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## **Development of strength training of swimmers by the Breaststroke method**

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### **ABSTRACT**

**Aim:** to determine the design and effectiveness of a complex of exercises aimed at improving the strength training of 15-16-year-olds engaged in swimming training.

**Methods:** 1. Theoretical generalization and analysis of data of scientific and methodological literature; 2. Pedagogical testing; 3. Pedagogical experience; 4. Mathematical statistics style.

**Results:** as a result of the study, an increase in strength training of young swimmers was achieved.

**Conclusion:** the effectiveness of the methods developed for the development of strength training is confirmed by the growth temps of the indicators that characterize the strength of the swimmers.

**Keywords:** breaststroke, strength, special exercises, development, pedagogical testing.

### **I. INTRODUCTION**

Breaststroke method differs from other methods of swimming by the degree of technique and results. Swimming is the ability of a person to perform certain actions with the help of slave and foot movements and to stand in the water without any other means of support. The modern system of exercises for swimming allows swimmers the opportunity to develop a harmonic development of the muscular system. Swimming improves the work of all systems of the body, first of all-the work of the cardiovascular and respiratory systems. The problem of power training is one of the pressing problems in physical education. Strength training is widely practiced in sports pedagogical literature. In particular, the methods of attachment with the seizure of physical exercises aimed at training the strength of the swimmers are considered more. Ability to power grows at the ages of 7-11 and 15-16 years. In young athletes, the habituation to the loads is often preceded by the evasion of the rhythm of the heart beat, which provides the basis for the ability and overcoming of the loads with savings(1-3,8).

Currently, the forces of specialists are focused on the search for ways that allow you to conduct training more efficiently. In the scientific literature, in the process of increasing the technical readiness of floating athletes, the puddle of special gills is shifted and widely illuminated. In the training of strength training of swimmers in the same number, insufficient attention was paid to the pool of these swimmers. Proceeding from the foregoing, it should be

noted that the need to improve the process of training, aimed at increasing the strength training of 15-16 year old adolescent swimmer, and the lack of a complex of exercises aimed at developing this quality, is dependent. The analysis of the fundamental aggregate work devoted to the problems of improving the motor skills of athletes showed that some autonomous questions of the multi-year pedagogical observation process have not been adequately considered until now. Lack of sufficient reflection of theoretical rules and lack of experience on the basis of many years of experience will determine the need to formulate the behavior of swimmers creation of styles(4-7).

One of the main factors in the growth of sports achievements is the improvement of strength towards the goal. However, for many swimmers, the breaststroke method is one of the most difficult, since in the breaststroke it is necessary that the hands and feet are strong, and the movements are harmonious and symmetrical. That is why search topical new methods of improving strength when swimming with the breaststroke method. As can be seen from all the above, now there is not enough scientific and methodological co-operation in solving this problem. The development of a complex of exercises aimed at improving strength training of 15-16 year olds in the swimming sector is considered a sufficiently urgent problem(9-11). The purpose of the research work is to determine the design and effectiveness of a complex of exercises aimed at improving the strength training of 15-16 year olds engaged in swimming training. The object of the study is the training process of 15-16 year old swimming athletes. The subject of the training is the improvement of strength training of adolescents engaged in swimming in the brass method 15-16 years old.

## **II. METHODS**

Strength training in sports swimming relies on the universal printouts of sports training. So, the methods of strength training are suitable for those that are used both in water and in training on land, swimming is carried out under conditions of artificial complexity. Among the means of strength training of swimmers in the water, a rubber damper that stretches in the water is widely used. However, different qualified athletes use different shock absorbers. That is, in the main stages of preparation simple rubber ropes are used. In the upper category swimmers, the degree of elongation of the rope is determined according to the tasks set in the power training. Actual in the whole swimming sport-it is the problems of improving the swimming technique, improving the special strength training of the athlete while ignoring the description of energy consumption in the intervals of the competition (6,9-11).

Stage.1. (September 2017, February 2018) scientific literature, program documents were studied, theoretical analysis was made and summarized. In the process of analyzing

scientific and methodological literature, organizational and methodological materials, the direction of the research work was chosen, the relevance, problems, subject, functions, object and subject of the research were determined.

Stage.2. (September 2017, April 2019) pedagogical experiments were conducted, aimed at practical justification of the effectiveness of the experimental method of training.

