ORIGINAL ARTICLE

The habits of wrestlers to use nutrition, nutritional supplements, beverages, medicine and vitamins

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ABSTRACT

Background: A survey was conducted on the habits of wrestlers using nutrition, nutritional supplements, sports, energy drinks, vitamins, and drugs during and out of the season

Material and Methods: The results were evaluated as a percentage (%) and frequency(f) in the SPSS 21.0 package program. 69 male and 36 female licensed athletes participated in the study. 79.71% of male athletes and 63.89% of female athletes are national athletes. There is a dietitian in the clubs where 76.81% of male athletes and 47.22% of female athletes wrestle. During the season, 46.38% of male athletes and 47.22% of female athletes skip meals. 84.38% of male athletes and 52.94% of female athletes skip breakfast. 53.62% of male athletes and 52.78% of female athletes consume 3 main meals + 2 snacks.

Results: Before the competition, 34.78% of male athletes had a protein-based diet, and 36.11% of female athletes had a plant-based diet. After the competition, 36.23% of male athletes adopt a protein-based diet, 33.33% of female athletes consume protein and 33.33% of them prefer consuming carbohydrates. 81.16% of male athletes and 66.67% of female athletes consume the last meal 2.5 - 3 hours before the competition. 75.36% of male athletes and 44.44% of female athletes consume between 1.5 and 2.0 L of liquid after the competition. 91.30% of male athletes and 72.22% of female athletes stated that they received information about nutrition from their trainers. 97.10% of male athletes and 91.67% of female athletes use one or more nutritional supplements.

Conclusions: Athletes use the most protein supplements, creatine, BCAA, L-carnitine, and fish oil. 10.14% of male athletes and 13.89% of female athletes consume energy drinks, 95.65% of male athletes and 88.89% of female athletes use sports drinks, 95.65% of male athletes and 83.33% of female athletes get vitamins. So that a possible injury in the competition does not affect their performance, 8.69% of male athletes and 22.22% of female athletes use analgesics before the competition. As a result, we think that it is important for athletes and coaches to follow up-to-date nutrition information, which will be given by experts.

Keywords: wrestling, nutrition, nutritional supplement, sports drink, vitamin, medicine

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INTRODUCTION

Body weight and composition, flexibility, muscle strength, muscular endurance and power, anaerobic power, and cardiovascular fitness are the most important physical and physiological requirements for wrestlers' competitive success. Flexibility, strength, aerobic and anaerobic capacity features of successful wrestlers are better than others, and it is emphasized that these features should be developed for success. Wrestling is a sport in which aerobic and anaerobic energy systems are used, characterized by sudden-explosive moves and counter moves that continue for 6 minutes. While the anaerobic energy system is actively working in activities during periods, the aerobic energy system comes into play during rest to provide recovery. The anaerobic power of the leg and arm muscles is an important factor that determines success in wrestling [1].

Wrestlers may lose weight because they believe it will increase their chances of success in competition, but their health and performance are negatively affected. Weight loss in wrestlers results in a decrease in body water, glycogen, lean tissue, and, to a lesser extent, fat tissue. When food and fluid restriction come together, they create a synergistic effect, causing physiological side effects that reduce competitiveness against the opponent [2].

The wrestler's nutrition plan is formed taking into account gender, age, sports age, general health status, height, weight, body fat percentage, nutritional knowledge level, nutritional habits, and social and economic conditions. For a wrestler to achieve optimal performance, it is necessary to use adequate and balanced nutrition, adequate water and fluid intake, weight control, ergogenic items, and supplements where necessary [3].

Our study aims to examine the nutrition, nutritional support products, and drug and vitamin usage habits of wrestling athletes in and out of season.

MATERIAL AND METHODS

A questionnaire consisting of 89 questions was applied to the wrestlers in the season and out of season, regarding their daily nutritional status, fluid consumption, nutritional status before and after the competition and between 2 training sessions, nutritional supplement, vitamin usage habits, and drug use in case of health problems. The questionnaires were distributed and collected by the researchers under the supervision of their trainers. The results were evaluated as a percentage (%) and frequency(f) in the SPSS 21.0 package program.

Approval for the study was obtained from the Clinical Research Ethics Committee of Marmara University Faculty of Medicine (09.2021.466).

