

Micronutrients and their role in healthy nutrition of athletes

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Abstract: The article presents the results of a study of the actual nutrition of wrestlers and their analysis. At the same time, the actual nutrition of the subjects was studied in appropriate ways, and the results obtained were compared with the norm and analyzed. Based on the collected data, the corresponding conclusion was made. The necessary recommendations on the organization of a healthy diet for athletes are also given.

Keywords: Micronutrients, vitamins, minerals, actual nutrition, daily ration, norm.

Introduction: It is known that when practicing any sport, the organization of proper nutrition of athletes plays a huge role. It is especially important in the activities of athletes to determine the compliance of micronutrients in food with the norm level, to study the issues of sufficient satisfaction of the demand for them [3,5].

Minerals and vitamins actively participate in all physiological, biochemical processes occurring in the human body. No biochemical reaction in the body takes place without the participation of these substances [6]. Due to the fact that in most sports, such qualities as strength, speed, endurance are constantly required, the body's need for vitamins and minerals also increases sharply. The heavier the sport to be practiced and the greater the load it requires, the greater the demand for micronutrients also increases accordingly. Also, profuse sweating, the rapid growth of muscle mass necessitates a greater intake of the mentioned substances. And the fact that athletes do not pay enough attention to meeting the body's demand for micronutrients increases the relevance of the problem even more. In the activities of athletes who do not eat on the basis of ration, developed especially specifically for those who are engaged, this situation will be clearly expressed [2,6]. It is noteworthy that in our republic, like other sports, wrestling is gaining wide popularity, and our athletes achieve high results in various competitions. The same situation necessitates a deeper

study and analysis of the medical and biological problems associated with the activities of wrestlers, including their current diet [8].

METHODOLOGY

During the studies, the current nutritional status of athletes living in Kashkadarya region from the southern regions of Uzbekistan was studied. Examiners Karshi State University consists of 17-20-year-old wrestlers-athletes who are trained in 1-2 courses of the direction of Physical Culture. The respondents are 56, and all of them are made up of boys.

Observation work was carried out in the fall season 2022, in October. The current nutrition of the examiners was studied using the questionnaire-survey method. Also, in the course of research, a combination of sociological, hygienic methods was used [7].

Wrestlers filled out special questionnaires for a week. Based on the data recorded in the questionnaire, the degree of satisfaction of the demand for micronutrients in athletes was determined and compared with the norm sizes [1,4]. The results obtained were mathematical calculations and statistical processing in Windows Microsoft Excel 2010 and Windows Origin 6.1.

RESULTS AND DISCUSSION

In the course of our studies, the state of certain vitamins (B1, B2, B6, C, PP) and mineral substances (Ca, P, Mg, Fe) in the composition of the daily ration of the

examiners was studied in relation to the norm. the controllers.

The table below provides information on the satisfaction of demand in relation to micronutrients in

Table.

**Wrestler-of micronutrients in the daily ration of students
status in relation to the norm**

№	Nutrients	Results	The norm	Difference	
				mg	percentage
	<i>Vitamins</i>				
1.	B ₁ (thiamine), mg	5,3±0,1	6	- 0,7	88,3
2.	B ₂ (riboflavin), mg	2,62±0,02	5	- 2,38	52,4
3.	B ₆ (pyridoxine), mg	7,3±0,03	10	- 2,7	73
4.	C (Ascorbic Acid), mg	115±2,1	200	- 85	57,5
5.	PP (nicotinic acid), mg	37,3±0,16	40	- 2,7	93,2
	Mineral substances				
6.	Calcium (Ca), mg	1506±3,3	2000	- 494	75,3
7.	Phosphorus (P), mg	2346±7,8	3000	- 654	78,2
8.	Magnesium (Mg), mg	684±2,1	700	- 16	97,7
9.	Iron (Fe), mg	27,1±0,18	30	- 2,9	90,3

Our observation and research have shown a number of interesting cases. According to the results obtained, the demand of the examiners for vitamins was not sufficiently met. In particular, the requirement for vitamin B₂, i.e. riboflavin, was satisfied by only 52.4% (2.62±0.02 mg instead of 5 mg in the norm), and the requirement for vitamin C, i.e. ascorbic acid, was satisfied by 57.5% (115±2.1 mg instead of 200 mg in the norm). Vitamin B₆, that is, pyridoxine, was 73% compared to the norm (norm 10 mg, practically 7.3±0.03 mg). The Daily need for vitamins V₁ (thiamine) and PP (nicotinic acid) in the daily ration of athletes is provided by 88.3 and 93.2%, respectively.

