Findings and their discussion. The results are presented in table 1.

Table 1- Results of the Stange test

Evaluation of the results of the Stange test	% - of the total number of subjects
Unsatisfactory	50%
Satisfactorily	40%
Good	10%

The studies have shown that the functional state of the cardiorespiratory system of the subjects is at an unsatisfactory and satisfactory level. Which, in turn, indicates the instability of the body to hypoxia.

The reason for these students' low development indices may be insufficient focus on the development of the functional state of the cardiorespiratory system during physical culture lessons. Also, these studies require further and more in-depth study of the problem.

Conclusion. Thus, the obtained results of the study made it possible to establish the level of the functional state of students of the pedagogical faculty of the educational institution “Vitebsk State University named after P.M. Masherov ". The revealed data create the need to apply those means in the discipline of physical culture, which will be aimed at the general development of the functional state of the cardiorespiratory system and the body's resistance to hypoxia.

1. Test Stange [Electronic resource] / Portal for students. – Minsk, 2020. - Access mode: http: // studopedia.ru /.html. – date: 25.10.2020.

THE IMPACTS OF SPORTS NUTRITION ON ATHLETES’ BIOCHEMICAL BLOOD PARAMETERS

Karina Kivlinas, Kseniya Halashchapova
VSORC, Vitebsk, Belarus

High performance sport assumes the presence of maximum and submaximal loads. The state of the cardiovascular system shows the level of adaptation of the whole organism to the loads. The biochemical blood parameters are changed under the effects of physical loads [1]. To improve the performance and accelerate the recovery of the organism after sports activities sports nutrition is used. According to these statements, the aim of our research is to analyze the biochemical blood parameters of sportsmen for the period of its using.

Material and methods. 38 students of VSORC aged 16 to 23 years of weightlifting and throwing departments were enrolled in this investigation. According to initial data of sportsmen such as weight, height and the level of physical activity the using dosage of additives was applied individually from the 15 years old. Twice a year in spring and in autumn they used creatine, amino acids and gainers. The analysis of the biochemical blood parameters of sportsmen was made in comparison with the average research indicators and the duration of use in different aged groups. The first group is the sportsmen of the aged group 16-17 years old, the second group is the sportsmen of the aged group 18-19 years old and the third group is the sportsmen of the aged 20 and older. To define the duration use of sports nutrition and its type it was carried out questioning.

Findings and their discussion. The chart number 1 demonstrates the results of research.

Table 1 - The biochemical blood parameters of sportsmen using sports nutrition

Indicators	Average research indicaters	Sportsmen (16 - 17 years old), n=11	Sportsmen (18 – 19 years old), n=15	Sportsmen (older 20 years), n=12
Glucose, mmol/l	3,5 – 6,2	4,72±0,26*	4,43±0,73*	4,71±0,44*
Urea, mmol/l	1,7 – 8,3	4,61±1,43*	6,11±2,00*	6,77±1,34*
Creatinine, mmol/l	0,062 – 0,115	0,09±0,02*	0,14±0,11*	0,13±0,07*
Uric acid, mmol/l	0,21 – 0,42	0,24±0,11*	0,34±0,09*	0,30±0,9*
Total protein, g/l	64 - 83	69,25±1,5*	68,28±7,70*	71,5±4,34*
Albumen, g/l	35 - 48	43,75±2,87*	43,14±3,80*	43,37±6,02*
Globulin, g/l	26 - 46	23±3,16*	25,71±1,89*	23,37±3,46*
Total cholesterol, mmol/l	3,6 – 6,5	5,37±2,14*	5,61±1,87*	4,99±1,46*
triglycerides, ммол/l	0 – 2,2	0,80±0,26*	1,26±0,67*	0,86±0,22*
Low density lipoproteins, ммоль/l	2,6 – 3,3	4,27±2,87*	4,84±2,49*	3,84±1,89*
λ- cholesterol, ммmol/l	>1	2,94±2,14*	1,14±0,22*	1,9±1,77*
Total bilirubin, мcmol/l	2,0 - 20	14,23±2,40*	15±5,06*	20,66±10,64*
Alaninotransferase, u./l	<40	59,5±75,40*	110,43± 115,51*	50,5±51,67*

Aspartateamitransferase, u./l	<40	56±61,45*	63,28± 48,76*	43,25±42,81*
Alkaline phosphatase, u./l	<270	720,5± 149,20*	227,86± 76,29*	231,37± 90,99*
Gamma glutamine transferase u./l	<55	29±21,60*	101,71± 189,59*	15,87±4,15*
λ- Amylase, u./l	<104	74±31,17*	59,71± 21,31*	47,75±21,46*
Creatine phosphokinase, u./l	<190	1068,25± 1676,49*	551,14± 324,59*	740,25± 1167,76*
Calcium, mmol/l	2,5 – 2,6	2,57±0,40*	2,64±0,48*	2,43±0,26*
Potassium, mmol/l	3,6 – 5,5	4,57±1,09*	4,65±0,54*	4,55±0,69*

Notes: *the difference of data is authentically between groups of sportsmen aged 16 – 17 years old, 18 – 19 years old and 20 – 23 years old, p<0,05.

The analysis of the biochemical blood parameters in athletes demonstrates that the body glucose, uric acid, alkaline phosphatase, total protein, triglycerides, potassium and calcium are within normal limits and approximately on the same level. The parameter of the total cholesterol has the tendency to increasing however the average of its indicator corresponds to the average parameters. Moreover the contain of low density lipoproteins is 33,3% higher than the average meaning.

The amount of urea is increasing on 46,8 percent in the aged group older 20 years old in comparison with aged group of young men 16-17 years old. The increasing number of creatinine on 55,5% was indicated in athletes at the age of 16-17 years old. The amount of globulin was below normal on 8,3% percent in all groups.

The indicator of alanine aminotransferase was increased twice in the second group and on 37,5% in the third group. The aspartate aminotransferase was increased on 17,5% in all groups. The amount of alkaline acid was increased on 11% in the second and third groups. However, the gamma glutamine transferase was twice more in the group of students aged 18-19 in comparison with the parameters in other groups.

Conclusion. The duration use of sports nutrition leads to the increasing of urea, alkaline phosphatase, creatine, cholesterol and it could be related to the violation of protein and lipid metabolism. In fact, the increasing amount of aspartate aminotransferase, alanine aminotransferase and low density lipoproteins can be connected with the liver disfunction, harmonic shifts and excessive loads. Therefore, the use of sports nutrition has a negative effect on the organism of elite athletes.

1. Rozhnova, O.M. Biochemestry of blood (textbook) // Succsesses of modern natural science / O.M. Rozhnova, V.I. Sharapov, N.N Mayanskaya. – 2010. - №2. – P. 47-48.

2. Danilova, L.A. Analyses of blood, urine and other biological liquids of people in different age periods / L.A. Danilova. - Saint-Petersburg: Sp.Lit, 2016. – 111 p.