RESULTS

A total of 105 licensed wrestling athletes, 69 male and 36 female, participated in our study. 63.89% (f:23) of female athletes and 79.71% (f:55) of male athletes are national athletes (Table 1).

Characteristics of athletes	Male athletes Ave.± SD (Min-max)	Female athletes Ave.± SD (Min-max)
Age (year)	25.52±2.25 (20 - 32)	24.17±2.86 (20 - 35)
Weight (kg)	85.25±9.94 (65.00-122.00)	65.42±9.42 (50-80)
Height (cm)	179.06±6.01 (170.00-202.00)	167.31±5.57 (155-185)
BMI (kg/ m²)	26.57±2.57 (19.58-36.42)	23.37±3.20 (16.95-29.74)
Training age (year)	11.10±2.46 (6-20)	10.25±2.83 (1-16)
National athlete		
Yes	79.71 (55)	63.89 (23)
No	20.29 (14)	36.11(13)

Table 1. Demographic characteristics of athletes and their status as national athletes.

Considering their education levels, 47.83% (f:33) of male athletes are high school graduates, 49.27% (f:34) are university graduates, and 2.9% (f:2) of them have master's degrees. 50% (f:18) of the female athletes are high school graduates, 47.22% (f:17) are university graduates, and 2.78% (f:1) of them have master's degrees.

The question of whether the club you are a member of has a dietitian/nutritionist is answered by 76.81 % (f:53) of male athletes as yes, 23.19% (f:16) as no, 47.22 % (f:17) of female athletes as yes, 52.78% (f:19) as no. In addition, the question of whether you have sufficient knowledge about sports nutrition is answered by 98.55% (f:68) of male athletes as yes, 1.45 % (f:1) as no, 88.89% (f:32) of female athletes as yes, 11.11% (f:4) as no.

91.30% (f:63) of male athletes and 72.22% (f:26) of female athletes stated that they knew about nutrition from the trainer (Table 2).

Source of information	Male athlete % (f)	Female athlete % (f)
Trainer	91.30(63)	72.22 (26)
Dietitian	8.70 (6)	22.22 (8)
Doctor	-	2.78 (1)
An athlete friend	-	2.78 (1)

Table 2. Sources for athletes to learn about nutrition.

During the season, 46.38% (f:32) of male athletes and 47.22% (f:17) of female athletes stated that they skipped meals in their daily diet. 53.62% (f:37) of male athletes and 52.78% (f:19) of female athletes stated that they did not skip meals. 84.38% (f:27/32) of male athletes who skipped meals stated that they left out breakfast, and 15.62% (f:5/32) stated that they omitted lunch from their diet. Of the female athletes who skipped meals, 52.94% (f: 9 / 17) stated that they skipped breakfast, and 47.06 (f: 8/17) stated that they skipped lunch.

While all of the male athletes (100%) and 91.67% (f:33) of the female athletes think that they have an adequate/balanced diet during the season, 8.33% (f:3) of the female athletes do not think that they have an adequate/balanced diet. While 97.10% (f:67) of male athletes and 91.67% (f:33) of female athletes think that they have adequate/balanced nutrition in the off-season, 2.90% (f:2) of male athletes and 8.33% of female athletes do not think that they have an adequate/balanced diet. The question " Athletes are recommended to consume 3 main meals + 2 snacks during the season. Do you pay attention to this suggestion?" is answered by 53.62% of male athletes (f:37) and 52.78% of female athletes as yes. In addition, the question "Do you pay attention to consuming 3 main meals in the off-season?" is answered by 94.20 % (f:65) of male athletes and 86.11% of female athletes (f:31) as yes. 5.80% of male athletes (f:4) and 13.89% of female athletes (f:5) have answered this question as no.

97.10% of male athletes (f:67) and 86.11% of female athletes (f:31) have answered the question "Do you pay attention to the carbohydrate consumption of 7-12 g/kg/day during the season?" as yes, while 2.90 % (f:2) of male athletes and 13.89% of female athletes (f:5) have answered the same question as no.

97.10 % (f:67) of male athletes and 94.44 % (f:34) of female athletes have answered the question " Do you pay attention to the carbohydrate consumption of 1-1.2 g/kg/day in the off-season?" as yes. 2.90% (f:2) of male athletes and 5.56% (f:2) of female athletes answered this as no.

While 95.65% (f:66) of male athletes and 91.67% (f:33) of female athletes answered yes to the question “Do you consume at least one of the meat/fish/chicken products 3 days a week during the season?", 4.35 % (f:3) of male athletes and 8.33 % (f:3) of female athletes responded as no.

