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Bioenergy types of an organism among athletes-judokas at the training stages: TS-2, TS-3, TS-5, SMI, HSM

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Abstract: Physical training at school of the Olympic reserve is directed toward athletes' special knowledge, skills and abilities in physical training formation and also toward physical qualities development. They are necessary for further career of an athlete. ***Material.*** Bioenergy types revelation among athletes-judokas at the training stages: TS-2, TS-3, TS-5, SMI, HSM using multifactorial express-diagnostics in accordance with the methodology by professor S.A. Dushanin, modified and improved by professor V.P. Karlenko. ***Research methods.*** Information sources and methodical literature analysis and summarizing, the methodology of express-diagnostics using hardware and software complex "D&K-Test" by professor S.A. Dushanin, modified and improved by professor V.P. Karlenko, methods of mathematical statistics. ***Results.*** The article reveals the methodology of bioenergy profile determination among athletes-judokas of the Olympic reserve school at the following training stages: TS-2, TS-3, TS-5, SMI (sportsmanship improvement stage), HSM (higher sportsmanship stage) using multifactorial express-diagnostics in accordance with the methodology by professor S.A. Dushanin, modified and improved by professor V.P. Karlenko. The results of the research according to this methodology are presented in diagrams. ***Conclusion.*** According to the held research we stated that "anaerobic type" prevails at TS-2, TS-3, TS-5, SMI, HSM stages. It is proved by the fact that out of general amount of athletes -99 people, 60,60 % (60 people) belong to "anaerobic type" of energy supplying system [1, 4].

Keywords: athletes-judokas, the methodology by professor S.A. Dushanin, training stage, bioenergy profile, physical training.

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Introduction

Physical training is the process directed toward physical qualities and capacities development (including abilities and skills) among people, who go through sports training at school of the Olympic reserve [1].

Physical training at school of the Olympic reserve is directed toward athletes' special knowledge, skills and abilities in physical training formation and also toward physical qualities development. They are necessary for further career of an athlete.

At a present stage of training of the future Olympic reserve of the Russian Federation, in order to achieve high level of physical qualities and form technics and tactics in a chosen kind of sport, it is necessary to select correctly the effects on an athlete during physical (special physical) training. An important condition for the demanded indices achievement is an athlete's steady skill formation to control own functional state [2-4].

The aim of the research: physical qualities improvement among the athletes-judokas of the Olympic reserve school at the following training stages: TS-2, TS-3, TS-5, SMI, HSM with the help of bioenergy profile.

Objective: to reveal bioenergy types among athletes-judokas at the training stages: TS-2, TS-3, TS-5, SMI, HSM using multifactorial express-

diagnostics in accordance with the methodology by professor S.A. Dushanin, modified and improved by professor V.P. Karlenko.

Materials and methods

In order to substantiate the creation of the experimental methodology we analyzed bioenergy profiles of organism energy supplying system among athletes at the training stages: TS-2, TS-3, TS-5, SMI, HSM at an Autonomous establishment of the Udmurt Republic "Complex specialized sports school of the Olympic reserve named after V.V. Lukin".

The base of the research is an Autonomous establishment of the Udmurt Republic "V.V. Lukin Complex specialized sports school of the Olympic reserve" and the A.I. Tikhonov Institute of Physical Culture and Sport.

The base of the present research work forms the methodology of express-diagnostics using hardware and software complex "D&K-Test" by professor S.A. Dushanin, modified and improved by professor V.P. Karlenko. This methodology helps to estimate functional state and get the results. They characterize the following: aerobic, mixed and anaerobic type of energy supply of an organism of an athlete-judoka.

99 athletes-judokas took part in the research, at the training stages: TS-2, TS-3, TS-5, SMI, HSM at an Autonomous establishment of the Udmurt Republic "Complex specialized sports school of the Olympic reserve named after V.V. Lukin". TS-2 : 40 people, TS-3- 29 people, TS-5 – 5 people, SMI – 23 people and HSM – 2 people.

Results and discussion

Table 1 presents the indices of bioenergy types of the organism systems among athletes-judokas of the training stages: TS-2, TS-3, TS-5, SMI, HSM at an Autonomous establishment of the Udmurt Republic "Complex specialized sports school of the Olympic reserve named after V.V. Lukin".

Table 1

The indices of bioenergy types of organism energy supplying systems among athletes-judokas of the training stages: TS-2, TS-3, TS-5, SMI, HSM

Course of study	Amount of people	Index of organism energy supplying system системы					
		Aerobic		Mixed		Anaerobic	
		Amount of people	%	Amount of people	%	Amount of people	%
TS-2	40	11	28	16	40	13	32
TS-3	29	3	10	5	17	21	73
TS-5	5	0	0	0	0	5	100
SMI	23	2	9	2	9	19	82
HSM	2	0	0	0	0	2	100

Fig. 1 presents bioenergy types of organism energy supplying system distribution among athletes-judokas of the training stage TS-2 (in a form of a diagram).

