

ON THE EXPERIENCE OF USING A BIOLOGICALLY ACTIVE FOOD ADDITIVE IN THE NUTRITION OF ATHLETES

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ABSTRACT

The development of ways to increase the biological usefulness of athletes' diets by using the protein source Nogliukin. The results of the research have established that in professional athletes, the use of dietary supplements for Nogliukin food normalizes the biochemical indicators of the nitrogenous components of urine and improves the digestibility of protein

Keywords: athletes, actual nutrition, dietary supplements, Nogliukin, protein, nitrogen metabolism.

INTRODUCTION

One of the most important conditions for sports achievements in professional sports, along with the proper organization of training and daily regimen, is nutrition adequate to energy expenditures and physiological needs of the body, since nutrition is one of the most important factors determining the physical and mental state and health of a person [1, 2].

The high energy demand of the athletes' body and, accordingly, the high need for vitamins, biotrace elements, essential amino acids and other biologically active substances, and the impossibility of achieving their optimal level by correcting the consumption of natural foods, determined the need to include biologically active food additives (BAA) in the norms of the set of products. Although dietary supplements are expensive components of daily diets, their importance in ensuring the health and physical condition of the body of professional athletes is invaluable. At the same time, without establishing the safety and effectiveness of dietary supplements for the body of athletes, including them in the nutritional standards would be erroneous.

In this regard, we have assessed the safety for the body and the effectiveness in increasing the biological value of diets of a new type of dietary supplement - Nogliukin.

Nogluukin is a protein hydrolysate in the form of sodium and potassium salts of silkworm cocoon protein, containing 17 amino acids.

The objects of research were professional athletes training on the basis of sports complexes in Tashkent and their diets.

The purpose of the work: to develop ways to increase the biological usefulness of athletes' diets by using the protein source Nogliukin.

RESEARCH METHODS

The studies were carried out on white mice, white rats and rabbits that were given a single intragastric injection of Noglukin at doses of 7000 to 15000 mg/kg.

The nutrition of athletes has been studied by calculation and laboratory methods. The calculation method is used to determine the nutritional and biological value of diets. For statistical analysis, 1260 layout menus were used. The nutritional value of the diets was calculated on the basis of tables of the chemical composition of food products [3].

RESULTS OF THE STUDY

Our studies have shown that the daily excretion of ammonia in the urine in athletes against the background of actual nutrition is: in men $795.0 \pm 7.0 - 812.0 \pm 8.0$ mg, in women $- 791.0 \pm 8.0 - 796.0 \pm 8.8$ mg. $682.0 \pm 7.0 - 674.0 \pm 5.0$ mg in men and $672.0 \pm 6.0 - 668.0 \pm 5.0$ mg in women. On average, the decrease in the level of ammonia in the daily urine in the studied subjects on the changed background of nutrition in the 2nd group of the studied subjects is 10-15% of the level of ammonia on the actual background of nutrition. The data obtained indicate the normalization of the state of protein metabolism in the studied subjects against the background of altered nutrition (Table 1).

Table 1. Biochemical indicators of protein metabolism in the studied subjects on qualitatively different backgrounds of nutrition, $M \pm m$.

№	Name of indicators	Groups of Subjects	
		1	2
Men			
1.	Protein intake, g/day	175,4±4,8	224,5±4,0
		177,3±5,3	236,8±5,0
2.	Total biological value of diets, %	<u>72.1±1.2</u>	<u>89.8±1.1</u>
		72.6±1.1	89.9±1.0
3.	Excretion of total nitrogen in the urine, g/day	12,2±0,1	13,8±0,2
		12,6±0,1	14,1±0,2
4.	Excretion of ammonia in the urine, mg/day	795,0±7,0	682,0±7,0
		812,0±8,0	674,0±5,0
5.	Urinary excretion of urea, g/day	9,7±0,2	12,6±0,2
		10,2±0,2	12,8±0,1
6.	Индекс Waterlooy	66,7±0,4	82,1±0,4
		67,8±0,3	87,2±0,5
Women			
1.	Protein intake, g/day	170,1±3,0	218,2±4,0
		173,8±2,5	227,4±4,0
2.	Total biological value of diets, %	<u>71.6±1.2</u>	<u>89.1±1.1</u>
		71.9±1.1	89.2±1.0
3.	Excretion of total nitrogen in the urine, g/day	11,8±0,1	13,7±0,2
		12,1±0,1	14,1±0,2
4.	Excretion of ammonia in the urine, mg/day	791,0±8,0	672,0±6,0
		796,0±8,8	662,0±5,0
5.	Urinary excretion of urea, g/day	9,4±0,2	12,5±0,2
		9,8±0,2	12,8±0,1
6.	Waterlooy Index, %	66,6±0,4	82,0±0,3
		67,1±0,3	87,4±0,4

Note: the numerator is the winter-spring season; the denominator is the summer-autumn season.

The study of biochemical parameters of nitrogenous components of urine on qualitatively different backgrounds of nutrition shows that there is a direct correlation between the biological value of food and the excretion of total nitrogen, ammonia and urea ($r=\pm 0.61$).

Thus, the low excretion of total nitrogen and urea, the relatively high amount of ammonia in relation to the total nitrogen of daily urine, the low urea index in athletes who received actual nutrition, indicates the discrepancy between the diets and physiological needs and the low biological value of these diets. A change in the qualitative composition of athletes' diets with the inclusion of the dietary supplement "Nogliukin" made it possible to increase the digestibility of protein in comparison with the actual background of nutrition.

CONCLUSIONS

A change in the qualitative composition of diets by including sources of high-value protein in the form of dietary supplements to Nogliukin food made it possible to normalize the biochemical indicators of nitrogenous components of urine in athletes, to improve protein digestibility. On average, a decrease in the level of ammonia in the daily urine in the studied athletes on a changed background of nutrition is 10-15% of the level of the actual background of nutrition.

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