UDC: 796 **DOI: 10.14526/2070-4798-2022-17-3-70-74**

Dynamics of special physical fitness indices of athletes engaged in swimming

Ildus G. Gibadullin[1], Vadim S. Mashanov[2]*, Evgeniy O. Gorbunov[2], Sergey I. Mashanov[2], Lubov I. Kostyunina[3]
[1]M.T. Kalashnikov State Technical University, Izhevsk
Izhevsk, Russia
ORCID: 0000-0001-6386-1121, ffkis@istu.ru
[2]Udmurt State University
Izhevsk, Russia
*himik_07@list.ru**
lunatik-88@list.ru
dsudgu@mail.ru
[3]I.N. Ulyanov State Pedagogical University, Ulyanovsk
Ulyanovsk, Russia
ORCID: 0000-0003-1551-6838, likost@mail.ru

Abstract: The activity of students is diverse. One of the practical disciplines is physical culture. Taking into consideration the aims and objectives of physical culture we can come to the conclusion that in case of correct attitude of a student regular physical culture lessons attendance should provide a positive dynamics of results and physical abilities improvement among students. ***Material***. The dynamics of special physical fitness revelation among students, who are engaged in swimming at physical culture lessons. ***Research methods.*** Information sources analysis and summarizing, pedagogical testing – 12 minutes nonstop front crawl swimming, 50 meters front crawl in complete coordination taking into account time, 25 meters front crawl with the help of legs taking into account time, breath holding with diving taking into account time, methods of mathematical statistics. ***Results.*** The article considers the dynamics of control tests indices at Udmurt State University among students of the 1st-3rd courses. They are engaged in swimming at physical culture lessons. These research works show us the level of students' fitness both at the initial stage and during the whole course of studying and the dynamics of indices among people, who just entered the University and the dynamics of indices increase during the whole course of study. The results of the research are used for statistical analysis and further methodology improvement of work with non-sports profile students. ***Conclusion.*** On the basis of the carried out by us research work we come to the following conclusion: the level of students' physical development decreases each year because of many factors. As a result of this the load and physical exercises, which are offered nowadays, are not suitable for non-sports profile students in terms of present time realia. In this connection it is necessary to create the methodology of additional lessons on land for students, in order to fulfill them individually and distantly under the control of a teacher.

Keywords: swimming, students, physical qualities improvement.

For citation: Ildus G. Gibadullin, Vadim S. Mashanov*, Evgeniy O. Gorbunov, Sergey I. Mashanov, Lubov I. Kostyunina. Dynamics of special physical fitness indices of athletes engaged in swimming. Russian Journal of Physical Education and Sport. 2022; 17(3): 58-61. DOI: 10.14526/2070-4798-2022-17-3-70-74.

Introduction

The activity of students is diverse: theoretical disciplines, practical disciplines and etc. One of the practical disciplines is physical culture. Taking into consideration the aims and objectives of physical culture we can come to the conclusion that in case of correct attitude of a student regular physical culture lessons attendance should provide a positive dynamics of results and physical abilities improvement among students. Within recent years the level of physical abilities and control tests indices significantly decreased. In this connection we set the following aim: to analyze the results of control tests fulfillment in swimming among the 1st-3rd course students of non-sports profile.

The objective of the research is to reveal the dynamics of special physical fitness indices among the students. They are engaged in swimming at physical culture lessons.

-to estimate the dynamics of control tests results among people, who just entered the University in 2013-2018.

-to estimate the dynamics of control tests results increase since the 1st-till the 3rd course among the

students, who entered the University since 2013 till 2018.

Materials and methods

The research work had 4 stages and was held during 3 years on the basis of Udmurt State University among the students. They are engaged in swimming at physical culture lessons. At all 4 stages we gathered the results of all control tests: 12 minutes non-stop front crawl swimming in complete coordination, 50 meters front crawl in complete coordination taking into account time, 25 meters front crawl with the help of legs taking into account time, breath holding with diving taking into account time.

Control norms fulfillment was held according to 4 stages: the 1st stage – initial, the students fulfilled the norms during the first two weeks since the beginning of the discipline mastering; the 2nd stage – the norms were fulfilled at the end of the 1st course; the 3rd stage- the norms were fulfilled at the end of the 2nd course; the 4th stage – the norms were fulfilled at the end of the 3rd course.

90 students took part in the research (55 boys and 35 girls).

The students of the 1st-3rd course, who entered the University in 2013-2018 took part in the research.

Information sources analysis and summarizing, pedagogical testing – 12 minutes nonstop front crawl swimming, 50 meters front crawl in complete coordination taking into account time, 25 meters front crawl with the help of legs taking into account time, breath holding with diving taking into account time, methods of mathematical statistics.

We estimated the following indices: 12-minutes swimming (amount of meters); at the distance of 25 and 50 meters we estimated the time of distance overcoming; breath holding – time of being under water.

Results and discussion

The results of control tests fulfillment are presented in tables and diagrams below.

Table 1

Dynamics of control tests indices among the 1st course students

Year of entrance	12 minutes		25 m legs		50 m crawl		Breath holding	
	meters	%	sec	%	sec	%	sec	%
2013	526,15	-	27,3	-	42,9	-	56,7	-
2014	492,2	-6,45	30,1	-9,30	44,9	-4,45	52,2	-7,94
2015	456,2	-7,31	28,8	4,51	47,8	-6,07	58	11,11
2016	484,5	6,20	30,9	-6,80	47,5	0,63	56,4	-2,76
2017	484,2	-0,06	25,8	19,77	42,1	12,83	54	-4,26

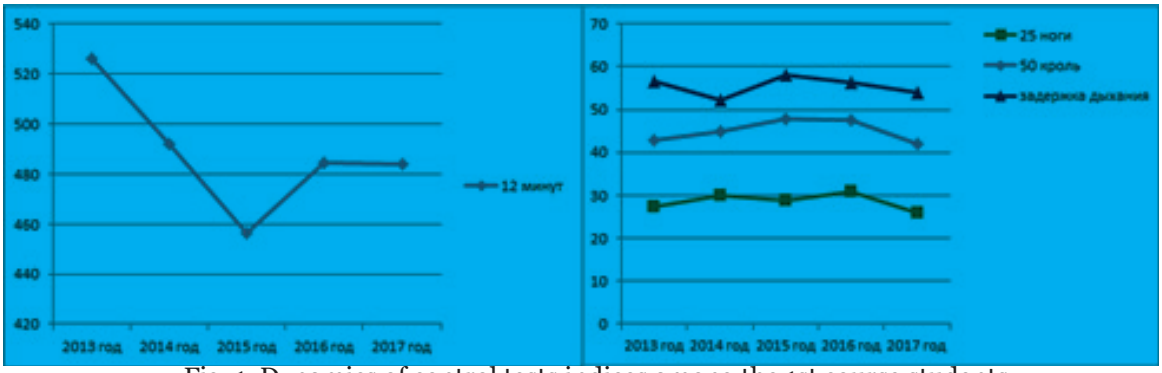

Fig. 1. Dynamics of control tests indices among the 1st course students

The held analysis of control tests indices among the students of the 1st course of non-sports profile at Udmurt State University showed the following:

- nonstop front crawl swimming during 12 minutes shows the level of endurance among the 1st course students. This index decreases during the whole period of the research;
- swimming with the help of legs at 25 m distance shows the level of speed oriented qualities of the 1st course students. There was some result improvement in 2015 and 2016, other indices of the mean values were unchanged;
- front crawl swimming in a complete coordination at 50 m distance for time, shows the level of speed qualities and technical mastery of the 1st course students. There was a stable results decrease till 2016, in 2017 this index insignificantly exceeded the initial level since the beginning of the research;
- breath holding with head putting under water, shows the ability of the 1st course students to hold breath during different exercises fulfillment in water. During the whole research this control test shows negative dynamics, apart from 2016, when there was insignificant result improvement.

Table 2

Dynamics of control tests indices increase during the whole period of studying

Year of entrance	12 minutes	25 m legs	50 m crawl	Breath holding
	1-3	1-3	1-3	1-3
2013	17,69	14,24	13,96	32,97
2014	8,32	6,45	5,68	32,34
2015	21,03	12,49	15,75	21,77
2016	13,36	10,85	9,17	21,35
2017	23,49	1,31	6,44	18,06

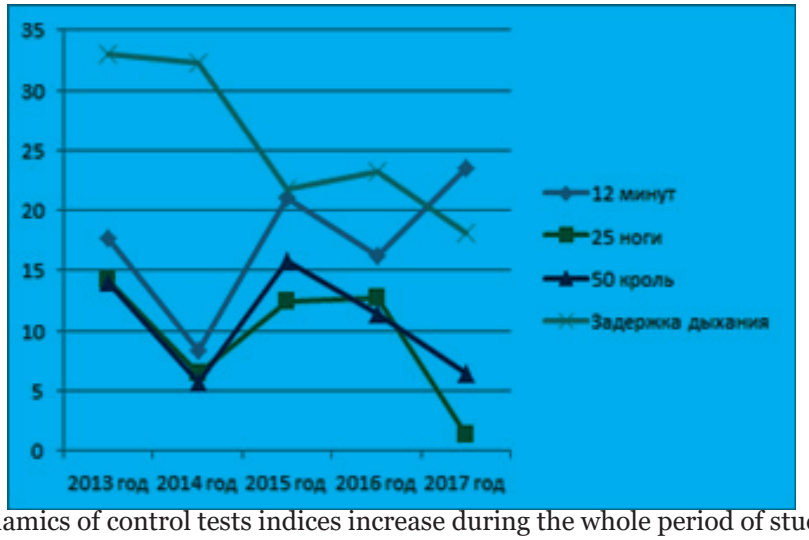

Fig. 2. Dynamics of control tests indices increase during the whole period of studying

