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ALGORITHMIC TRAINING PROGRAM FOR SWIMMING I - IV CLASS IN THE BULGARIAN SCHOOL

INTRODUCTION

Introduced in the year 2000 state educational requirements in the Bulgarian school, respectively, for subject physical education suggest updating and adapting the educational content to I - XII class in accordance with European standards and criteria.

In this connection, however, the prepared educational programs for mandatory training in swimming for each class don't allow for effective learning.

MATERIAL AND METHODS

There have been a number of errors of methodical and terminological character, major ones in the programs I - IV class which refer to:

1. Unreasonable methodical sequence of the expected results for I - IV class:
   a) For I - IV class - "Mastering the applied skills of a swimming style, and then to V - VII Class -" Mastering the basics of the art of a swimming style "
   b) For IV class – first - studying the movements of the hands (arms) of the crawl, and then - the movements of the legs.
2. Unsupported determination of the initial style of swimming in II class - back stroke, not crawl or breaststroke (in this case is incorrect the term "back".
3. Missed water games and basic exercises
   a) Preparatory exercises - in the program for II class
   b) Exercises on land and on fixed support
   c) Exercises for turning - for all classes, and start for II - IV class
4. Including a very little number of exercises with or without mobile support - for legs, arms and coordination
5. Indication for only one control requirement – only in the program for IV class and at a very small distance (10-15 m), in no particular style of swimming.
6. Admitted terminological errors, for example: chest sliding, scissor like movements, outdoor swimming pools, open water sites and more. (3, 4)

RESULTS AND DISCUSSION

It should also be pointed that the obligatory training in swimming takes place in a small number of schools, because of the requirement to have lessons in school time and insufficient number of indoor swimming pools outside the capital.

Given these shortcomings in the educational programs and difficulties of organizational and material-technical nature, purpose of this work is the algorithmic

development of a training program in the styles crawl and back stroke and establishes its effectiveness and applicability.

58 students (8-9 years old) from 2 schools in Sofia, took part in the study, divided into an experimental and control group. Classes held three times a week (40 minutes) for three months in shallow (17 meter) pool..

For the training of the experimental group we produced an algorithmic program, based on the principles of programmed learning (such as didactic approach) to study the technique of crawl and back stroke, which consists of five learning tasks. (Application 1):

1. Studying the preparatory exercises
2. Studying the movements of the legs in crawl and back stroke
3. Studying the movements of the arms in crawl
4. Studying the coordination of the movements in crawl
5. Studying the movements of the arms and the coordination in back stroke (1,2)

The program includes basic and auxiliary teaching material, water games, control requirements and exercises for removing the errors in the swimming technique. Achieving the control norms after every training task is a requirement for moving to the next. Those who haven't complied with the normative repeat the main and auxiliary exercises at the training task. It should be noted, that the programmed training is used in the synchronized swimming and the fenccing. (5,6)

he training conducted with the control group in the obligatory educational program for training for II and III class (according to the educational requirements). In the educational program the study material included as mentioned above, is insufficient and incomplete: for the preparatory exercises, exercises for legs, arms and coordination crawl and back stroke and there is only one control requirement.
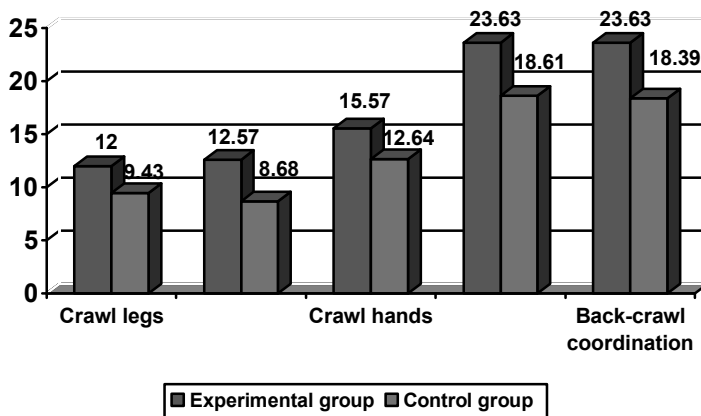
Application 3

