

Nutritional Knowledge and Perceived Stress in National Male Boxers

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Summary. National athletes should have a good nutrition for sustainable sports performance or development; and perceived stress can affect nutrition. The aim of this study is to determine nutritional knowledge and perceived stress in national male boxers. This cross-sectional study was conducted 20 national male boxers in June 2020. Participants completed sociodemographic form, and Nutritional Knowledge Level and Perceived Stress Scale (PSS) questionnaires that included questions related to their stress, eating habits, nutritional knowledge etc. Body weight and height of participants were measured. Descriptive statistics and Pearson correlation analysis were used to evaluate the data obtained. In the present study, 20 male boxers were participated, the mean age was 23.35 ± 2.99 years. Their mean BMI and sports age was $23.03.49 \pm 3.87$ kg/m² and 11.7 ± 3.7 years. All athletes were training 6 days a week for a total of 16 hours. Participants were generally eating regularly and had a good nutritional knowledge. There was a significant correlation between age and sports age ($p=0.027$). In conclusion, it can be said that national male boxers nutritional knowledge were at a good level. It is recommended that nutritional knowledge and stress assessment tools should be used to determine the factors preventing good performance, it should be intervened where necessary.

Key words: Nutrition, nutritional knowledge, stress, national boxer.

Introduction

Sports nutritional knowledge is important for athletes (1). In literature there are very few studies about boxer's nutritional knowledge (2,3,4). Increasing the level of nutritional knowledge is a major factor in the regulation of the daily diet. Diet is very important for the healthy functioning of the circulatory system, especially the immune system (6). Components of the immune system are generally composed of macro and micronutrients. In the absence of adequate and balanced nutrition, it is not possible to expect a healthy performance from the athlete (7). Taking these nutrients in a balanced way is critical in terms of absorption of nutrients (8). Eating main meals regularly is important for sports. Boxers can sometimes skip main meals for rapid weight loss (2).

Athletes may not be well educated in sports nutrition (1,9) and dealing stress (10). Especially in adolescents, increased academic stress can be added as a factor (11). Stress can lead to burnout (12). Burnout is a multidimensional construct that is often described as a decrease in psychological and physical fatigue, and a feeling of absenteeism in sports (10). It is known that the effects of stress increase the feeling of burnout (13). Perceived stress can also diminish life satisfaction (12). When we consider from another point of view, it is possible to develop eating disorders even with just stress (5). The stress caused by weight classification can cause skipping meals or negatively change nutrition (2,4). Therefore, studies on stress, eating disorders and nutritional knowledge in the field of boxing should increase. It provides us with information in terms of determining the level of

knowledge on nutrition, correction, and development of nutritional information (1,5,8). So, research on nutritional knowledge levels of athletes gains importance. Nutrition may have an importance in reducing the perceived stress in athletes (14). With adequate and balanced nutrition, mood and coping mechanisms can be improved. therefore, it is important to increase nutritional knowledge.

Although the main information does not change, information about sports and nutrition is being updated (7). It is very important for athletes to know at least the basic nutrition information for their performance and sports ages (1,15). While providing detailed information about nutrients, especially carbohydrates, micronutrients can be skipped (1,16). Nutrition experts (dietitians, nutritionists) should provide athletes good nutrition educations and, if possible, athletes and their coaches should request it (8,17). When studies conducted so far examined, this is the first known study about national boxer's nutrition and perceived stress levels. The aim of this study is to determine nutritional knowledge and perceived stress in national male boxers.

Materials and Methods

In the present study, a questionnaire form consisting of 24 questions including age, gender, education status, and also training, nutrition and hydration information were used and body mass index that was calculated after measurement.

Nutritional Knowledge Level

Nutrition Knowledge Level survey was used by Güven et al. (2009) as Turkish version. It has 20 items with two choices (right or wrong).

Perceived Stress Scale

Perceived Stress Scale (PSS) was first developed by Cohen et al. (1983) and Eskin et al. (2013) adapted to Turkish. PSS is a 5-point Likert type scale and has 8 questions. The higher the score of the scale, the higher the perceived stress is found.

Statistical analysis

In the study, descriptive statistics and Pearson correlation analysis were used to evaluate the data obtained. Pearson correlation was used for total scores and their correlations with body mass index, age, sports age. Body Mass Index (BMI): body weight (kg)/height² (m²) calculated with the formula. The World Health Organization (21) classification was used for BMI. Data were analyzed by using the IBM SPSS Statistics version 21 software for Windows. Significance level was $p < 0.05$.

Results

In the present study, 20 national male boxers were participated, the mean age was 23.35 ± 2.99 years. Mean body mass index (BMI, kg/m²) and height (cm) was; $23.03.49 \pm 3.87$ (min.18; max.29) and 180.75 ± 7.01 (min.166; max.191). None of the participants had a chronic illness. Their mean sports age was 11.7 ± 3.7 years and all participants were training 6 days a week for a total of 16 hours.