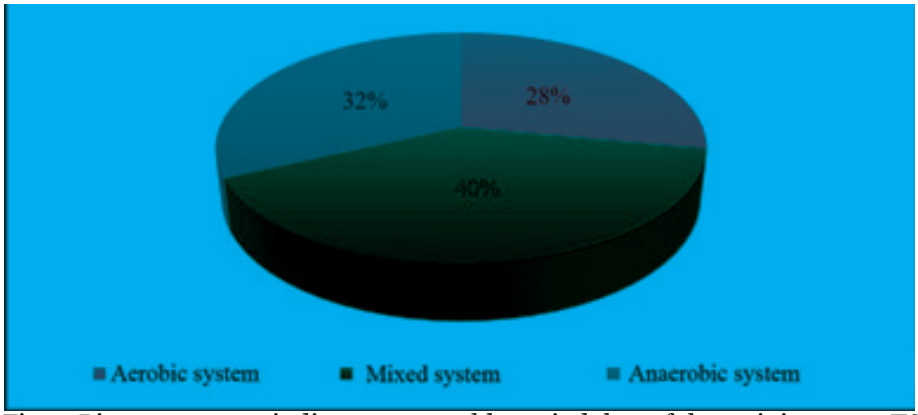

Fig. 1. Bioenergy types indices among athletes-judokas of the training stage TS-2

The presented research results (Fig. 1) show that from general amount of athletes-judokas of the training stage TS-2 11 people belong to "aerobic type" (28% of general amount of athletes in the group), 16 people (40%) belong to "mixed type" and 13 people (32%) belong to "anaerobic type".

Fig. 2 presents the distribution of bioenergy types of organism energy supplying system among athletes-judokas of the training stage TS-3.

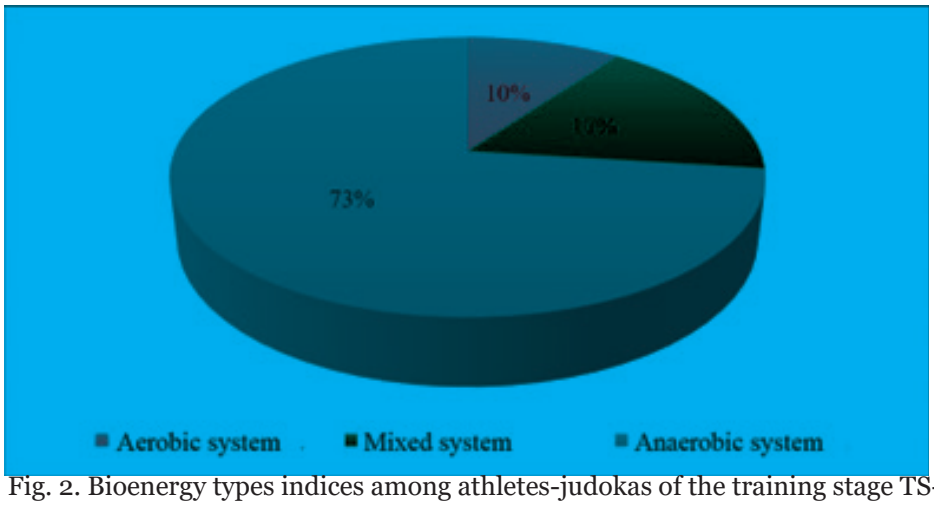

Fig. 2. Bioenergy types indices among athletes-judokas of the training stage TS-3

In this case it is necessary to state vivid difference of bioenergy types of organism energy supplying system among athletes-judokas in comparison with the training stage TS-2.

3 people belong to "aerobic type" (10% of general amount of athletes in a group, 5 people belong to "mixed type" (17%), 21 people belong to "anaerobic type" (73%).

Fig. 3 presents the distribution of bioenergy types of organism energy supplying system among athletes-judokas of the training stage TS-5.