The held analysis of the control tests indices increase among the 1st-3rd course students of non-sports profile at Udmurt State University showed the following:

- the dynamics of nonstop front crawl swimming indices increase during 12 minutes shows the effectiveness of swimming lessons, directed toward aerobic qualities of an organism upbringing. During this index study within the whole course of studying we revealed the increase intensification without the setting swimming at 12 minutes distance;
- dynamics of indices increase at 25 meters distance for time, shows the effectiveness of swimming lessons, directed toward anaerobic qualities of an organism upbringing and the technique of legs work in crawl mastering. We see indices growth decrease during the whole period of the research;
- the dynamics of front crawl swimming in complete coordination indices increase at 50 meters distance for time, shows the effectiveness of swimming lessons, directed toward anaerobic

qualities of an organism upbringing and mastering front crawl swimming technique in complete coordination;

- the dynamics of breath holding with head putting under water indices increase, shows the effectiveness of swimming lessons, directed toward volitional qualities upbringing, not comfortable feelings overcoming during breath holding during different exercises in water fulfillment.

Conclusion

On the basis of the carried out by us research work we come to the following conclusion: the level of students' physical development decreases each year because of many factors. As a result of this the load and physical exercises, which are offered nowadays, are not suitable for non-sports profile students in terms of present time realia. In this connection it is necessary to create the methodology of additional lessons on land for students, in order to fulfill them individually and distantly under the control of a teacher.

References

1. Akhmetova I.I. *Genomika sporta, dvigatel'noj aktivnosti I pitaniya* [Genomics of sport, motor activity and nutrition]. Moscow: "Sport" publishing house. 2022: 584 [In Russ.].

2. Zueva M.V., Gerasimov S.N., Zyryanova A.K., Grechanov P.B. *Plavanie. Krol na grudi: uchenoe posobie* [Swimming. Front crawl swimming: manual]. Novosibirsk: Novosibirsk State Technical University. 2020: 86 [In Russ.].

3. Kazyzaeva A.S., Galeeva O.B., Zhukova E.S., Baksheev M.D. *Teoriya I metodika obucheniya bazovym vidam sporta. Plavanie: uchebnoe posobie* [Theory and methodology of teaching the basic kinds of sport. Swimming: manual]. Omsk: Siberian State University of Physical Culture and Sport. 2016: 120 [In Russ.].

4. Makhov S.Yu. *Plavanie: uchebno-metodicheskoe posobie* [Swimming: educational-methodical manual]. Orel: Interregional Academy of safety and survival (MASAS). 2016: 40 [In Russ.].

5. Platonov V.N. Dvigatel'nye kachestva I fizicheskaya podgotovka sportsmenov [Motor qualities and physical training of athletes]. Moscow: "Sport" publishing house. 2022: 656 [In Russ.].

6. Stepanova M.V. *Plavanie v sisteme fizicheskogo vospitaniya studentov vuzov: uchebnoe posobie. 2-e izdanie* [Swimming in the system of physical upbringing of students at higher educational establishments: manual. the 2nd edition]. Orenburg: Orenburg State University, Electronic-library system ACB. 2017: 137 [In Russ.].

7. Tokar E.V. *Zanyatiya po plavaniyu v vuze: uchebnoe posobie* [Swimming lessons at a higher educational establishment: manual]. Blagoveshchensk: Amur State University. 2017: 170 [In Russ.].

Submitted: 20.08.2022

Author's information:

Ildus G. Gibadullin *– Doctor of Pedagogics, Professor, M.T. Kalashnikov State Technical University, Izhevsk, 426069, Russia, Izhevsk, Studencheskaya str., House 37, e-mail: ffkis@istu.ru*

Vadim S. Mashanov *– Senior Lecturer, Udmurt State University, 426034, Russia, Izhevsk, Universitetskaya str., House 1, e-mail: himik_07@list.ru*

Evgeniy O. Gorbunov *– Senior Lecturer, Udmurt State University" , 426034, Russia, Izhevsk, Universitetskaya str., House 1, e-mail: lunatik-88@list.ru*

Segey I. Mashanov *– Senior Lecturer, Udmurt State University, 426034, Russia, Izhevsk, Universitetskaya str., House 1, e-mail: dsudgu@mail.ru*

Lubov I. Kostyunina *- Doctor of Pedagogics, Professor, I.N. Ulyanov State Pedagogical University, Ulyanovsk, 432700, Russia, Ulyanovsk, 100-years of Lenin's birth square, House 4/5, e-mail: likost@mail.ru*