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**ІННОВАЦІЙНІ ТЕХНОЛОГІЇ
В СИСТЕМІ ПІДВИЩЕННЯ КВАЛІФІКАЦІЇ ФАХІВЦІВ
ФІЗИЧНОГО ВИХОВАННЯ І СПОРТУ**

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DOSING OF EXERCISES IN IMPROVING THE TECHNOLOGY OF SWIMMING AT SCHOOLCHILDREN

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Introduction. Rational distribution of muscular effort in the aquatic environment not only contributes to the optimization of swimming techniques, but also contributes to the improvement of athletic performance. [2]. Swimmer movement is a system of repetitive cycles. The cycle of arm movement is divided into phases: 1 – capture water; 2 – tightening the body to the fulcrum; 3 - repulsion; 4 - extraction the hand from the water; 5 - arm movement above water; 6 - putting the hand into the water [1]. The boundaries of the phases are the moments of change in the direction of movement of the brush.

Purpose. The aim of the work is to optimize the structure of swimming technique for schoolchildren, taking into account the age-related features of the formation of swimming movements.

Presentation of study material. The studies were conducted in the research laboratory of physical culture and sports of the Francisk Skoryna Gomel State University. The study involved young athletes aged 11–12 years. Were formed two groups of 12 people who had the same level of preparedness. One group was engaged in an experimental program. The second group was engaged in the generally accepted program for sports schools. We determined the responsiveness of the swimmer's body to the use of exercises of the same type. The trainings were based on four swimming styles. The frequency of classes was constituted three times a week for ninety minutes. Exercises were used that affect the biomechanical characteristics of swimming techniques. And were used exercises for improving the phases of stroke in water. In the gym and in the pool, exercises were performed that

fixed the phases of the stroke and were performed with a different position of the body (lying on the chest, on the back), arms (in front, below, at the hips) and legs (fixation and alternating movement). The force of resting the arm on the point of support determined the dynamic parameters of the exercises. Kinematic - the length of the "step" stroke; speed and pace of movement. Exercises were performed to improve the structure of the stroke as a whole, and in separate phases. The results of the work led to a change in the biomechanics techniques of swimming in the experimental group. The speed of movement increased both in separate phases and in movement in general. Step of the stroke in the experimental group increased by 18.4% ($p < 0.05$) as compared with the control group. In swimming at the main competitive distance - 100 meters a crawl the on chest, the athletes of the experimental group surpassed the control athletes by 16.8% ($p < 0.05$).

The thrust force of the hands, which characterizes the dynamic characteristics of the stroke, was greater among athletes of the experimental group by 13.7% ($p < 0.05$). Significant were the differences in the index of thrust in coordination - 19.3 ($p < 0.01$).

Findings. The emphasis on improving the biomechanics of the stroke contributes not only to the correctness performing of the movement, but also contributes to the improvement of the dynamic indicators of the technique of movements.

A comparative analysis of the research results suggests that the exercises, which influence the kinematic and dynamic characteristics of swimming, contribute to the improvement of sports results. This makes it possible to more effectively solve the problem of learning and improving the structure of the movement.

Literature

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