While 95.65% (f:66) of male athletes and 86.11% (f:31) of female athletes answered yes to the question “Do you consume at least one of the meat/fish/chicken products 3 days a week during the off-season”, 4.35% of male athletes (f:3) and 13.89% (f:5) of female athletes responded this question with the answer of no.

While 42.03% (f: 29) of male athletes and 80.56% (f:29) of female athletes answered yes to the question "Do you have a habit of eating sweets during the season," 57.97% of male athletes (f:40) and 19.44% (f:7) of female athletes answered no.

On the other hand, 53.62% (f:37) of male athletes and 88.89% (f:32) of female athletes have answered yes to the question "Do you have a habit of eating sweets during the off-season?" and 46.38% of male athletes (f:32) and 11.11% of female athletes (f:4) answered as no. (Table 3)

	During season		During off-season	
Dessert preference	Male athlete % (f)*	Female athlete % (f) *	Male athlete % (f)*	Female athlete % (f)*
Milky desserts (rice pudding etc.)	51.72(15/29)	62.07(18/29)	50.54(15/37)	59.37 (19 /32)
Cake	31.03 (9/29)	34.48(10/29)	35.13 (13/37)	25.00 (8/32)
Dessert with syrup (baklava etc.)	24.14 (7/29)	31.03 (9/29)	24.32 (9/37)	31.25 (10/32)

**Multiple selection option*

Table 3. The dessert consumption preferences of athletes.

Before the competition, 34.78% of male athletes applied a protein-based diet, whereas 36.11% of female athletes consumed mostly vegetables and fruits. After the competition, 36.23% of male athletes have a protein-based diet, 33.33% of female athletes have a protein-based diet and 33.33% of them have a carbohydrate-based diet (Table 4). 81.16% (f:56) of male athletes and 66.67% (f:24) of female athletes consume their last meal 2.5-3.0 hours before the competition (Table 5).

	Before competition		After competition	
Diet Type	Male athletes % (f)	Female athletes % (f)	Male athletes % (f)	Female athletes % (f)
Protein-based	34.78(24)	33.33 (12)	36.23(25)	33.33 (12)
Carbohydrates-based	33.33(23)	30.55 (11)	33.33(23)	33.33 (12)
Plant-based	31.88(22)	36.11(13)	30.43 (21)	27.78 (10)
Fast food type diet	-	-	-	5.56 (2)

Table 4. Nutritional habits of athletes before and after competition.

Time for athletes to consume their last meal before the competition	Male athletes % (f)	Female athletes % (f)
Before 1.0- 1.5 hours	7.25 (5)	2.78 (1)
Before 2.5-3.0 hours	81.16 (56)	66.67 (24)
Before 3.0-4.0 hours	11.59 (8)	30.55 (11)

Table 5. Time for athletes to consume their last meal before the competition.

During the half-time of the competition, 78.26% (f:54) of male athletes consumed 0 – 0.5L of liquid, 58.33% (f:21) of female athletes consumed 0.5 – 1.0 L of liquid, while 75.36% (f:52) of male athletes consumed 0 – 0.5L of liquid. 44.44% (f:16) of female athletes consume between 1.5 and 2.0 L of liquid after the competition (Table 6).

	Half-time		After competition	
Amount of fluid consumed	Male athletes % (f)	Female athletes % (f)	Male athletes % (f)	Female athletes % (f)
0 – 0.5L	78.26 (54)	36.11(13)	1.45 (1)	5.56(2)
0.5 – 1.0 L	21.74 (15)	58.33 (21)	11.59(8)	16.67(6)
1.0 – 1.5 L	-	5.56 (2)	11.59(8)	33.33(12)
1.5 – 2.0 L	-	-	75.36 (52)	44.44(16)

Table 6. Fluid consumption of athletes during half-time and after the competition.

When there are 3 hours between two training sessions during the day, 76.81% (f: 53) of male athletes and 52.78% (f: 9) of female athletes consume mostly vegetables and fruits (Table 7). 97.10% (f:67) of male athletes and 91.67% (f:33) of female athletes use one or more nutritional support products (Table 8). 16.42% (f: 11/67) of male athletes and 18.18% (f: 6/33) of female athletes continue to use nutritional supplements during the off-season.