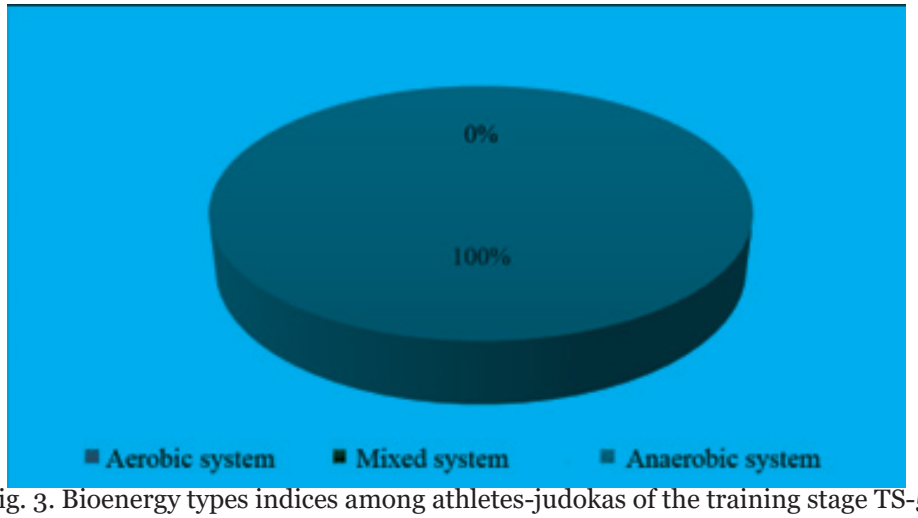

Fig. 3. Bioenergy types indices among athletes-judokas of the training stage TS-5

The diagram presents the following: there is only one bioenergy type in this group of athletes-judokas – "anaerobic type", which is 100% out of general amount of athletes in this group or 5 people.

Fig. 4 presents the distribution of bioenergy types of organism energy supplying system among athletes-judokas of SMI stage.

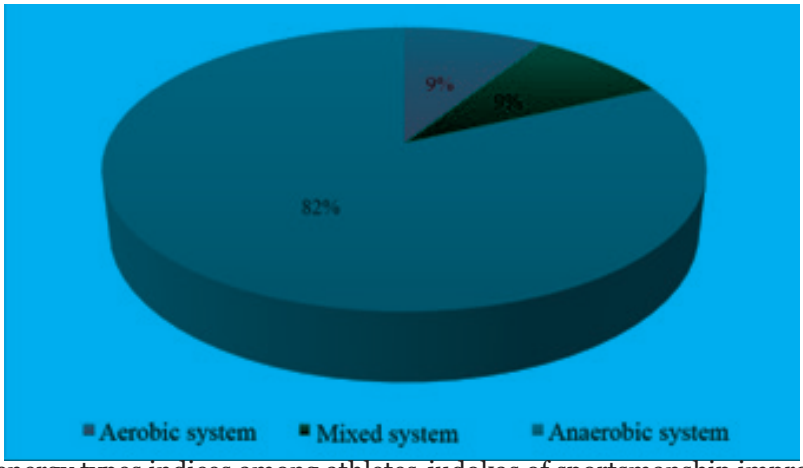

Fig. 4. Bioenergy types indices among athletes-judokas of sportsmanship improvement stage

The results of the research at this stage show that 2 people belong to "aerobic type" (9%), 9% of respondents out of general group belong to "mixed type". Then we see that 82% of athletes from sportsmanship improvement group (19 people) belong to "anaerobic type".

Fig. 5 presents the distribution of bioenergy types of organism energy supplying system among athletes-judokas of higher sportsmanship stage.

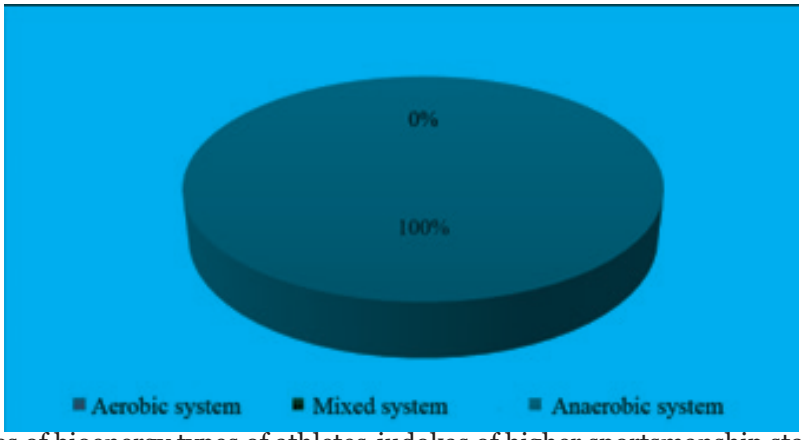

Fig. 5. The indices of bioenergy types of athletes-judokas of higher sportsmanship stage improvement

In this case we see that "anaerobic type" prevails, 100% of the group athletes. It is conditioned by the specificity of this kind of sport and by the fact that all athletes of the group have "Master of sports" category in judo.

Conclusion

According to the held research we stated that "anaerobic type" prevails at TS-2, TS-3, TS-5, SMI, HSM stages. It is proved by the fact that out of general amount of athletes -99 people, 60,60% (60 people) belong to "anaerobic type" of energy supplying system [1, 4].

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