As it can be seen on the Table 1, participants were generally eating regularly but 10% of them

Table 1. Distribution of boxer's education status and nutrition related habits

	n	%
Education status		
Secondary education	9	45.0
University	11	55.0
Meal habits		
Having 2 main meals a day	1	5.0
Having 3 main meals a day	19	95.0
Not having any snack	2	10.0
Having 1 snack a day	2	10.0
Having 2 snack a day	16	80.0
Skipping main meal	2	10
Skipping breakfast	1	5.0
Supplementantation		
Yes	18	90.0
No	2	10.0

Table 2. Distribution of boxer's Nutritional Knowledge Level answers

	Right		Wrong	
	n	%	n	%
Adequate and balanced nutrition is the basis of a healthy life.	20	100.0	-	-
The four basic food groups; meat, dairy, grain, vegetable / fruit groups.	20	100.0	-	-
Bread, rice and pasta are foods rich in carbohydrates.	20	100.0	-	-
Vegetables and fruits are foods rich in protein.	20	100.0	-	-
Liver and meat are good sources of vitamin C.	-	-	20	100.0
The nutrient that causes anemia is iron.	-	-	20	100.0
Calcium is essential for bone and dental health.	20	100.0	-	-
Vitamins and minerals are nutrients that provide energy to the body.	-	-	20	100.0
The energy source that the body uses in the first stage is fat.	20	100.0	-	-
Carbohydrates are the most favorable energy source.	20	100.0	-	-
The last meal should be eaten at least 3 hours before the competition / training.	19	95.0	1	5.0
Legumes-rice-yoghurt is a pre-race menu.	20	100.0	-	-
During the recovery period, foods rich in carbohydrates should be eaten.	20	100.0	-	-
It is a good choice to consume chocolate, cake and cola to meet the energy needs right after a competition or training.	20	100.0	-	-
Fluid intake should be stopped 1 hour before the match.	20	100.0	-	-
Drinking sports drinks is an advantage in long-term exercise.	20	100.0	-	-
When the fluid loss caused by sweating is 1% of body weight, performance is negatively affected.	20	100.0	-	-
The most important nutrient element in increasing performance is fat.	-	-	20	100.0
Vitamin and mineral tablets are ergogenic elements used by athletes with the aim of increasing their performance.	20	100.0	-	-
To increase muscle mass, more protein should be consumed.	20	100.0	-	-

were skipping main meals because of not being hungry and not having a habit. One participant that answered for skipping breakfast said that the cause was he can't wake up early. 90% of athletes were using vitamin (85%) and magnesium (5%) supplementation. All participants had one nutrition education from dietitian.

In Table 2, participant's nutritional knowledge answers were shown. Participants answered right for 15 of 20 questions. Other 5 questions were answered wrong. Wrong answers were consisted of vitamins, minerals, and performance.

In Table 3, correlations between age, BMI, sports age and PSS scores were shown. There was only one statistically significant correlation between age and sports age ($p=0.027$).

Table 3. Correlations between age, BMI, sports age, and Perceived Stress Scale (PSS) scores

Variables	Age		BMI		Sports age	
	r	p	r	p	r	p
Age	-	-	-	-	-	-
BMI	-0.335	0.148	-	-	-	-
Sports age	0.494	0.027*	-0.381	0.097	-	-
PSS	-0.350	0.130	0.355	0.125	0.004	0.987

* $p<0.05$

Discussion

In the present study we aimed to evaluate relationships between age, sports age, nutritional knowledge and perceived stress. We studied with 20 male boxers

whose mean age, mean body mass index (BMI, kg/m²) and height (cm) was; 23.35±2.99 years, 23.03.49±3.87 and 180.75±7.01, respectively. They were training 6 days a week for a total of 16 hours and their mean sports age was 11.7±3.7 years.

Eating regularly, in an adequate and balanced way, is a main step to have a good performance in sports. In a study, it was stated that 15-16 years old boxers had good nutrition habits, daily main meals (3). In our study, male boxers generally eating regularly but 10% of them were skipping main meals. The main reasons of why they were not eating was not feeling hungry and not having a habit. The use of some vitamins and minerals in sports performance is also known (22). However, unconscious use of nutrients can adversely affect performance and health (4). The tendency of sports supplements has increased in recent years (23). Especially, the use of vitamins and minerals (24) to reduce muscle pain and muscle relaxation has increased. It was found that 90% of boxers were using vitamin (85%) and magnesium (5%) supplementation in our study. These supplementations were not recommended by dietitian or doctor. It can be dangerous for their health and performance so educations should include supplementations, too.

Athlete's sports knowledge has been studied for many years (1,15,17, 25,26,27). Devlin and Belski (2015) (8) found that athlete's nutritional knowledge was low as in some studies found (1, 25). Folasire et al. (2015) showed that more than half of their participants had good nutritional scores. In a Turkish study, Köse et al. (2020) reported that most of their participants had a good nutritional knowledge score. Ağırbaş et al. (2019) stated that male boxers' nutritional level was moderate. In our study, participants also had good nutritional knowledge but even if they had nutritional education that given by a dietitian, they could not answer all the questions right. Especially questions about vitamin and mineral were answered incorrectly. It can be said that athletes should be educated about general nutrition and also micronutrients too.

In a study about perceived stress and perfectionism in college athletes, researchers found a relationship between perfectionism and perceived stress, and no comparison was made with sports age (10). In another study that focused on burnout and perceived stress, correlations found but they did not imply

any information about sports age, also (13). We were also expecting some correlations between perceived stress but we could not find any correlations between BMI, sports age and PSS scores. There was only one statistically significant correlation between age and sports age ($p=0.027$). Not being statistically significant may be caused by number of our participants.

Unfortunately, there are limited articles in the literature on boxers and their nutritional knowledge. Our study limitations were having a cross-sectional study and reaching a low number and same gender of participants. Therefore, this study is thought to contribute to the literature. This is the first known study about national boxer's nutrition and perceived stress levels. We believe that despite the limitations of our study, we would like to be a pioneer in including boxers as athletes in the study groups.

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