Stage.3. (May 2019) qualitative analysis of the data obtained in the experiment was carried out, the final conclusion of the results of the study was drawn.

A complex of pedagogical methods was used to solve the tasks assigned to scientific and experimental works, they are as follows:

1. Analysis of scientific and methodological literature. In order to obtain objective information on the questions posed, swimming literature was studied to determine the style of the research. As a result of consideration of scientific works of our country and foreign specialists, scientific-methodical literature, descriptions of the main means, methods and conditions affecting the development of physical qualities of swimmers were given in our work.

2. Testing Power attributes. In the process of physical training is an important organizational and guiding force and serves to establish control over the development of physical attributes. One of the indicators that characterize the development of physical attributes is the satisfactory passing of athlete's tests.

3. Pedagogical experiments were conducted in the 1<sup>th</sup> swimming pool of Bektemir District of Tashkent.

15-16 year old, 22 year old teenager with I and II sports category participated in the experiments. Two groups-control and experimental groups-were established and each consisted of 11 people. The control group swimming was engaged in the standart program, the experimental group training process included a method of improving the strength qualities of the swimmers, which I improved.

4. Mathematical statistics style. All the results of the research were processed using the statistical package Microsoft Excel 2008.

### **III. RESULTS AND DISCUSSION**

An increase in the quality of strength is observed with a decrease in the speed of opportunities of athletes, this condition occurs after a few weeks after the start of strength training. This makes it possible to perform strength work with exercises that have a quick sign of strength. The following is an improved technique in power development:

To assess the effectiveness of the proposed power development improved method, the following 5 tests are offered:

**Test.1.** Work the maximum time until the end with rubber. Testing is carried out in the gym until it is impossible to work with maxed-out rubber expander, Swedish wall<sup>1</sup>, medium intensity and moderate power.

**Test.2.** The work has done with rubber for a maximum number of moves for 1 minute. Testing is conducted, as the rubber expander, Swedish wall maximized in the gym, controlled with strict chronometric control, time hand stopwatch, with medium intensity and average spent power.

**Test.3.** Keeping the rubber in the water in full coordination for the maximum time until the end. Testing is carried out with a long thickened rubber in the water pool. The rubber stretches in the water to an average level of stretching (10-12 meters) and the test is performed until it leaves the starting line. Performance is carried out in full coordination, strictly chronometric control.

**Test.4.** Performance will be to hold the rubber in the water by hand to the end and perform for the maximum time. Testing is carried out with a long thickened rubber in the water pool. The rubber stretches in the water to an average level of stretching(10-12 meters) and the test is performed until it leaves the starting line. The performance is performed under strict chronometric control, with a pull buoy on the hands to limit the legs from any movement.

**Test.5.** Performance will be to hold the rubber in the water with the feet to the end and perform for the maximum time. Testing is carried out with a long thickened rubber in the water pool. The rubber stretches in the water to an average level of stretching (10-12 meters) and the test is performed until it leaves the starting line. The rubber stretches in the water to an average level of stretching (10-12 meters) and the test is performed until it leaves the starting line. Performance is carried out under strict chronometric control, limiting hands from any movement, that is, only with a board for swimming on the foot.

Raising the effectiveness of physical training is very important in all periods of training macro science, however, especially – during the training period, because during this period the necessary level of functional training is formed, which is the basis for improving the training of all other types of swimmers. Achieving this is carried out step by step, the tasks of the stages of preparation of the general education and special education are organizational and methodical. The main tasks of the general training period include the creation of a solid base of physical training, increasing the level of strength, significantly increasing the effectiveness of aerobic

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<sup>1</sup> Special ladder of swimming pool

indicators, increasing the maximum strength of muscles, strength training in aerobic and aerobic modes of work(2-4).

