

NUTRITIONAL REQUIREMENTS FOR ATHLETES

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ABSTRACT

Biopolymers and micronutrients play a special role in the diet of athletes compared to the general population. This is due to the fact that athletes are more active in the production and consumption of energy. Special attention should be paid to a balanced diet to cover energy expenditure.

Keywords: energy, balanced diet, systolic excision, biomedical.

INTRODUCTION

It is known that the problem of nutrition in the training of highly qualified specialists is always a problem for athletes. The level of records in modern sports is determined by the training of athletes. Increased physical activity during training, increased competitive activity, as well as time differences and frequent changes in climatic conditions in the regions, as well as training in the mountains, technical equipment of athletes - all this is strong in the athlete's success. requires physical stress and a strong will. The high level of functional status of athletes is due to the fact that they have a balanced diet. Diets in different sports take into account different times of the year (10% more energy in winter than the rest of the time) and climatic conditions, age of the athlete, as well as gender, weight, sports experience and other personal indicators compiled and recommended. In such cases, the athlete's diet should be as follows:

- The power of the food consumed at the moment, corresponding to the energy consumption;
- Balanced - that is, it contains all the necessary nutrients (proteins, fats, carbohydrates, vitamins, mineral salts in the required proportions);
- The presence of both plant and animal products in the diet, ie not limited to plant or animal products;
- Foods that are easy to digest and easy to digest.

The main purpose of the article is to determine the basic nutritional requirements for athletes (Xosilova Z.B., Azizov X.Sh., 2022).

Athletes' diet

Athletes spend 2-3 times more energy per day on training and competitions than normal people. During strenuous physical activity, the heart rate is 200 d / m and the respiratory rate is 70-80 cycles per minute. At the same time systolic excision of the heart increases by 2-3 times. Pulmonary ventilation (depending on the amount of air in a few minutes) up to 20 times and arterial blood pressure 100 mm.sim.us. increases to. Therefore, in order to ensure morphologically healthy development and high functionality, the athlete must know rational nutrition. In athletes, skeletal muscle mass increases by 50% of body mass (30-35% in non-athletes), and heart size increases by 30% compared to normal people. The intensified intensity load of mental emotion is slightly higher in spotters (Hamzayeva Nargiza Rajabbayevna, 2021).

It is very important to prepare food in the recommended diet for athletes. It is necessary to pay special attention to the naturalness, variety and appearance of the food. Meal times should be 3 times a day, but 4 or 5 times in highly qualified athletes. The strength of the food consumed should be commensurate with the athlete's energy expenditure, taking into account his or her age, gender, sports experience and qualifications, as well as the type of sport. The quantitative ratio of nutritional components is strictly individual, depending on the direction of competition and training of representatives of different sports.

The amount of energy required per 1 kg of body weight in different sports is given in Table 1 below. Athletes engaged in a particular sport are recommended a diet that provides increased endurance. Protein accounts for 14-15% of total energy expenditure, 17-18% in sports that require speed and strength, and 20% in sports such as bodybuilding and weightlifting (Серопегин И.М., 1979).

Table 1 Daily energy intake and basic nutritional requirements in various sports (for every 1 kg of body weight)

Sports	Protein, g	Butter, g	Carbohydrate, g	Power, kcal
Gymnastics, figure skating	2,5	1,9	9,75	66
Athletics, running, jumping	2,5	2	9,8	67
Marathon	2,9	2,2	13	84
Swimming is a water ball game	2,5	2,4	10	72
Weightlifting, bodybuilding, throwing	2,9	2	11,8	77
Wrestling, boxing	2,8	2,2	11	75
Sports games	2,6	2,2	10,6	72
Cycling	2,7	2,1	14,3	87
Skiing is a short distance	2,5	2,2	11	74
Skiing is a long distance	2,6	2,4	12,6	82
Skating	2,7	2,3	10,9	74

Even for athletes, it is not recommended to take more than 3 g / kg of protein, because an organism can not normally cope with the separation and assimilation of such masses in sports such as weightlifting, throwing, athletic gymnastics. However, protein deficiency (less than 2 g per 1 kg of body weight) also prevents the normalization of metabolic processes. In addition, an increase in the excretion of essential vitamins such as vitamin C, thiamine, riboflavin, pyridoxine, niacin, as well as K salts can be observed (Серопегин И.М. 1979).

Proteins can be used in the body as an energy carrier in addition to plastic function, it is known that 10-14% of the assimilated protein is oxidized and provides the necessary energy for the body. However, there are special requirements for the quality of the proteins consumed, including the amino acid composition and the presence of essential amino acids.

