Development Of Coordinating Abilities Among Girls Of Junior School Age In Synchronous Swimming Trainings

A.A. Lozovoy ¹, M.G. Selina ², A.S. Tretyakov ¹, M.A. Lozovaya¹

¹Federal State Budgetary Educational Institution of Higher Education “Siberian State University of Science and Technology named after Academician M.F. Reshetnev”, Krasnoyarsk, Russia.

²Federal State Budgetary Educational Institution of Higher Education Krasnoyarsk State Pedagogical University named after V.P. Astafieva, Krasnoyarsk, Russia.

Abstract: The article presents a study of development of coordination abilities among girls of primary school age in out-of-school sectional trainings in synchronized swimming at stage of initial training.

In the process of work, in order to determine effectiveness of application of a set of exercises aimed at developing coordination abilities among synchronized swimmers at the initial stage of training, a pedagogical experiment was carried out. In the experimental and control groups, trainings were held according to the following scheme: preparatory stage, main stage, final stage. Training was held three times a week; the training consisted of two stages: 45 minutes in the pool and the same time on the ground. Gradually, load increased, intensity and exercises content became more complicated. According to training plan of the experimental group, young athletes performed exercises of a dynamic and static nature, aimed at developing coordination abilities.

The study was conducted for two groups of 8 people. In the course of the experiment, a methodology for the development of coordination abilities was formed, which proved its effectiveness.

Keywords: training, synchronized swimming, girls of primary school age, coordination abilities, initial training.

Introduction

Synchronized swimming is mainly a female sport, the name itself determines its structure — execution of synchronized movements in water (with musical accompaniment). Synchronized swimming is one of the most elegant, sophisticated and spectacular sports. Synchronized swimming is a good posture and a beautiful figure, developed respiratory and cardiovascular systems, and, undoubtedly, a strong sports character. It is not easy to work six to eight hours not only in water, but also deep underwater, often upside down, with a long breath hold,
experiencing overload, while simultaneously performing complex acrobatic movements with a smile on your face, not having the right to touch the bottom of the pool.

It is impossible to force a child to engage in this sport without their desire, determination to engage in synchronized swimming, self-confidence is of great importance.

Synchronized swimming is a harmonious combination of three sports: swimming, gymnastics and acrobatics. During training, girls develop flexibility, sense of rhythm, plasticity and improve coordination skills. Thanks to perseverance and diligence, athletes achieve synchronism in performance of various elements to musical accompaniment.

As a spectacular sport, synchronized swimming is actively developing in many countries of the world and is included in the Olympic Games program. This sport meets girls’ desire for physical improvement and harmonious development, and therefore, there is a constant influx of beginners in synchronized swimming sections. Like any water sport, synchronized swimming brings up certain vital skills and abilities in a child. During training children receive not only versatile sports training, but also master choreography, rhythmic gymnastics, and acrobatics elements. The motor reserve, which is acquired at the initial stage of training, is the basis for further development of certain basis of movements in such a complex coordination sport as synchronized swimming. As experience shows, the lower is the age at which classes begin, the more methodically competent you can build the training process. Preparation should include the following points:

➢ ability to float easily;
➢ ability to swim freely in any kind;
➢ mastering synchronized swimming elements available for a certain age;
➢ continuous coordination abilities development.

Qualitative mastering of sports swimming skills and reducing the time of initial training in synchronized swimming with a simultaneous increase in movements quality are facilitated by parallel training in basic strokes and sports swimming methods. Swimming promotes development of a sense of rhythm and coordination which are necessary for basic elements execution. Possibilities of a healthy child's body correspond to connection between level of physical development, physical fitness and physical activity of children.

Training of synchronized swimming elements and combinations is based on repeated and persistent repetition of exercises. Monotonous repetition can quickly bore and tire children, and, given that, it is necessary to vary classes and exercises. Especially at first steps of training, it is recommended to include game moments, musical accompaniment in the training process more often, and actively use sports equipment. Along with this, it is necessary to constantly complicate tasks, increasing physical activity. From training to training, it is recommended to increase the complexity of the elements and the duration of the exercises. Swimming technique improvement, implementation of complex elements are honed; body functional capabilities, physical and psychological stability are increased thanks to the repeated repetition.