100% of male and female athletes, who benefit from nutritional support products, state that they use these products to increase muscle strength, while 95.62% of male athletes (f: 64/67) and 96.97% of female athletes (f: 32/33) point out that they use nutritional supplements to make activities easier.

Diet	Male athletes % (f)	Female athletes % (f)
Soup, salad, fruit	4.35 (3)	5.55(2)
Light calorie foods	8.70 (7)	33.33 (12)
Plant-based	76.81(53)	52.78 (19)
Chicken and salad	1.45 (1)	--
Carbohydrate-based	1.45 (1)	2.78(1)
Protein-based	2.99 (2)	--
Rice and fruits	1.45 (1)	--
Nuts	1.45 (1)	--
Salad	---	5.65(2)

Table 7. Nutritional habits of athletes when there are 3 hours between two training sessions.

Nutritional supplement product	Male athletes % (f)*	Female athletes % (f)*
Protein supplement	100.00(67/67)	96.97(32/33)
Creatine	98.51(66/67)	96.97(32/33)
BCAA	95.52 (64/67)	63.64(21/33)
L-Carnitine	94.03 (63/67)	96.97(32/33)
Fish Oil	92.64 (62/67)	96.97(32/33)
Glutamine	23.88 (16/67)	51.51(17/33)
Coenzyme Q-10	2.98 (2/67)	-
Melatonin	-	6.06(2/33)

* *Multiple selection options*

Table 8. Nutritional supplements athletes use.

The majority of athletes who use nutritional supplements use these products during the in-season period (Table 9).

Frequency of using nutritional supplements	Male athletes % (f)	Female athletes % (f)
In-season + off-season	16.42 (11/67)	18.18 (6/33)
In-season	71.64 (48 /67)	54.55 (18/33)
During the camp period	11.94 (8 /67)	21.21(7/33)
When an injury occurs	-	6.06 (2/33)

Table 9. Frequency of use of nutritional supplements by athletes.

10.14% of male athletes (f:7) and 13.89% of female athletes (f:5) consume energy drinks while 95.65% (f:66) of male athletes and 88.89% (f:32) of female athletes use sports drinks (Table 10).

Frequency of the consumption of energy drinks	Male athletes % (f)	Female athletes % (f)
Every day during the season	57.14 (4/7)	20.00(1/5)
Training Time	28.57 (2/7)	-
Once or twice a week	14.28 (1/7)	40.00 (2/5)
Competition Time	-	40.00 (2/5)
Frequency of the consumption of sports drinks		
Before training	83.83 (55/66)	62.50 (20 /32)
Every day during the season	12.12 (8/66)	18.75(6/32)
Every day regularly	4.55 (3/66)	18.75(6/32)

Table 10. Frequency of athletes using energy drinks and sports drinks.

All male and female athletes who use sports drinks stated that they make their choice based on the content of the product. 36.36% of male athletes (f:24/66) and 37.50% of female athletes (f:12/32) pay attention to the fact that it contains minerals (Table 11).

Criteria	Male athletes % (f)	Female athletes % (f)
includes mineral	36.36 (24/66)	37.50 (12/32)
includes amino acid	34.85 (23/66)	28.12 (9/32)
includes carbohydrate	28.79 (19/66)	34.38 (11/32)

Table 11. Criteria that athletes pay attention to in content

While 95.65% (f: 66) of male athletes and 83.33% (f: 30) of female athletes use vitamins, 4.35% (f: 3) of male athletes and 16.67% (f: 6) of female athletes do not use vitamins.

While 81.82% of male athletes (f:54/66) and 53.33% of female athletes (f:16/30) who use vitamins state that they purchase vitamins from a nutritional supplement sales store, 18.18% of male athletes (f:12/66) and 46.67% of female athletes (f:14/30) point out they buy vitamins from a pharmacy.

While 86.36% (f:57) of male athletes who use vitamins answered the question "Do advertisements affect your choice in vitamin use?" as no, and 13.64% of them (f:9) as yes, 80.00% of female athletes (f:24), who use vitamins, answered the same question as no and 20.00% of them (f:6) as yes (Table 12).

