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The influence of swimming in the development of motor abilities of students of younger school age

Extended summary

The aim of the research relates to the influence of swimming on the development of motor skills of students of younger school age, as well as defining the skills that are most developed under the influence of swimming.

Theory and practice suggest that an adequate level of motor skills in childhood may be important for practising physical activities and exercising habits later in life (Barnett et al., 2009). The physical growth and development of a child's organism is a complex multidimensional process characterized by rapid changes in morphological characteristics and motor abilities. The intensity and direction of changes is directly determined by the type of activity with which we act on the child's organism. For this reason, children at an early age should master the elements of basic sports: athletics, gymnastics, and swimming, which, according to numerous studies, have a positive impact on their anthropomotor status. The skill of swimming is extremely useful for every individual, and especially for children, because it enables a safe stay in and near the water (Marković, 2017; Marković & Milosević, 2022). The very structure of swimming as a physical activity in water does not give swimmers space for individual pacing of work, because water is a driver-motivator, i.e., motor activity in water is necessary for swimmers to stay on the surface of water. That is what sets swimming apart from other sports when it comes to the developmental characteristics of motor skills. Knowing the proper technique of all swimming styles is beneficial. Backstroke is a style of swimming that suits people

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with spinal problems, as it helps them strengthen their back muscles, as well as arm and shoulder muscles. Butterfly style develops the muscles of the arms, shoulders, and chest. Chest style can cause strain on the neck and lumbar spine, because many women do not like to wet their head, so attention should be paid to the technique in order to avoid injuries (Okičić et al., 2005; Aleksandrović et al., 2007).

The research was conducted in the school year of 2019-2020 with the purpose of evaluating and monitoring the growth and development of psychomotor skills in students of younger school age. Testing was conducted on a sample of a total of 18 students aged 10 years \pm 6 months from “Branko Radičević” primary school in Pančevo, as well as students from the Water Sports Club “Mornar”, whose sample included 17 student-swimmers of the same age. In addition to regular physical and health education classes (3 times a week), these students did not have additional organised sports activities, unlike the students/swimmers who practised three times a week in the pool. In addition to basic anthropometry, an assessment of motor skills was also carried out with the help of the tests of strength, speed, endurance, flexibility, agility, balance, and coordination. Determining the differences in anthropometric characteristics and motor abilities between the two groups of subjects was performed using the t-test for independent samples. The significance of group differences was determined at the level of $p < 0.05$.

The obtained results indicate that the students/swimmers fared better in the tests of strength, flexibility and muscular endurance (the influence of swimming training, which mainly develops the muscles of the legs, shoulders, trunk, and arms), while there were no statistically significant differences in the tests of speed, coordination, balance, and agility. Individual differences in body height and body mass of the subjects are a consequence of the approximate period of growth and development of students of this age, which is confirmed by earlier research (Bala et al., 2007). There are no statistically significant differences in body height because it is 90% genetically determined (Leko et al., 2004) and in most cases it shows values that are characteristic for a given age. The identified difference, but not at the level of statistical significance, in the body mass index (BMI) variable can be explained by a greater loss of fat through training, and therefore body mass and BMI are lower in the students/swimmers because, according to earlier research (Dimitrić et al., 2016), there is a large burning of fat during swimming aerobic training. In general, the results of this research indicate that we should choose sports with a more effective impact on the child’s physical development, especially in the period of the younger school age when the child’s postural status is formed. The introduction of structured physical activities, monitoring development in accordance with the periods of maturation that children go through, will have a more effective role in the development of the morphological characteristics and motor skills of the younger school-age students.

Despite the fact that the research involved a smaller sample of respondents, the results can be used for further research of the impact of sports activities on the morphological characteristics and motor skills of the younger school-age students.

Keywords: physical activity, younger school age, swimming, motor abilities

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