Table 2 Recommended daily amino acids (in mg per 1 kg of body weight)

№	Amino acids	In adolescence	In men	In women
1	Isoleysin	28	11	10
2	Leysin	49	14	13
3	Lysine	59	12	10
4	Methionine (cysteine, phenylalanine)	27	14	13
5	Tyrosine	27	14	13
6	Treonin	34	6	7
7	Tryptophan	4	3	3
8	Valin	33	14	11

The amount of protein assimilated by athletes depends on the balanced amino acid composition. It is estimated that 55-60% of animal protein is the optimal amount in the diet.

Another important component of the food consumed is fat, and the most suitable fat for athletes is lactic acid products, vegetable oils, which are found in easily digestible milk. It is advisable to reduce the amount of fat

in the diet before high training and competition, as they are very difficult to digest during high physical and emotional stress processes. During the maximum and lower maximum loads, the body's supply of carbohydrates, mainly carbohydrate saturation, can be applied to the body, at which time fructose is recommended. The advantage of fructose over glucose is that fructose intake does not cause significant changes in blood sugar and does not require the pancreas to produce (increase the amount) of the hormone insulin. At the same time, skeletal muscle glycogen levels are much lower than when glucose is consumed. One of the most important components of a balanced diet is the absorption of appropriate amounts of vitamins and minerals (or by additional pharmacological agents). According to U.S. experts, the results are 1.5-2 times higher than other athletes, no doubt due to the nature of the food and the quality of the products.

Table 3 Daily vitamin requirements of athletes in various sports (in mg)

№	Sports	C	B ₁	B ₂	B ₃	B ₆	B _C	B ₁₂	PP	A	E
1.	Gymnastics, figure skating	120	3,5	4	16	7	0,5	0,003	35	3	30
2.	Athletics: running, jumping	200	3,6	4,2	18	8	0,5	0,008	36	3,5	26
3.	Walking medium and long distances	250	4	4,8	17	9	0,6	0,01	42	3,8	40
4.	Marathon	350	5	5	19	10	0,6	0,01	45	3,8	45
5.	Swimming	250	3,9	4,5	18	8	0,5	0,01	45	3,8	45
6.	Bodybuilding	210	4	5,5	20	10	0,6	0,009	45	3,8	35
7.	Wrestling, boxing	250	4	5,2	20	10	0,6	0,009	45	3,8	30
8.	Sports	240	4,2	4,8	18	9	0,55	0,008	40	3,7	35
9.	Velotrek	200	4	4,6	17	7	0,5	0,01	40	3,6	35
10.	Veloshosse	350	4,8	5,2	19	10	0,6	0,01	45	3,8	45
11.	Skiing - short distance	210	4	4,6	18	9	0,5	0,008	40	3,6	40
12.	Skiing is a long-distance sport	350	4,9	4,4	18	9	0,55	0,009	40	3,5	40
13.	Skating	200	4	4,4	18	9	0,55	0,009	40	3,5	40

The need for extra vitamins (in addition to the food content) and this increase does not mean that athletes do better with sports. Conversely, an overdose of vitamin supplements can lead to very serious consequences for the body (Курбанов III.К., 2004).

Adverse effects of vitamins on the body

№	Vitamin	Toxicity level	Side effects
1	A	More than 200 mcg	Hydrocephalus, cirrhosis
2	P	More than 1250 mcg	Hypercalcemia, apathy
3	E	More than 150 mcg	Phlebitis, headache
4	B ₆	More than 200 mcg	Weakness, rapid fatigue, diarrhea
5	PP	More than 100 mcg	Bronchospasm, hyperglycemia, hepatitis
6	C	More than 2 mcg	Nausea, diarrhea

We can confidently say that in order to maintain competitive performance, special attention should be paid to the process of balanced nutrition, and biomedical support for the proper organization of nutrition in athletes is the most important. For intelligent pharmacological support, it is important to know the interactions of drugs with food ingredients and to choose the optimal time to take the medication.

It is recommended to prescribe choleric drugs for 5-10 minutes before meals, as they enter the duodenum with food and stimulate bile secretion. After a meal, it is usually prescribed to reduce K salts, B₂, Na, Fe, as

well as existing drugs, water-insoluble and fat-soluble (for example, fat-soluble vitamins - A, D, E, K). If the drug is taken before meals, it irritates the gastric mucosa, so these drugs can be eliminated by washing with water, starch, slimy milk.

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