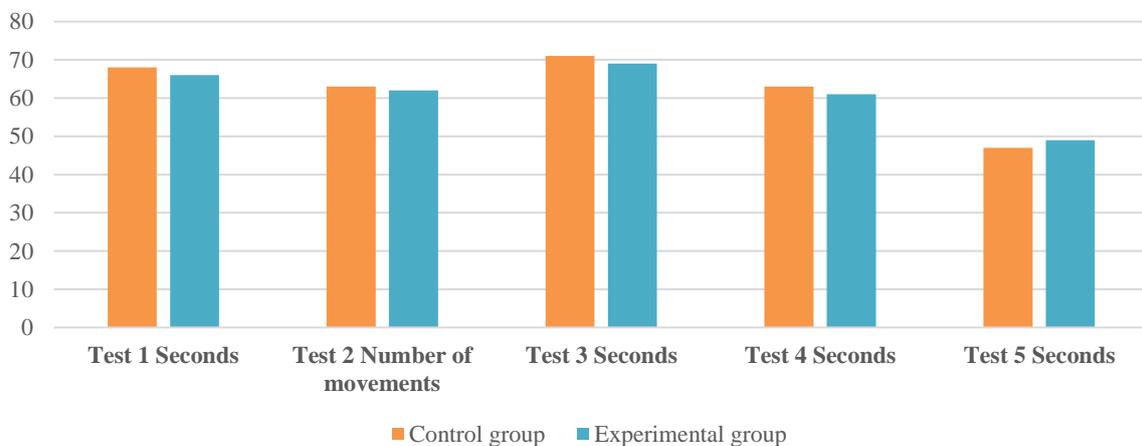
**Table 1**

**Experience and control group indicators obtained prior to the study**

Groups	Test-1, (sec)	Test-2, number of moves	Test-3, (sec)	Test-4, (sec)	Test-5, (sec)
Control group	68,12 ± 4,24	63,00 ± 1,00	71,54 ± 3,57	62,17± 0,95	47,28 ± 1,24
Experimental group	67,27 ± 1,23	62,00 ± 2,00	68,01 ± 4,10	61,54 ± 3,41	47,98 ± 2,14
P, level of reliability	P ≥ 0,05	P ≥ 0,05	P ≥ 0,05	P ≥ 0,05	P ≥ 0,05

As can be seen from the results of the study, there were no differences in test results between the groups prior to the study. This 1<sup>th</sup> indicators in the test 68,12 ± 4,24 sec. (control group) and 67,27 ± 1,23 sec. (experience group). 2<sup>nd</sup> test indicators: 63,00±1,00 number of movements (control group) and 62,00± 2,00 number of movements (experimental group). 3<sup>th</sup> test parameters: control group (71.54 ± 3.57 sec), Experimental group (68,01 ± 4,10 sec, (P-0,05). The same indicators were observed in 4 and tests. As can be seen from the results of the study obtained, it allows us to conclude that there is a significant difference between the groups in the indicators of strength training obtained before the study.

During training, the training process is based on the technology of organizing training tasks, which differ in the direction of impact, in accordance with the tasks that must be performed at a certain stage in the process of training, provides for the optimization of the structure of the functional training of the organism and a significant increase in the functional and special physical.



**Figure 1. Experience and control groups were obtained prior to the study power indicators**

Pedagogical experience was conducted to determine the effectiveness and expediency of the developed methodology. It involved two groups, control (n=11) and experiment (n=11). To solve the problem of experimental verification of the developed methodology, it was necessary to measure the indicators of strength training, before the pedagogical study in the control and experimental groups, and to analyze the results of swimming wear from the study.

**Table 2**

**Indicators of experience and control groups dressed up from the study**

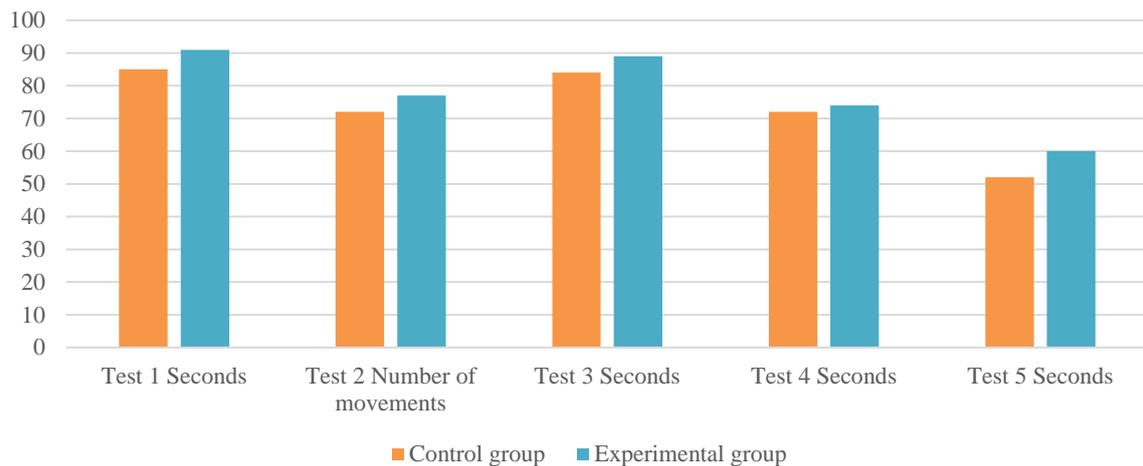
<b>Groups</b>	<b>Test-1, (sec)</b>	<b>Test-2, number of moves</b>	<b>Test-3, (sec)</b>	<b>Test-4, (sec)</b>	<b>Test-5, (sec)</b>
Control group	85,01 ± 2,37	73,00 ± 0,95	84,23 ± 2,51	72,87± 1,14	52,13 ± 1,61
Experimental group	92,10 ± 1,98	77,09 ± 1,56	89,35 ± 1,76	75,06 ± 0,94	60,08 ± 1,80
P, level of reliability	P ≤ 0,05	P ≤ 0,05	P ≤ 0,05	P ≤ 0,05	P ≤ 0,05

As can be seen from the results of the study (table 2.), differences between the groups appeared in the test results after the study. The indicators in the 1<sup>st</sup> test is 85,01±2,37 sec. (control group) and 92,10±1,98 sec. (Experience group). 2<sup>th</sup> indicators in the test: 73,00±0,95 number of movements (control group) and 77,09±1,56 number of movements (experimental group). 3<sup>th</sup> indicators in the test: control group (84,23±2,51 sec.), experience group (89.35±1.76 sec.). 4<sup>th</sup> indicators in the test: control group (72,87±1,14 sec.), experience group (75,06±0,94 sec.). Indicators in the 5<sup>th</sup> test: in the control group (52,13 ± 1,61 sec.), experience group (60,08±1,80 sec., P 0,05 also).

As a result of the analysis of scientific and methodological literature on the problem of the study, we found that strength training develops in drought and with the help of special exercises on the water.

The effectiveness of the method developed for the development of strength training is confirmed by the growth pictures of indicators that characterize the strength ability of swimmers: 1<sup>th</sup> test obtained the following values in the experiment “Working with rubber to the maximum time until the end”: 85,01±2,37 sec., (Control group) and 92,10±1,98 sec., (Experimental group), at P ≤ 0,05. 2<sup>th</sup> test “The work is done with rubber to the maximum number of movements for 1 minute”. The results of the test are the same 73,00±0,95 number of movements (control group) and 77,09±1,56 number of movements (experimental group), p ≤ 0.05. 3<sup>th</sup> test ”Keeping the rubber in full coordination with the maximum time until the end in the water” indicators of the control group 84,23±2,51 SEC., Experience group 89,35±1,76

SEC.,  $P < 0,05$  in. 4<sup>th</sup> test “performance will be to hold the rubber in the water by hand to the end and will be performed for the maximum time” the results of this test are as follows:  $72,87 \pm 1,14$  sec., In the control group  $75,06 \pm 0,94$  sec. In the experimental group  $p \leq 0,05$ . 5<sup>th</sup> that is to say in the last Test “Performance will be to hold the rubber in the water with the feet to the end and perform for the maximum time” indicators of the control group  $52,13 \pm 1,61$  sec., In the experimental group  $60,08 \pm 1,80$  sec.,  $P \leq 0,05$ .



**Figure 2. The experiment and control groups were dressed up from the study power indicators**

#### IV. CONCLUSION:

-Means of measuring and developing the power shown in the analysis of literature indicate that this ability is not clearly developed and requires him to spend a lot of time, energy on it.

-Analysis of scientific and methodological literature on the research problem indicates the possibility of effective development of strength training using special exercises on land and water.

-The effectiveness of the methods developed for the development of strength training is confirmed by the growth pictures of indicators that characterize the strength of the swimmers.

-Development of strength mobility skills as well as speed-development of it taking into account the need for athletes engaged in strength sportstirishga requires the development of new methods.

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