As you can see, the daily ration of respondents is much less than the norm of the content of riboflavin and ascorbic acid in the composition. Also, the amount of pyridoxine is also much lower than the norm. This situation can be explained by the fact that the food of athletes is low in milk and dairy products, as well as greens, vegetables. Milk and dairy products are the main sources of riboflavin, and greens and vegetables are the main sources of ascorbic acid. Insufficient satisfaction of the demand for vitamin B₆, that is, pyridoxine, is also due to the low content of ration in meat and meat products, such as fish, green peas.

It has been observed that there are also a number of

specific aspects in the satisfaction of the demand for minerals in the examiners. In particular, athletes ' demand for the calcium element (Ca) was satisfied in the amount of 75.3% (1506±3.3 mg instead of 2000 mg in the norm), and the demand for the phosphorus element (P) in the amount of 78.2% (2346±7.8 mg instead of 3000 mg in the norm). The amount of magnesium and iron from the studied elements is at the norm level (97.7% and 90.3%, respectively).

Such a negative condition, observed in the example of minerals, can also be explained by the fact that the daily ration contains mainly a shortage of milk and dairy products, as well as Greens and vegetables. Because it is calcium as well as phosphorus that are often found in the products mentioned. The fact that the daily ration of wrestlers contains magnesium and iron in moderation is a positive situation.

When the questionnaires are analyzed in depth, we witness that the daily ration of the examiners contains much more bread, pastries, various dark foods, Fast food products. Mainly apples, grapes were consumed a lot from the fruits. However, ration contains very little milk and dairy products, vegetables. And the fish was practically not eaten.

This situation is explained by the National Eating style of the territory in which the wrestlers live, local

conditions, as well as the social lifestyle of the respondents characteristic of the students. On top of that, the fact that students are not aware of the rules of nutrition, that they do not have an adequate formation of the culture of nutrition, is one of the main causes of improper nutrition.

The above changes associated with the current nutrition of wrestler-students negatively affect the functional characteristics of the nervous system in them, the normative activity of analyzers, the endurance of the body and the ability to fight diseases, and, moreover, the development of such qualities as strength, speed, agility, which are important for athletes. This, in turn, can lead to a decrease in the results of wrestlers in sports.

CONCLUSION

Based on the studies carried out, the following conclusions can be drawn on the current nutrition of athletes-students.

First of all, the daily ration of young wrestlers has a significantly lower content of vitamins such as riboflavin, ascorbic acid, pyridoxine than the established norm. Also, the demand of the examiners for calcium and phosphorus from mineral substances has not been sufficiently met.

Secondly, the fact that certain vitamins and minerals are less than the norm is explained by the shortage of milk and dairy products, vegetables, greens in the composition of the daily ration of those examined.

Thirdly, the elimination of the noted deficiencies associated with the nutritional status of the examiners is of paramount importance, first of all, in their normative growing development, in the protection of Health and, moreover, in obtaining high results in sports.

To achieve the above, it is necessary to carry out a number of practical and preventive measures. In particular, we believe that an explanation of the organization of rational nutrition among athletes-students, their coaches, parents and conducting propaganda work, sufficient attention to the medical and biological aspects of athletes' activities will give a positive result.

REFERENCES

Химический состав российских пищевых продуктов: Справочник / Под ред. член-корр. МАИ, проф. И. М. Скурихина и академика РАМН, проф. В.А.Тутельяна. - М.: ДеЛи принт, 2002. – 236 с.

Эллен Коллеман. Питание для выносливости. Пер. с англ. – Мурманск: Изд-во "Тулома", 2005. – 192 с.

Тухтаров Б.Э. Белковая обеспеченность

профессиональных спортсменов, занимающихся борьбой кураш. «Вопросы питания», 2008, № 1, Том 77. стр. 46-47.

Среднесуточные рациональные нормы пищевых продуктов в колледжах олимпийского резерва и специализированных школах-интернатах спортивного профиля. СанПиН №0274-09. Составители: Шарипова Н.В., Рахимов Б.Б. и др. – Ташкент, 2009. – 15 с.

Азизбекия Г.А., Никитюк Д.Б., Поздняков А.Л. и др. Принципы оптимального питания спортсменов различных специализаций. //Вопросы питания, 2010, №4, Том. 79. стр. 67-71.

L.S. Kuchkarova, Sh.Q. Qurbanov. Physiology of digestion and nutrition. Tashkent, sano-standard, 2013. - 384 b.

Методология изучения питания различных групп населения: учебное пособие / В.А. Петров. – Владивосток: Медицина ДВ, 2015. – 287 с.

Resolution No. 251 of the Cabinet of Ministers of the Republic of Uzbekistan on approval of the concept and complex of measures to ensure healthy nutrition of the population of the Republic of Uzbekistan for the period 2015-2020. Tashkent, 2015, August 29. Collection of legislation of the Republic of Uzbekistan, 2015., Issue 35, article 467.