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Evaluation of Features of Development of Sports Way of Swimming of Students of Various Sports Specialization

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ABSTRACT

Bachelor educational program "Physical culture and sport" must master special, substantive and core competencies, not only in the chosen specialization, but also in the basic sports, including "Swimming." It is a necessity due to the fact that the graduate program in order to protect their health and life should own at least one method of navigation. The object of study - the educational process of preparation of bachelors of physical culture and sports in the discipline "Swimming with the methodology of teaching". Subject of research - optimization of swimming training students of different sporting specializations in credit conditions in B-tem training. The aim of this series of studies - to improve efficiency and the training methods of diving students of different sporting specializations in conditions of credit system of training by developing a set of exercises. The task: to develop sets of exercises that improve training effectiveness, taking into account levels of physical fitness and swimming sports specialization students. Research methods. To achieve this goal, and to test the hypothesis in the set of methods was used, consisting of a theoretical analysis of the pedagogical literature, formulation of pedagogical experiment on using the developed sets of exercises and an electronic textbook for teaching, statistical data processing. Results and discussion. Studying diving course students of all specializations of sports on a specialty "Physical culture and sport" involves teaching methods bachelor sport diving. As our teacher observations, the initial level of the swimming training of students is different, which causes considerable difficulties in mastering swimming techniques and extend the learning process. Given that student training is limited to the number of allocated hours for swimming training, it requires the teacher to develop new technologies to speed up the learning process different methods of navigation.

KEYWORDS

Swimming, sport education, sport development, sport specialization

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Introduction

One frequently hears or reads of the suggestion that swimmers should be taught to swim like a particular champion or role model. Not only is that rife in approaches to conditioning but it is does pervade technique instruction. Hay (1993) warned about the pitfalls of trying to replicate movement images displayed by successful athletes. The idiosyncratic needs of individuals were contained in the Principle of Individuality (Rushall & Pyke, 1991), an important factor that pervades coaching in any sport. With regard to technique, champions do exhibit action segments that illustrate the application of a correct movement

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principle but often only to have other features of their stroking patterns exhibit incorrect segments. Modern champions use all the arms (the upper arm, forearm, and hand) to create propulsive forces (Rushall, 2013; Cappaert & Rushall, 1994; Sharp & Costill, 1989, 1990).

Bachelor educational program "Physical culture and sport" must master special, substantive and core competencies, not only in the chosen specialization, but also in the basic sports, including "Swimming." It is a necessity due to the fact that the graduate program in order to protect their health and life should own at least one method of navigation.

Swim suits also modified the surface of swimmers as well as the area and profile (Sanders et al., 2001). Once manufacturers "got it right" (Berthelot et al., 2010; Keul, Bieder & Wahl, 2010) such suits were banned.

That should seem odd because many coaches attempt to build the greatest strength possible in their swimmers despite strength not being a determinant of success in female swimmers and to only a minor extent in male swimmers (Sokolovas, 2000). Since water is relatively "fragile" when compared to other sporting environments, the better strategy to improve performance is to develop greater areas of propulsive surfaces. As swimmers have continued to achieve higher velocities swimming on the water surface, there has been a change in what is occurring with arm strokes, the arms being the main sources of propulsion in surface swimming. Over the years, concentration on the hands as the propelling surface was initially advocated (Counsilman, 1968, 1970); then the propulsive surface was expanded to be the forearm plus the hand (Troup, 1992); and finally has reached the stage where the three segments of the arm constitute the ideal propulsive surface (Rushall, 2009). Increased propulsion does not come from having the greatest strength possible but from applying forces with the greatest propelling surface possible so that cavitation does not occur. The greater the water depth at which the fluid acceleration occurs, the less the tendency for cavitation because of the greater difference between local pressure and vapor pressure. Thus, it would be easier for a swimmer to cause cavitation on the surface than at a depth of possibly two meters (Marinho et al., 2010). The depth at which double-leg kicking is performed is important. D.A. Marinho et al. (2010) used a model to control depth and measure drag coefficients and forces at various depths. A very common technique error that is caused by both exaggeration and needlessness occurs with kicking actions. Many coaches believe kicking to be propulsive, which other than for breaststroke they are not (Brooks, Lance & Sawhill, 2000; Deschodt, 1999; Rushall, 1999, 2013). Big kicks create an excessive drain on a swimmer's reserve of energy and create excessive turbulence and resistance, which decrease the performance potential of a swimmer.

