis et al. , 2013). Of the macronutrients consumed by male rowers in this study, only the amount of oil consumption was higher than in the study conducted in New Zealand, and the amounts of all other macronutrients were found to be lower. It was discovered that the consumption levels of all macronutrients in this study were significantly lower than the consumption levels in the study carried out in New Zealand when looking at the consumption quantities of macronutrients by female athletes.

In a 2011 study involving a total of 26 male athletes (11 basketball players, 7 handball players, and 8 basketball players), including handball players, the macronutrient intakes of the athletes were examined. The energy intake of athletes was $2,654 \pm 821$ kcal, carbohydrate intake was 331 ± 123 grams, protein intake was 121 ± 32 , and fat intake was 88 ± 34 grams (Braakhuis et al. , 2013). In the study conducted in 2011, the amounts of macronutrients consumed by handball players were not given separately, so they are not directly compared with the consumption amounts of handball players in this study. However, if the average macronutrient consumption amounts of all male athletes in this study are compared, it was seen that the consumption amounts of all other macronutrients, except the amount of fat consumption, were higher in the previous study. In this study, it was observed that the athletes' energy, carbohydrate, and protein intakes were lower than the macronutrient intakes and that the fat intakes were similar.

Not many studies in the literature use HEI scoring to evaluate the dietary quality of athletes. In 2015, a study was conducted that examined the dietary qualities of a total of 157 athletes, including football, handball, and volleyball players. As a result of the study, it was found that no athlete had a "good" diet score. At this point, it is seen that it shows a similar result to this study. It was observed that the best scores obtained by athletes were from the protein foods group, while the lowest scores were from fruits, vegetables, whole grains, and dairy products (Padovani and Juzwiak, 2015). In this study, it was also seen that the best scores obtained were from the protein foods and fatty acids group, and the lowest scores obtained were in the whole grain and total fruit groups and showed similar results as the study conducted in 2015.

In another study conducted with 13 baseball players in 2017, 3-day food consumption records were taken with the 24-hour reminder method, and HEI scores were compared in this direction. When looking at the total HEI scores, it was found to be 56.4 ± 5.3 on the day without a match, 57.9 ± 6.0 on the day of the game at home and 55.9 ± 7.5 on the day of the away game. When the average of these 3 days was examined, it was seen that the best score came from protein foods and the lowest score came from vegetable and fruit groups (Malinauskas et al. , 2007). In a study conducted by Webber and colleagues with 138 university athletes in 2015, the average HEI score was $51 \pm 8\%$. At the same time, it was found that athletes received high scores for sodium and sugar components and low scores for pulp and vegetables (Webber et al. , 2015).

Most of the athletes are in the "bad" or "need to be improved" diet quality score group, and as a general comment, it is seen that the athletes should be informed in detail about sports nutrition, necessary training should be given, and they should make changes in their diets.

In the literature, in a study dated January-February 2020, licensed amateur athletes engaged in a total of 475 individual and team sports (football, volleyball, tennis, badminton, basketball, handball, judo, wrestling, taekwondo, karate, Muaythai, kickbox, boxer, swimming, fitness, athletics, archery, kayaking, and canoeing), the anxiety scale of athletes catching the new type of coronavirus (Covid-19) developed by Demir et al. was used. When individual anxiety scores were examined in the study, it was seen that men scored higher than women and had higher anxiety. Looking at the total score, it was seen that while it was 48.47 for men, it was 45.85 for women. At the same time, while the total score of anxiety of contracting Covid-19 was 49.27 in individual sports, it was found as 45.77 in team athletes. In the study, it was also observed that the anxiety score of football players about contracting Covid-19 was lower in team athletes and higher in handball players compared to this study. As a result, it was found that the anxiety of contracting Covid-19 in the team and individual athletes vary according to individual and team sports and gender, while it is similar according to the age of the athlete and the branch of the sport. When evaluated on the basis of sports branches, no significant difference was found between the total anxiety scores. Therefore, there is no significant difference between football, handball, and canoe branches in terms of total anxiety score. As a result of the study, it was reported that athletes might be said to have moderate anxiety about contracting Covid-19, and it is recommended to raise awareness about anxiety (Doğan, 2021). In this study, contrary to the mentioned study, there is a significant difference between the groups, and the handball group's score was found to be significantly higher than the football group.