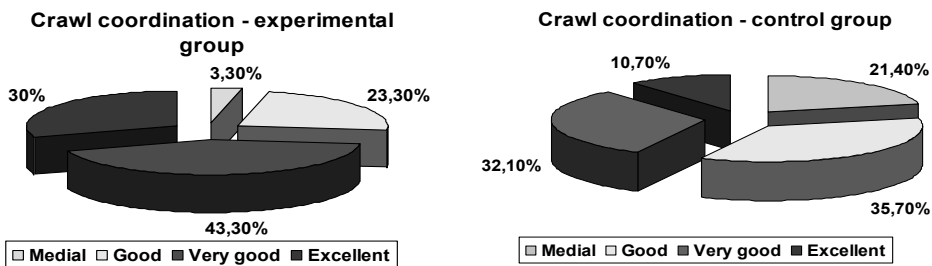**Fig. 1** *Results of the realization of the control norms*
Application 4

Crawl coordination - experimental group

Crawl coordination - control group

Fig. 2 *Assessment in the realization in crawl coordination*

Back-crawl coordination - experimental group

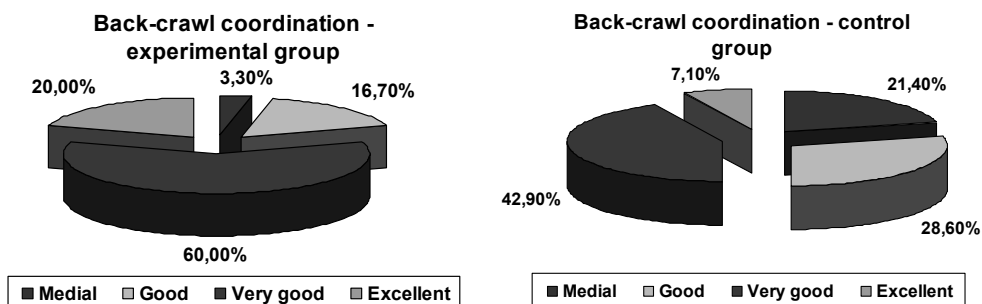**Back-crawl coordination - control group**

Fig. 3 *Assessment in the realization in back stroke coordination*
***Application 2   Table 1.** Realibility of the differences between the two groups*

Indicators	Experimental group		Control group		Increment d	t	P(t) %
	$\overline{X}_1$	S_1	$\overline{X}_2$	S_2			
1 Legs in crawl	12,00	3,41	9,43	3,28	2,57	2,92	>99
2 Legs in back stroke	12,57	3,43	8,68	4,91	3,89	3,51	>99
3 Arms in crawl	15,57	4,99	12,64	4,56	2,93	2,33	>99
4 Crawl coordination	23,63	7,24	18,61	7,40	5,02	2,61	>99
5 Back stroke coordination	23,63	5,48	18,39	7,01	5,24	3,18	>99

Application 1

I. Algorithmic training program for swimming I – IV class / Learning tasks Studying the preparatory exercises	
Basic teaching material	Auxiliary teaching material
1. Walking and running in the water	Movements of the limbs and body
2. Jumps and sinking	2. Breathing in and breathing out: a) on land b) on the water line (air-blast) c) continuous breathing in the water

3.	Watching in the water Exercising the breathing shorter breathing in, longer breathing out rhythmic breathing	3. Exercise "mushroom" and "jellyfish"
4.	Exercise "Star" a) on back b) on chest	4. Sliding with a partner – by dragging I after dragging a) on back b) on chest
5.	Sliding - with different hand positions a) on back b) on chest - with breathing out	5. Sliding with mobile support a) on chest b) on back
	Control norms: 1.Rhythmic breathing – 10 times (at the 5 occupation) 2.Sliding – 3 meters (at the 8 occupation) a) on back b) on chest	
II.	**Studying the movements of the movements in crawl and back stroke**	
	Basic teaching material	Auxiliary teaching material
1.	Movements with legs in crawl –with support of the arms on the a) bottom on chest - with breathing out and breathing b)on back	1. Crawl movements with legs on land a) by leg b) seated
2.	Legs in crawl – with mobile support (cushion) a) with breathing b) with breathing out	2. Crawl movements with the legs – with partner a) on back b) on chest
3.	Legs in crawl swimming (the arms are outstretched) – with breathing	3. Back stroke legs – with mobile support a) positioned under the head b) caught with hands – over the hips
4.	Legs in back stroke swimming a)the arms are outstretched b) the arms are to the body	
	Control norms: 1.Legs in crawl – 10 m (at the13 occupation) 2. Legs in back stroke – 10 m (at the 15 occupation)	
III.	**Studying the leg movements in crawl**	
	Basic teaching material	Auxiliary teaching material
1.	On land –movements in crawl with arms a) with one hand b) in coordination between the arms	1. On land from lying position - movements in crawl. horizontally from the slope with arbitrarily breathing and breathing a) in coordination between the arms b)with one arm
2.	Movements in crawl witht patner a) with one arm b)in coordination between the partner hands	2. Movements in crawl from horizontally slope – on site in the water - a) in coordination between the arms with breathing out and breathing b) with one hand
3.	.Movements in crawl with the one arm and legs a) with breathing b) with breathing out	3. 3. Movements in crawl with the one hand and legs a) with mobile support for the other arm b) the other arm is outstretched
		4. Arms in crawl with mobile support (between the hips) - with breathing out and with breathing
	Control norm: Movements in crawl with one arm and legs – 17 m (at the 21 occupation)	

The data from the pedagogical experiment, we collated, based on the realization of the control standards. The analysis found that the respondents of the experimental group achieved better results than the control group. In the beginning of the training, the difference between the both groups was not large, for example in the norm for the sliding (67,2 % vs. 59%), then it increases and in arms crawl, coordination crawl and coordination backstroke - is statistically significant in favor of the experimental group. (Application 2). The average swimming distance of the students in this group is higher - 23.6 m in coordination crawl and 24.6 m in coordination back stroke. In the control group the swimming distances are 18,6 m in coordination crawl and 18,4 m in coordination backstroke. (Application 3 – figure 1). The experimental group has higher average assessments of the technique of swimming 4,6 vs. 3,7 – in coordination crawl and 4,8 vs. 3,9 in coordination back stroke (P% >95). (Application 4 – figures 2 and 3).

We believe that the better achievement is accomplished by the structure and contents of the appreciated algorithmic program which gave the opportunity of assimilating the swimming technique, to be differentiated by speed and quality depending on the individual results shown during the learning process. Respondents of the experimental group (as opposed to the control group) began teaching the style crawl, realized a large number of exercises - basic and ancillary tests, water games and assistive devices. They made less errors in the studying of the movements of the legs, arms and coordination of crawl and back stroke.

CONCLUSIONS

1. Educational content in swimming for early stage (I - IV class) in the state standards has significant shortcomings in theory, methodology and terminology of the swimming sport that require their correction and updating.
2. The respondents of the experimental group achieved higher scores than the control group in learning the technique of crawl and back stroke, indicating that the applied algorithmic program is more effective than the standard training programs in swimming for I - IV class included in state educational requirements.
3. The developed algorithmic program can be used both in the conduct of the obligatory training and free elective preparation for swimming in Bulgarian schools.
4. It is imperative that the discipline includes swimming, as the main core of the state educational requirements for physical education and sports, for creating the conditions for his study from I to XII class and the acquisition of knowledge and skills of the students in this important social and applied sport.
5. The swimming lessons have to be conducted by teachers with a degree in swimming to help improve the quality and effectiveness of the education through the use of interactive and innovative methods.

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The study consists in the application of an alternative program for swimming for 1-4 class in Bulgarian schools. The experiment was conducted with children (7-8 years old) at two schools in Sofia with the styles crawl and back crawl. The results show that the developed programs can be used as for mandatory training and in elective. These forms are regulated under the governmental educational requirements for learning the physical education and sport (swimming).