In crawl stroke, an unneeded/inadvisable action occurs with the "catch-up" or "overtaking" cyclic arm pattern (Fernandes et al., 2010; Millet et al., 2002; Schnitzle et al., 2008).

In connection with the above, the need for new innovative forms of employment.

It is expected that the efficiency of learning management swimming athletes of various sports specializations under a credit system of training depends on optimally organized educational technology based on common and differentiated approaches, such as:

- Improving the professional knowledge and skills in swimming with the use of modern technology and innovative design, based on them, model and curriculum, with the introduction of the electronic textbook to optimize the process of teaching and sports training;

- Determination and systematization of basic common errors committed by athletes of different sports in teaching swimming, with the justification of methods and means of teaching students;

- Clarification of relevant indicators and the factors determining and limiting the development of various methods of navigation;

- Preparation of sets of exercises to improve the efficiency of training tailored to individual and group characteristics caused by long-term specialization of athletes in various sports.

Addressing these issues will ensure good management of the swimming training of students in the conditions of credit system of training.

Methodological Framework

To achieve this goal, and to test the hypothesis in the set of methods was used, consisting of a theoretical analysis of the pedagogical literature, formulation of pedagogical experiment on using the developed sets of exercises and an electronic textbook for teaching, statistical data processing.

The study was carried out a differentiated selection of sets of exercises based on common mistakes typical for athletes specializing in different sports. In the experiment, the control group, students were engaged in the traditional method of swimming training, the experimental group according to our program of practical training.

Studies have shown that the effectiveness of teaching methods of navigation is largely determined by: the selection of methods and means of education, taking into account the specificity of sport has been some students, especially body and specially trained students of different sporting specializations.

Having determined that students of different sports have their own specific errors and levels of swimming training, the author of works of exercises have been developed for each group of students in sports, practical training programs and the model curriculum.

Distinctive features of the program and exercise facilities were such features as:

- The use of fins, "a net", auxiliary belts, partner employment assistance for the development of diving equipment;

- An increase in the volume of navigation through the use of fins;

- The use of exercises for the feet and hands to the specific error specific to the cyclic groups, hard-coordinating sports, sports games and martial arts;

- Compliance with the high-density lessons with optimal pauses for rest;

- For each group of passage of his plan of educational material;

- Differences in the amount and intensity of exercise, rest intervals, number of repetitions of exercises.

For the experimental group, the cyclic sports in the content of the sessions included exercises to develop flexibility and mobility of the upper body aerobic exercise and nature. In the study of the art method crawl on his chest, was given

more time to study the art of hand movements with mobile support in the legs and exercise to improve stroke technique. The complex of exercises for the study of art crawl on his back were included exercise initial position: the top of the hand, the simultaneous operation of his hands; exercise with one hand and the second top fixing. Students in this group have the best performance in endurance, and the content of their lessons included assignments with a longer, uniform swimming distance segments.

Results and Discussion

Studying diving course students of all specializations of sports on a specialty "Physical culture and sport" involves teaching methods bachelor sport diving. As our teacher observations, the initial level of the swimming training of students is different, which causes considerable difficulties in mastering swimming techniques and extend the learning process. Given that student training is limited to the number of allocated hours for swimming training, it requires the teacher to develop new technologies to speed up the learning process different methods of navigation.