Tekkurşun et al. conducted a study with 243 licensed athletes (ice hockey, mountaineering, curling, athletics, football, skiing, handball, and volleyball) aged between 18-29 who were students at Ankara University Faculty of Sports Sciences. (2020), and in this study, the anxiety of the athletes about contracting Covid-19. Measured In the study, a classification has been made according to the environment in which the sport is performed (outdoor-indoor), the nature of the sport (contact-non-contact), and the type of sport (individual-team). As a result of the research, it was seen that individuals who do sports indoors have a higher level of anxiety than those who do sports outdoors. It has been found that the anxiety levels of contracting coronavirus in athletes who are interested in sports with physical contact are higher than in athletes of sports that do not require physical contact. At the same time, the anxiety of athletes interested in individual sports and athletes involved in team sports about contracting Covid-19 turned out to be significantly lower (Ağduman, 2021). In this study, in contrast to the other study in the literature, it was observed that football and handball groups that required physical contact had lower anxiety levels than the rowing group that did not require physical contact. The reason for this is that the environment in which the rowers live is not as crowded as other groups, but because they generally work with a professional team (trainer, assistant coach, physiotherapist, masseur, doctor), their environment on training and race days may be no different from other team sports that require contact.

This study examined the relationship between the anxiety of contracting Covid-19 of athletes interested in different sports branches and the changes in food consumption amounts and diet quality components. However, There is no study in the literature that directly addresses the relationship between athletes' anxiety about contracting Covid-19, nutritional status, and diet quality. In addition, some studies have found links between anxiety and healthy eating behaviors, eating habits, attitudes, and emotional eating.

A study investigating the relationship between anxiety and depression and diet quality consisted of 86 male and 139 female university students aged 18-25. The anxiety levels of the individuals were measured with GAD-7 (Generalized anxiety disorder scale), and 24-hour food consumption records were taken. As a result, it was found that depression and anxiety symptoms were associated with decreased calorie intake and increased sugar consumption in all participants. There was no significant relationship between the total diet quality score and other components (Keck et al. , 2020).

In the literature, 243 female athletes from different branches were included in a study conducted with athletes in our country. In the content of the study, athletes with and without irregular eating behavior were compared. Anxiety levels of the athletes were evaluated with the STAI test, and their eating attitudes were evaluated with the EAT-40 test. As a result, it has been determined that athletes who have problems with eating behaviors have higher trait and state anxiety levels than athletes who do not have problems with eating behaviors (Vardar et al. , 2007).

CONCLUSION

According to the information obtained from the literature and the data obtained from our study, it is possible to say that anxiety is a condition that can often occur in athletes. In addition, it has been found that the anxiety of athletes about contracting Covid-19 is very common among athletes, albeit at different levels, as a result of studies. In this study, it is possible to say that athletes have moderate anxiety about contracting Covid-19. However, in addition to all this, there is no study in the literature that directly addresses the impact of anxiety about contracting Covid-19 on nutritional status and diet quality. In this study, in the football group, a statistically significant correlation was found between the seafood and vegetable proteins scores and the Covid-19 Anxiety Scale score. In the rowing group, a significant inverse relationship was found between the total fruit consumption score and the Covid-19 Anxiety Scale score ($p<0.05$). A significant correlation was found between the total vegetable and whole grain and protein consumption score and the Covid-19 Anxiety Scale score ($p<0.05$). As the anxiety level increases, the whole grains consumption score decreases. There was no significant relationship between diet quality scores and Covid-19 Anxiety Scale scores in the handball group ($p>0.05$).

We may conclude that anxiety is a prevalent problem in athletes based on data from several research in the literature and the findings of this study. In addition, it has been shown by different studies that negative mood states such as stress and anxiety can affect the nutritional habits, nutritional status, and diet quality of individuals, but there is no study that directly shows the relationship between Covid-19 anxiety and food consumption amounts or diet quality.

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Conflict of Interest

There is no conflict of interest

Author Contributions

Plan, design: DS; Material, methods and data collection: BT; Data analysis and comments: DS, BT; Writing and corrections: DS.

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