

SPECIAL FEATURES OF CERTAIN SENSORY-MOTOR REACTIONS AMONG DISABLED CHILDREN WITH DAMAGE OF SUPPORTING MOTOR

Features of some sensorimotor reactions in disabled children with musculoskeletal system disorders

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According to All-world organization of healthcare, more than 10% of the world's population have a certain form of disability. At the same time, in Russian Federation scale and tempo of growth in disability rate remains an urgent problem, especially in regard to disabled children with damage of supporting motor. Thus, according to Federal service of state statistics, there are more than 655 thousand children with this pathology. In its efficiency and significance physical education plays the most important role in health of such children. Thus, classes of adaptive physical education provides for skills of body management and self-care, form one's self-confidence, and help children to find an adequate place in life. Particularly, regular dosed physical stress, especially training in water environment (hydro-rehabilitation) is one of forms of socialization that minimizes the sense of "isolation" among disabled children with damage of supporting apparatus.

At the same time, modern rehabilitation in water environment is defined by implementation of physical stress that sometimes might not agree with adaptive reserves of organism among disabled children with damage of supporting apparatus and lead to over-stress upon a number of organism systems. Unreadiness of disabled children with damage of supporting apparatus for specific stress can lead to additional pathological changes in their organism.

The objective of this research is to reveal physiological features of sensory reactions among disabled children with damage of supporting apparatus within the process of hydro-rehabilitation.

92 people in age of 8 to 14 years participated in the research, among those 56 children with damage of supporting apparatus, and 36 practically healthy peers (control group).

Computer programme "Researcher of temporal and special characteristics of a human" (Y.V. Koryagina, S.V.Nopin, 2004) was used in this work. Time of simple motor reaction (TSMR) and time of choice reaction (TCR) (complex sensory-motor reaction of a human) to light signal was determined. Time of reaction of this nature depends on "central delay that reflects in reversely-proportional manner the level of lability of processes that take place in central nervous system. Time of central delay (TCD) can be calculated via defining difference between complex and simple motor reaction, as the received reaction reflects time period of information's location specifically within the structures of central nervous system (speed of excitation in nerve paths can be neglected in this case).

Analysis of the received data showed us that the period of sensory-motor reaction to external stimulant – light among disabled children was reliably ($p < 0,05$) ($292,4 \pm 6.1$ ms) longer than among their practically healthy peers ($259,2 \pm 4,6$ ms).

Unlike the period of simple sensory-motor reaction to a single light stimulant, for choosing an object for making a decision the studied children required 1,5 times more time ($471,2 \pm 7,3$ ms and $421,3 \pm 9,2$ ms respectively for disabled children and the control group). Therefore, for central nervous system of children choosing an object is a more complicated task, especially in terms of time limit ($p < 0,05$).

In other words, this indication can be studied as one of varieties of human ability to extrapolate that is especially important in process of physical training among disabled children.

Thus, among children with damage of supporting apparatus processes that take place in central nervous system during procession of the received visual information and form response reactions to stimulants, are more inert in comparison to the same of their peers of the control group.

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