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During the development of the art method breaststroke longer used exercises for the legs, due to the fact that in cyclic sports legs perform alternate movements, combining cuts with relaxation of muscles and perform sweeping movement, and are in a stressed state and stops at the Brass method legs deployed to the side. In addition, the exercises performed on the consistency of hand and leg movements with breathing.

In sports with the complex coordination of movement was improved in the control group - 49.8% in the experimental - 91.7%. All indicators were significant differences P <0,05. Diagram of the comparative analysis of the initial and final grades of control and experimental groups on the example swimming distances shown in Figure 1.

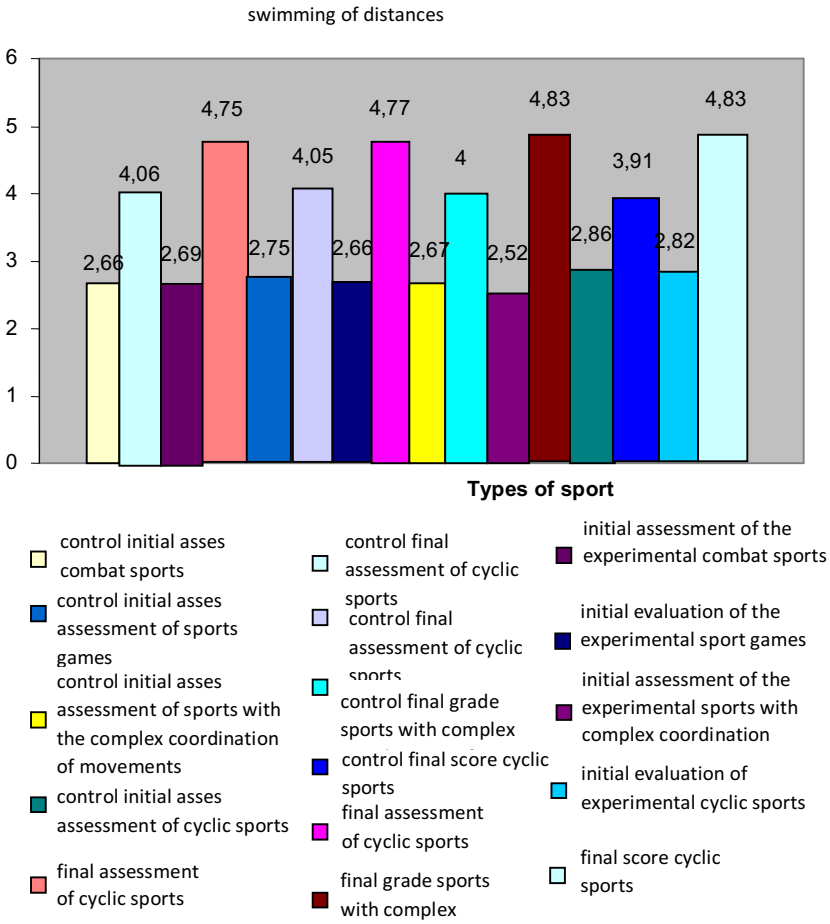

Figure 1. Comparative analysis of baseline and final assessments of control and experimental groups

Table 1. Summary results of the evaluations of swimming ability and technology 3 ways to swim among students of various specializations (in points)

Activities	The ability to swim	Types of sports: Cyclical sports, t-26				Martial, n-48				Sports games, n-32				Types of sports with a hard-coordinating movements, n-14			
		Average evaluation scores															
		К, n=13		Э, n=13		К, n=24		Э, n=24		К, n=16		Э, n=16		К, n=7		Э, n=7	
		$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S
The length of the glide	1	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0
	2	4,5	0,57	5	0	4,29	0,49	4,88	0,35	4,8	0,45	5	0	4,5	0,71	5	0
	3	4	0	5	0,71	4,12	0,35	4,88	0,35	4	0	5	0	4	0	4,5	0,71
	$\bar{X}$	**4,5**	**0,5**	**5,00**	**-**	**4,47**	**0,47**	**4,92**	**0,07**	**4,6**	**0,53**	**5,00**	**-**	**4,5**	**0,50**	**4,83**	**0,29**
The ability to swim a distance	1	4,86	0,53	5	0	4,89	0,33	5	0	4,86	0,38	5	0	5	0	5	0
	2	3,88	0,25	5	0	3,79	0,27	4,88	0,35	3,9	0,22	5	0	3,75	0,35	5	0
	3	3	0	4,5	0,71	3,5	0,46	4,38	0,52	3,38	0,48	4,33	0,58	3,25	0,35	4,5	0,71
	$\bar{X}$	**3,91**	**0,93**	**4.83**	**0.29**	**4,06**	**0,73**	**4,75**	**0,33**	**4,05**	**0,75**	**4,77**	**0,40**	**4,0**	**0,90**	**4,83**	**0,29**
Kroll chest	1	4,5	0,41	4,86	0,24	4,5	0,43	4,89	0,22	4,43	0,45	4,92	0,2	4,67	0,58	5	0
	2	3,75	0,29	4,5	0,41	3,5	0,41	4,25	0,38	3,9	0,22	4,42	0,49	3,75	0,35	4,25	0,35
	3	3,5	0	4	0	3,44	0,45	4,06	0,32	3,5	0,41	4	0	3,25	0,35	4	0
	$\bar{X}$	**3,92**	**0,52**	**4,45**	**0,43**	**3,81**	**0,60**	**4,40**	**0,43**	**3,94**	**0,47**	**4,45**	**0,46**	**3,89**	**0,72**	**4,42**	**0,52**

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Continuation of Table 1

Activities	The ability to swim	Types of sports															
		Cyclical sports, t-26				Martial, n-48				Sports games, n-32				Types of sports with a hard-coordinating movements, n-14			
		Average evaluation scores															
		К, n=13		Э, n=13		К, n=24		Э, n=24		К, n=16		Э, n=16		К, n=7		Э, n=7	
Kroll on the back	1	4,43	0,45	4,79	0,27	4,5	0,43	4,83	0,25	4,5	0,5	4,92	0,2	4,5	0,5	5	0
	2	3,75	0,29	4,5	0,41	3,5	0,41	4,19	0,26	3,9	0,22	4,5	0,45	3,75	0,35	4,1	0,14
	3	3,5	0	4	0	3,38	0,38	4	0,27	3,63	0,25	4,17	0,2	3,25	0,35	4	0
	_X																
		3,89	**0,48**	**4,43**	**0,40**	**3,79**	**0,61**	**4,34**	**0,43**	**4,01**	**0,45**	**4,53**	**0,38**	**3,83**	**0,63**	**4,37**	**0,55**
Brass chest	1	4,36	0,38	4,71	0,39	4,44	0,46	4,72	0,44	4,36	0,48	4,58	0,49	4,17	0,29	4,67	0,29
	2	3,63	0,48	4,25	0,29	3,43	0,35	4,13	0,26	3,8	0,27	4,25	0,27	3,75	0,35	4	0
	3	3,25	0	4	0	3,25	0,27	3,88	0	3,5	0,41	4	0	3,25	0,35	4	0
	$\bar{X}$	**3,75**	**0,56**	**4,32**	**0,36**	**3,71**	**0,64**	**4,24**	**0,43**	**3,89**	**0,44**	**4,28**	**0,29**	**3,72**	**0,46**	**4,22**	**0,39**

Note - K control group, E - the experimental group, X - the average score in the group
1- confidently floating, flying weakly 2-, 3- non-swimmers

Average marks for technique of the process of breast crawl on students cyclic sports experimental group was 4,45 (S = 0,43) points with a gain of 60% in the control group - 3,92 (S = 0,52) with a gain of 37 ,5%.

In martial arts, through the introduction of a differentiated approach to the educational process, significantly increase the score in the experimental group to the 4,40 (S = 0,43), growth of 66%, while in the control group - 3,81 (S = 0,60), 43.2% increase.