According to synchronized swimming training program, the main methods of sports swimming are initially mastered, and only then, athletes study technique, which includes: technique of basic strokes (flat, reverse, standard); the main positions of synchronized swimming: on the back (standard stroke, reverse stroke, propeller, reverse propeller), on the chest (reverse stroke, propeller, canoe), on the side, bending over, bending the knee to the chest,
on the back, tucking, tight tucking. Further, sports swimming methods improvement is mastered: swimming on the chest and on the back with alternating strokes, crawl swimming on the legs (glider position), crawl swimming with a raised head. Then, the study of the simplest figures that meet the requirements of youth category takes place: tuck, turn back in tuck, turn forward in tuck, rotation in tuck, “wave”, “marlin”, “pike”, turn back bent. The fundamental element in synchronized swimming is the support stroke. Students pass training in support stroke on the spot and in motion, in horizontal and vertical planes. For the vertical position of the body in the water (head up) and movements in this position, rowing movements of the legs are used - “ekbite” (modification of breaststroke movements with the legs) [2, 3].

At the initial stage of training, the main task for the trainer-teacher is to teach children to freely stay on water surface in various positions with support strokes. In parallel, sports methods of swimming are being studied and practiced. From the first lesson, training process includes exercises to create a support; as training in arm-action — crawl on the chest and on the back; movement in various positions with arms and legs in a horizontal position on the back, in sports swimming methods — using stationary exercises. Children work out these exercises, in advance when working with one hand, performing various strokes (standard, reverse, propeller) [1].

One of the most important and difficult tasks that trainer-teacher faces in synchronized swimming is synchronized swimmers coordination abilities constant development and improvement. Thanks to the coordination abilities, athletes achieve high accuracy of movements, various movements and swims, original constructions, same position of arms, legs, body in space and relative to each other in all phases of movements, controlling synchronism and accuracy of movements.

The relevance of this study lies in the need to maximize use of the reserve of strength and inclinations that a child has in order to improve it and achieve high results in work. The development of physical qualities among young athletes and the identification of more effective ways by which it is possible to achieve the highest result in a minimum period of time.

**Problem.** Development of coordination abilities among synchronized swimmers of primary school age at the stage of initial training.

**Goal.** Development of coordination abilities among girls of primary school age at out-of-school sectional lessons in synchronized swimming at the stage of initial training.

**Research objectives.**

- to conduct an analysis of literary sources on the research problem;
- to determine methodology for improving the sports results of young synchronized swimmers at the stage of initial training;
- to compare the level of coordination abilities development in pedagogical experiment process.

To meet the objectives, the following research methods were applied:

- analysis of scientific and scientific-methodical literature on the problem and subject of research.
Organization of the study.

At the training sessions in synchronized swimming, the girls-synchronized swimmers of the initial stage of training were observed. The study was conducted for two groups of 8 people. Training took place three times a week. The study was carried out in three stages.

The first stage is the search and ascertaining. At this stage, factual material was collected to study physical fitness of synchronized swimmers at the initial stage of training participating in the experiment. The research topic was chosen, the problem component was defined and substantiated. At the same time, an analysis of methodological sources on the research problem was carried out, methods of experimental research were determined. With control tests conducted in the groups, indicators of coordination abilities development level in the selected groups were recorded. A comparative analysis was carried out. According to the results of the study, with methodological sources, a set of exercises was selected for development of coordination abilities among the training group synchronized swimmers.

The second stage is organization and realization of a formative experiment. At this stage, a selected set of exercises was used to enhance coordination abilities development.

The third stage is the results summary. Testing was carried out in the control and experimental groups. The results obtained were listed in comparative tables, diagrams were constructed for clarity. Conclusions were formulated based on the results.

Для решения поставленных задач были использованы следующие методы:
➢ анализ научно-методических источников;
➢ педагогическое наблюдение;
➢ педагогический эксперимент;
➢ педагогическое тестирование;

To meet the objectives, the following methods were used:
➢ analysis of scientific and methodological sources;
➢ pedagogical supervision;
➢ pedagogical experiment;
➢ pedagogical testing;

In order to determine the effectiveness of application of an exercises set aimed at developing coordination abilities among synchronized swimmers at the initial stage of training, a pedagogical experiment was carried out. In the experimental and control groups, trainings were held according to the following scheme: preparatory part, main part, final part. Training was held three times a week, the training consists of two stages: 45 minutes in the pool and the same amount of time on land. Gradually, the load increases, the intensity and composition of the exercises become more difficult. According to the plan of trainings of the experimental group, young athletes performed exercises of a dynamic and static nature, aimed at developing coordination abilities (Fig. 1).
A set of exercises of a dynamic nature, contributing to coordination abilities development, was performed in each of training parts. In the preparatory part, these exercises were an integral part of general and special "warm-up". The "warm-up" consisted of cyclic exercises aimed at warming up muscles, joints and included running, jumping exercises, pushing movements in coordination with arm action (in different directions and different planes). Next task of increasing flexibility and stretching the main muscle groups and joint mobility comes (muscles of arms and shoulder girdle, then muscles of body and legs). Particular attention was paid to work with feet. General exercises ended with stretching.