Possible effects of vitamins according to athletes	**Male athletes % (f)***	**Female athletes % (f)***
They strengthen the immune system	98.55(68)	97.22(35)
They accelerate metabolism	97.10 (67)	91.67 (33)
They provide energy	95.65 (66)	97.22 (35)
They increase endurance	95.65 (66)	97.22 (35)
They increase strength	95.65 (66)	94.44 (34)
They cause weight gain	11.59 (8)	2.78(1)

**Multiple selection options*

Table 12. Athletes' thoughts about the effects of vitamins.

To prevent a possible injury from affecting their performance during the competition, 8.69% of male athletes (f:6) and 22.22% of female athletes (f:8) use analgesics before the competition. 72.22% (f:26) of female athletes stated that they complained of severe pain during menstruation, and 27.78% (f:10) stated that they did not. Of those who complained of pain, 80.77% (f:21) stated that they used analgesics containing Naproxen sodium to reduce pain, and 19.23% (f:5) stated that they did not use analgesics (Table 13).

100% of male athletes and 94.44% of female athletes (f:34) answered the question "In case of health problems such as headache, toothache, flu, gastrointestinal infection, etc., do you consult experts (doctor, dentist, pharmacist) when you need to use

medication?" as yes. 5.56% (f:2) of female athletes stated that they used medications they had used before in similar situations (Table 14).

Content of the analgesic used	Male athletes % (f)	Female athletes % (f)
Diclofenac potassium	33.33(2/6)	50.00(4/8)
Paracetamol + chlorpheniramine maleate	50.00(3/6)	-
Paracetamol	-	37.50(3/8)
Paracetamol +caffeine	16.67(1/6)	-
Dexketoprofen trometamol	-	12.50(1/8)

Table 13. Analgesic drugs used by athletes before competition.

Experts	Male athletes % (f)	Female athletes % (f)
Doctors	66.67 (4 /6)	25.00 (2/8)
Pharmacists	16.66 (1 /6)	37.50 (3/8)
Physiotherapist	16.66 (1 /6)	37.50 (3/8)

Table 14. People whom athletes consult when using analgesics.

DISCUSSION

The reasons why athletes use nutritional supplements include various purposes such as increasing muscle strength and muscle mass, increasing endurance and increasing fat burning. One of the reasons why athletes use energy drinks, sports drinks, and nutritional supplements is to regain the energy lost during intense physical activities. In addition, applying a correct diet for the characteristics of the sports branch affects the athlete's performance.

Among the wrestlers who participated in our study, 46.38% of male athletes and 47.22% of female athletes skipped meals during the in-season period. 84.38% of male athletes and 52.94% of female athletes skip breakfast. 53.62% of male athletes and 52.78%

of female athletes consume 3 main meals + 2 snacks. Before the competition, 34.78% of male athletes adopted a protein-based diet, while 36.11% of female athletes applied a diet based on fruits and vegetables. After the competition, 36.23% of male athletes have a protein-based diet, 33.33% of female athletes adopt a protein-based diet, and 33.33% of them have a carbohydrate-based diet.

81.16% of male athletes and 66.67% of female athletes consume their last meal 2.5 - 3 hours before the competition. 75.36% of male athletes and 44.44% of female athletes consume between 1.5 and 2.0 L of fluid after the competition. 97.10% of male athletes and 91.67% of female athletes use one or more nutritional supplements. Athletes mostly use protein supplements, creatine, BCAA, L-carnitine, and fish oil. 10.14% of male athletes and 13.89% of female athletes use energy drinks, 95.65% of male athletes and 88.89% of female athletes use sports drinks, and 95.65% of male athletes and 83.33% of female athletes use vitamins. Our findings are parallel to the results of studies conducted with wrestling athletes in the literature.

In the study conducted with 28 male wrestling athletes aged between 19 and 30 years, 53.6% of whom are university graduates, it was stated that 89.3% of the athletes consumed 3 main meals, 71.4% consumed 2 snacks, and all of the athletes had breakfast on the training day. It was stated that 71.4% of the athletes used nutritional supplements and 53.6% used sports drinks [4].

In the survey conducted with 197 athletes (166 men, 31 women) in the Turkish wrestling national team, 42.6% of the athletes stated that they got their knowledge about sports nutrition from coaches and 28.4% from nutrition and diet experts. 87.31% of the athletes selected the option "I consume my last meal 3-4 hours before the competition" and 85.28% selected the option "I have breakfast regularly" [5].

A study was conducted on the nutritional status of 96 male wrestling athletes, aged between 18 and 30 years, 46.9% of whom were in the national team. 17.7% of the athletes do not skip meals and have 3 main meals and 3 snacks. Although 90.6% of them stated that they paid attention to their nutrition during training periods, it was observed that only 31.3% had their last meal 3-4 hours before training and only 46.9% had a meal in the first 30 minutes after training or competition. In addition, it was observed that before training or competition, 42.7% consumed protein-rich foods, 39.6% consumed carbohydrate-rich foods, and after training or competition, 52.1% consumed protein-rich foods, and 33.2% consumed carbohydrate-rich foods. It was noticed that 33.3% of the athletes used nutritional support products and stated that their purpose of use was to increase the body-muscle ratio and not feel tired when they used whey protein, creatine, glutamine, and BCAA. 38.5% of the athletes stated that they learned nutrition information from the coach [6].

In the survey study conducted by Yıldırım and Şahin with 123 elite wrestlers, 30.1% of the participants answered "I agree" to the item "I use ergogenic aids", while 31.7% stated that they used nutritional ergogenic aids (creatine, carnitine, amino acids, etc.) [7]

Besides, in a survey in which approximately 21000 student-athletes participated, it was reported that the creatine use rate was 14.0% among all athletes in the last 12 months, and the highest creatine use

prevalence was among wrestlers with the ratio of 29% [8].

A survey was conducted with 129 professional male wrestlers aged between 15 and 17 years. 31.8% of athletes, 97.5% of whom are high school graduates, skip meals during the day. It was found that 36.6% of those who skipped meals skipped their breakfast and 46.3% skipped their lunch. It was observed that 16.4% of the athletes used sports drinks, 89.5% of them used sports drinks, and 10.5% used energy drinks. While 24.8% of the athletes stated that they used ergogenic support products to increase sports performance, 15.5% stated that they used ergogenic support products.

35% of them stated that they used vitamin-mineral mixtures as ergogenic products, and 15% stated that they used protein powders. It was determined that 58% of the athletes believed that vitamins provide energy. 43.4% of the athletes stated that they received training in sports nutrition, 14% of them were trained by a nutritionist, and the rest received information from other sources, especially coaches and the media [9].

In Koç's study with one hundred and eighty elite wrestlers, he stated that 61.1% of the athletes were national athletes, 22.8% of the athletes skipped meals, and 46.3% of those who skipped meals skipped breakfast. 76.1% of the athletes stated that they consumed their last meal 3 - 4 hours before the competition or training, and 72.2% consumed their last meal within 0 - 1 hour after the competition or training. Before the competition or training, 42.2% of the athletes have a carbohydrate-rich diet and 17.8% have a protein-rich diet, while after the competition or training, 30.6% have a carbohydrate-rich diet and 21.7% have a protein-rich diet. Before the competition or training, 63.3% of the athletes consume between 0 - 500 mL of liquid, and after the competition or training, 50.6% consume between 0 -500 mL of liquid. 26.1% of the athletes use nutritional support products 72.3% stated that they use these products for performance improvement, and 74.5% stated that they use these products during the training period [10].

A study was conducted with a total of 931 athletes from various branches, 54 of whom were wrestling athletes studying at the School of Physical Education and Sports. 8.1% of the athletes stated that they received nutrition education from a coach and 1.1% from a dietician. 57.41% of the wrestling athletes stated that they consume 3 main meals a day, 51.85% consume 2 snacks a day, 38.89% consume energy drinks, 7.41% consume nutritional supplements, and 3.70% consume vitamins [11]. Athletes, like non-athletes, should consume at least 3 main meals and 2 snacks for a healthy diet and regular plasma glucose cycle [12].

Athletes should have their main meal at least 3-4 hours before training or competition. After training or competition, the meal should be consumed immediately. The first 2 hours after training and competition are considered as the "golden hours" for the recovery of stores [13]. Wrestlers should consume 400 - 600 mL of fluid 30 minutes before competition and exercise, 90 - 180 mL during exercise, and 450 mL of fluid for every 0.5 kg of weight loss after competition and exercise [3].

Foods are the fuel for every intensity of activity performed by athletes. For this reason, the nutrients consumed (breakfast / lunch / snack) constitute the fuel for the activities

(training/match) to be done afterward. For this reason, breakfast and lunch, especially consumed early in the day, will ensure the fullness of the fuel tanks in the body to be used during the activity. In our study, when there are 3 hours between 2 training sessions during the day, 76.81% of male athletes and 52.78% of female athletes have a diet based on vegetables and fruits. Consuming carbohydrates and protein during the early stages of post-exercise recovery has been shown to positively impact subsequent exercise performance and may provide benefits for athletes participating in multiple training or competition sessions on the same day or consecutive days [14].