Significantly, improved results in sports with a complex coordination of movements, as in the experimental group, the average score was 4,42 (S = 0,52) points, and the 67.4% increase in control - 3,89 (S = 0,72) points, the increase was slightly lower - 44.6%. In a group of students of sports in primary values 2,69 (S = 0,80), in the control - 2,75 (S = 0,79), in the experimental group, these figures increased to 3,94 (S = 0,47) , growth of 46.4%, 4,45 (S = 0,46) increase of 61.8%, respectively (P <0,01).

The results of evaluation of ways to crawl back and breaststroke also improved. It should be noted that the estimates for the front crawl technique on the back and breast stroke as a result of selection of exercises and considering the peculiarities of specialization in experimental-groups became higher, it means that they have successfully mastered the technique of sport ways, than the control group. So, in cyclic sports average estimates for the implementation of the method amounted to crawl on his back: the experimental group - 4.43 points, an increase reached 63.4%, while in the control group - 3.89 points, an increase of 39.9%. In the method of Brass improvement in the experimental group was - 67.4% when evaluating 4,32 (S = 0,36) score in control group - 42.5% when evaluating 3,75 (S = 0,56) score.

The students of the experimental group received martial arts techniques for assessment method breaststroke 4,24 (S = 0,43) points, an increase of 68.2% in the control group score 3,71 (S = 0,64) score 44.9 %.

During the crawl method technique on the back of an estimate of 4,34 (S = 0,43) points, an increase reached 66.9%. In the control group the mean score increased by 44,6% (3,79 (S = 0,61) points). Students in this group is better mastered the way to the breaststroke, as they are easier performed simultaneous movements. Students in the experimental group of sports games improved their performance and received an average data assessment for breaststroke method technique - 4,28 (S = 0,29) points, the results of growth achieved - 63.9%, while the control group students received an average of 3, 89 (S = 0,44) points, where the percentage of growth was - 50.7%. For the technique of the process on the back crawl average increased by 68.4% in the experimental group (4,53 (S = 0,38) points), in the control, the increase was lower by 52,4% (4,01 (S = 0.45) points. the students of this specialization with great difficulty mastered this method of navigation. Long limbs, plunging into the water, creating an increased resistance, thereby increasing the angle of attack.

In sports with the complex coordination of movements of the difference in the estimates for the method of brass between groups was 13.4%, the best performance of the experimental group students, the average score for a way to the breaststroke was 4,22 (S = 0,39) points, the increase was 70.8 % in the control average score was 3,72 (S = 0,46) points, a gain of 52.4%. On average data estimation method for the technique to crawl back reached 4,37 (S = 0,55)

with a gain of 71.3%, and in evaluating the control group increased to 3,83 (S = 0,63) or 51.3 % (P <0,01).

Thus, by accounting for group and individual characteristics of students, learning, improvements were obtained in the dynamic assessment of swimming ability. Introduction of an individual approach to the educational process contributed to a significant increase in the level of the swimming abilities of students.

The main objective of our experiment was faster and better teach students to swim different sports specializations, and verify the effectiveness of the programs developed by the passage of a practical material.

By using the technology developed by the exercise and the use of these programs, it was found that the modifications proposed in the art of navigation qualitatively altered the art perform movements that lead to successful completion of benchmarking.

The results show that the developed complex of exercises and the use of technical aids in the work on technique, depending on the initial level of preparedness, allow students to master the technique of swimming in a shorter time. This indicates that experimental learning was more effective in comparison with the conventional. The study was amended in the typical program on discipline "Swimming with the methodology of teaching." The experiment proved the effectiveness of using the developed sets of exercises and tools for the optimization of the training process in swimming, taking into account individual and group morpho-functional features and the physical fitness of students specializing in different sports. Thus, implementing the principle of credit technology of individualization of the educational process.

Disclosure statement

No potential conflict of interest was reported by the authors.

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