In the preparatory part, a verbal method (explanations) was used in combination with a visual method (show). When performing given exercises, method of a holistically constructive exercise was used, since the structure of movements was simple. The main part of the training is aimed at solving the following tasks: increasing functionality of respiratory and strengthening cardiovascular systems. The main part of the workout takes about 80% of the total time, while up to 40% is occupied by the aerobic component. Emphasis was placed on the method of holistic exercise. The nature of the load is continuous, in the target zone 65-85% of the maximum heart rate, therefore, to ensure a regulated "exit" from the target zone, the set of exercises began with a dynamic component with an average amplitude. At the initial stage, in order to avoid excessive mobility of the joints, exercises of a dynamic nature were performed, which contributed to the development of muscles surrounding the joint strength. Gradually, static-dynamic exercises were added to dynamic exercises: holding a certain position of arms, legs, body in combination with advancement; fixing the posture in various given planes and directions. Next comes strength training. The emphasis in strength exercises was aimed at the work of large muscle groups (back, 7539

http://www.webology.org

Fig. 1. Block plan for including exercises to develop coordination in the training process (both on land and on water)
The exercises were taught both comprehensively and in parts (in order to avoid mistakes in technique). Strength exercises were combined with stretching exercises, mainly of a static direction (holding poses for 10-15 seconds). The complex use of such exercises not only helps to increase strength of the muscles that produce a certain movement, but also improves their elasticity and stretching.

The final part of the training performed the task of a gradual transition of the body to a calm physiological state (reducing loads, restoring heart rate, stretching the main working muscles). The final part consists of static exercises. Verbal methods (commands, instructions, explanations) were combined with visual methods (showing single exercises and their elements).

At the end of this stage, the final testing of coordination abilities level was carried out.

The selection of control tests was carried out according to the following criteria:
- control tests were selected from scientific and methodological sources;
- the most informative, easy-to-use and with minimal use of aids were selected from the selected tests.

Requirements applicable to control tests:
- at the initial stage, the level of the examined is approximately the same;
- the same test conditions for all subjects;
- test results are measured in objective terms (seconds, centimeters, points).

The study used exercises to analyze general, swimming, special physical and technical training of girls of primary school age involved in synchronized swimming.

To determine coordination abilities development level, as well as their changes at the beginning and at the end of the experiment, tests were carried out (Table 1, 2).

### Table 1. Results of the experimental group testing

<table>
<thead>
<tr>
<th>№</th>
<th>Indicator</th>
<th>Beginning of the experiment</th>
<th>End of the experiment</th>
<th>Changing</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&quot;Three flips&quot;, spatial orientation, seconds</td>
<td>22.42</td>
<td>16.24</td>
<td>-6.18</td>
<td>-27.56</td>
</tr>
<tr>
<td>2</td>
<td>&quot;Heron with closed eyes&quot;, static balance, seconds</td>
<td>5.01</td>
<td>8.11</td>
<td>3.1</td>
<td>61.88</td>
</tr>
<tr>
<td>3</td>
<td>&quot;Swallow stand scale on a gymnastic bench&quot;, dynamic balance, seconds</td>
<td>9.39</td>
<td>11.32</td>
<td>1.93</td>
<td>17.05</td>
</tr>
<tr>
<td>4</td>
<td>&quot;Jumping rope with change of legs&quot;, coordination of movements, seconds</td>
<td>8.33</td>
<td>7.04</td>
<td>-1.29</td>
<td>-15.49</td>
</tr>
<tr>
<td>5</td>
<td>&quot;Learn a combination&quot;, mastery of movements, points</td>
<td>1.94</td>
<td>3.47</td>
<td>1.53</td>
<td>78.87</td>
</tr>
</tbody>
</table>

The indicators presented in Table 1 allow us to say that coordination abilities development level
of female athletes of the experimental group has improved significantly: the time of performing the exercise "Three flips" has decreased by 27.56%; in the exercise "Heron with closed eyes" time improved by 61.88%; when performing the exercise "Swallow stand scale on a gymnastic bench", the time improved by 17.05%; it took 15.49% less time to complete the exercise "Jumping rope with a change of legs"; when performing the exercise "Learn a combination", the average score increased by 78.87%.