The body's glycogen stores are limited and decrease rapidly within a few hours of moderate to vigorous exercise. Maintaining these stores is of great importance for performance. For this reason, an athlete's daily diet must consist mainly of carbohydrates (65%) [13].

In our study, the majority of male and female wrestlers who have a habit of consuming desserts during the in-season and off-season periods prefer milky desserts. In a study conducted with licensed handball athletes (75 males, 70 females), 24.00% of male athletes prefer consuming milky dessert and 25.71% of female athletes prefer chocolate during the in-season period, while during the off-season, 20% of male athletes prefer milky desserts and 25.71% of female athletes prefer chocolate [15].

In our study, 91.30% of male athletes and 72.22% of female athletes stated that they learned nutrition-related information from the coach.

In the study conducted by Walsh et al., it was determined that athletes received nutritional information from their coaches at a rate of 66.9%, and nutritional knowledge and practices were found to be inadequate [16].

In the study of Jessri et al., 89.4% of the athletes mentioned their coaches as a source of nutrition information [17].

In the study of Zinn et al., the nutrition knowledge of the coaches was examined and it was observed that they could only answer 55.6% of the nutrition knowledge questions correctly. It is stated that coaches cannot give athletes sufficient information about nutrition and that they need to be trained [18].

The majority of male and female athletes who participated in our study think that vitamins strengthen the immune system, give energy, and increase endurance. In general, there is a common belief among athletes that vitamins will increase their performance and give them energy. Vitamins help create energy from carbohydrates and fats, they are not the main source of energy. In case of deficiency, athletic performance may decrease.

In our study, all male athletes (%100) and 94.44% of female athletes state that they consult experts when they need to use medication in situations such as headache, toothache, etc.

Athletes in sports prone to concussion, especially wrestlers, experience more headaches than athletes in other branches. In a study conducted with athletes in ten different sports branches, the prevalence of headaches among wrestlers was found to be significantly higher than in other branches [19].

To prevent a possible injury from affecting their performance during the competition, 8.69% of male athletes and 22.22% of female athletes use analgesics before the competition. In a study conducted with 100 young football players, aged between 13 and 19, actively playing football in teams operating in the U14-U19 league, 18% of the football players stated that they used painkillers before the match so that their performance would not be negatively affected in case of an injury during the match. They use products containing paracetamol, acetylsalicylic acid, naproxen, paracetamol + caffeine + codeine phosphate, diclofenac sodium (gel form), methyl salicylate + menthol (cream form) as painkillers [20].

In the study conducted with karate athletes (78 women and 70 men), 14.10% of female athletes and 18.57% of male athletes use analgesics before the competition. 36.36% of female athletes using analgesics use products containing diclofenac sodium, and 61.54% of male athletes use products containing paracetamol [21].

In a study conducted with licensed handball athletes (75 men and 70 women), 32% of male athletes and 51.43% of female athletes use analgesics before the match to prevent a possible injury from affecting their performance. Of the male athletes using analgesics, 41.67% use products containing diclofenac potassium, 20.83% use products containing flurbiprofen, 20.83% use paracetamol + caffeine, and 16.67% use products containing naproxen sodium. Of the female athletes using analgesics, 27.78% use products containing paracetamol, 16.67% use products containing diclofenac potassium, 16.67% use flurbiprofen, 16.67% use naproxen sodium, 11.11% use ketoprofen and 11.11% use products containing ketonal[15].

CONCLUSIONS

As a result, we believe that it is important for athletes and coaches to follow up-to-date information with nutrition training given by experts. We also suggest that when athletes use medication for any reason, they should check whether the active ingredient(s) of the medication is on WADA's list of prohibited substances for use in sports or its monitoring program.

REFERENCES

1. Savranbaşı R. Elit Erkek Serbest Güreşçilerde Kan Laktat Düzeyi, Kalp Atım Hızı ve Teknik Performans Arasındaki İlişkinin İncelenmesi, Spor Hekimliği Dergisi. 2011;46: 87-96.

2. Ersoy G. Fiziksel uygunluk (fitness)spor ve beslenme ile ilgili temel öğretiler, 2. baskı, Ankara Nobel Tıp Kitabevleri, Ankara, 2016;395-404.

3. Elmacıoğlu F. Güreşte Genel Beslenme İlkeleri, Güreş Antrenörleri Gelişim Seminer Notları, 2009, İzmir.

4. Karaman EDE. Serbest güreş milli takım sporcularının beslenme durumu, vücut kompozisyonu ve kilo kontrol yöntemlerinin değerlendirilmesi, Acıbadem Mehmet Aydınlar Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek lisans Tezi, 2019

5. Yıldız K. Türk güreş milli takım sporcularının beslenme alışkanlık düzeylerinin bazı demografik değişkenler açısından incelenmesi, Erzincan Binali Yıldırım Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans Tezi, 2023

6. Canbolat E. Güreş sporcularının beslenme durumlarının saptanması, Ankara Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans Tezi, 2016

7. Yıldırım Y, Şahin S. Research of knowledge and use levels of elite wrestlers about doping and ergogenic aids, J Sport Sci Res,2019;42(2):187 – 204.

8. Rexroat MA. NCAA National Study of substance use habits of college student-athletes: Final Report. Retrieved November 2014;14:2016.

9. Bilgiç P, Hamamcılar O, Bilgiç SC. Sporcuların beslenme bilgi ve uygulamaları, Beslenme ve Diyet Dergisi , 2011, 39(1-2);37 – 45.

10. Koç M. Milli takım gelişim kamplarına katılan güreşçilerin beslenme alışkanlıkları ve beslenme destek ürünü kullanma durumlarının incelenmesi, Kahramanmaraş Sütçü İmam Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans Tezi, 2014.

11. Ulaş AG. ADÜ Beden Eğitimi ve Spor Yüksekokulu Öğrencilerinin Sporcu Beslenmesi İle İlgili Farkındalıkları. Aydın Adnan Menderes Üniversitesi Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, 2018.

12. Maughan R. The athlete's diet: Nutritional goals and dietary strategies. Proceedings of Nutrition Society, 2002;61:87 – 96.

13. Ersoy N, Ersoy G. Sağlığın Korunmasında Fiziksel Aktivite ve Spor Beslenmesi Temel İlkeleri, Ankara Nobel Tıp Kitabevleri, Ankara, 2020;85-101.

14. Beelen M, Burke L, Gibola MJ. Nutritional strategies to promote post-exercise recovery. Int J Sport Nutr Exerc Metab, 2010 ;20 (6):515 – 532.

15. Ayça İB, Taşbaş ÖD, Çakıroğlu B. Nutrition, nutritional supplements, sports drink, vitamins and drugs usage habits of handball athletes in season and out of season periods, 5th International Conference on Medical & Health Sciences, Proceedings Book pp 102-112, 18 – 19 July, 2022, Sivas-Türkiye

16. Walsh M, Cartwright L, Corish C, Sugrue S, Wood-Martin R. The body composition, nutritional knowledge, attitudes, behaviors, and future education needs of senior schoolboy rugby players in Ireland. Int J Sport Nutr Exerc Metab. 2011 Oct;21(5):365-76.

17. Jessri M, Jessri M, RashidKhani B, Zinn C. Evaluation of Iranian college athletes' sport nutrition knowledge. Int J Sport Nutr Exerc Metab. 2010 Jun;20(3):257-63.

18. Zinn C, Schofield G, Wall C. Evaluation of sports nutrition knowledge of New Zealand premier club rugby coaches. Int J Sport Nutr Exerc Metab ,2006;16 (2): 214 – 225.

19. Jahani P, Salesi M, Marzban M, Abdollhifard G. The prevalence of headache among athletic university students. Asian J Sports Med, 2016 Mar;7(1): e33515.

20. Ayça, İB, Koç A. Academy league footballers' usage habits of drugs, vitamins, and nutritional support products, International Meeting Education &Research In Health Sciences (IMER-HS), Abstract Book,3-5 November 2017, İstanbul-Türkiye

21. Ayça İB, Taşbaş ÖD. Nutrition, nutritional supplements, vitamins, and drug usage habits of karate athletes, 2. International Dicle Scientific Studies and Innovation Congress, Congress Book pp.203- 204, 28 – 29 May 2022, Diyarbakır-Türkiye.

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