### Table 2. Results of the control group testing

<table>
<thead>
<tr>
<th>№</th>
<th>Indicator</th>
<th>Beginning of the experiment</th>
<th>End of the experiment</th>
<th>Changing</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&quot;Three flips&quot;, spatial orientation, seconds</td>
<td>21.38</td>
<td>20.28</td>
<td>-1.1</td>
<td>-5.14</td>
</tr>
<tr>
<td>2</td>
<td>&quot;Heron with closed eyes&quot;, static balance, seconds</td>
<td>3.54</td>
<td>4.22</td>
<td>0.68</td>
<td>19.2</td>
</tr>
<tr>
<td>3</td>
<td>&quot;Swallow stand scale on a gymnastic bench&quot;, dynamic balance, seconds</td>
<td>10.58</td>
<td>11.24</td>
<td>0.66</td>
<td>5.87</td>
</tr>
<tr>
<td>4</td>
<td>&quot;Jumping rope with change of legs&quot;, coordination of movements, seconds</td>
<td>9.14</td>
<td>9.02</td>
<td>-0.12</td>
<td>-1.31</td>
</tr>
<tr>
<td>5</td>
<td>&quot;Learn a combination&quot;, mastery of movements, points</td>
<td>2.12</td>
<td>2.41</td>
<td>0.29</td>
<td>13.68</td>
</tr>
</tbody>
</table>

The results presented in Table 2 show that the indicators of coordination abilities development level of the female athletes of the control group improved, but to a lesser extent: the time for performing the exercise "Three flips" decreased by 5.14%; in the exercise "Heron with closed eyes" athletes added 19.2%; the time spent on the exercise "Swallow stand scale on a gymnastic bench" decreased by 5.87%; it took 1.31% less time to complete the exercise "Jumping rope with a change of legs"; when performing the exercise "Learn the combination", the average score increased by 13.68%.

Summing up, we can say that a comparative analysis of coordination abilities indicators of the two groups shows that the time spent on the exercise "Three flips" by the experimental group compared to the control group decreased by 22.42%; exercise "Heron with closed eyes" athletes of the experimental group began to do longer on average by 42.68%; the time spent on the exercise "Swallow on the gymnastic bench" in the experimental group compared with the control group decreased by 11.18%; to perform the exercise "Jumping with a change of legs", the athletes of the experimental group required 14.18% less time than in the control group; when performing the exercise "Learn a combination", the average score of the girls in the experimental group increased by 65.19% compared to the control group. Comparative analysis data are shown in Table 3.
Table 3. Comparison of coordination abilities indicators

<table>
<thead>
<tr>
<th>№</th>
<th>Indicator</th>
<th>Beginning of the experiment</th>
<th>End of the experiment</th>
<th>Changing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&quot;Three flips&quot;, spatial orientation, seconds</td>
<td>-27.56</td>
<td>-5.14</td>
<td>-22.42</td>
</tr>
<tr>
<td>2</td>
<td>&quot;Heron with closed eyes&quot;, static balance, seconds</td>
<td>61.88</td>
<td>19.2</td>
<td>42.68</td>
</tr>
<tr>
<td>3</td>
<td>&quot;Swallow stand scale on a gymnastic bench&quot;, dynamic balance, seconds</td>
<td>17.05</td>
<td>5.87</td>
<td>11.18</td>
</tr>
<tr>
<td>4</td>
<td>&quot;Jumping rope with change of legs&quot;, coordination of movements, seconds</td>
<td>-15.49</td>
<td>-1.31</td>
<td>-14.18</td>
</tr>
<tr>
<td>5</td>
<td>&quot;Learn a combination&quot;, mastery of movements, points</td>
<td>78.87</td>
<td>13.68</td>
<td>65.19</td>
</tr>
</tbody>
</table>

Based on a comparative analysis, it can be stated that coordination abilities development among girls of primary school age is an important and urgent problem, both in theoretical and practical terms. The study of this issue revealed significant potential opportunities for synchronized swimming, which is distinguished by a wide variety of exercises and ways to perform them for the development of coordination abilities.

Ways of building coordination abilities among girls of primary school age attending sectional synchronized swimming classes based on individualization and differentiation, observation and discussion of ways to perform exercises by other children, self-control and mutual learning, positively affect not only coordination development, but also cognitive-developing abilities. The effectiveness of coordination abilities development among girls of primary school age in synchronized swimming classes is confirmed by the course and results of experimental work, which indicates an increase in the level of coordination abilities development and basic cognitive processes among girls of primary school age in sectional classes in synchronized swimming.

The girls of the experimental group showed better results in coordination abilities development than the girls of the control group. Synchronized swimming trainings according to the proposed program allowed the girls of the experimental group to achieve a higher increase in all indicators compared to the control group.

List of sources used: