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Characteristics of Spatial Organization of Bodies of Junior Pupils with Visual Deprivation in the Process of Physical Education

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Abstract:

The article contains the characteristics of spatial organization of bodies of junior pupils with visual deprivation. Heavy eye defect in the early life period causes secondary deviations and related diseases, reduces the development of all areas of activity of a child with visual deprivation. Accordingly it forms lagging of these children in mental development and physical preparedness, causes peculiarities of physical development which may show up in various disorders of the musculoskeletal apparatus and posture of visually impaired pupils, change of spatial organization of a body comparing to their healthy peers. Research objective is to reveal the peculiarities of spatial organization of bodies of junior pupils with visual deprivation in the process of physical education. Identification and correction of the spatial organization of bodies of junior pupils with sensory deprivation in the process of physical education is an important factor of formation of vital motor skills. A small number of works on this direction determine study of the spatial organization of a body as timely and important and which requires detailed study for the purpose of further correction of the parameters of motor areas of a child and development of the technologies correcting the spatial organization of bodies of pupils with deprivation of view in physical education which will be the topic of our next research.

Key words:

junior pupil, deprivation, vision, physical development, education, spatial organization.

Formulation of the problem. Changes take place in all spheres of our society, they caused a number of problems, one of which is the tendency to increase the number of children with visual disabilities that actualizes prevention and correction of not only visual impairment, but correcting their physical development [1; 3; 6; 7; 10]. Among visually impaired students lag observed in the psychophysical and motor development, is violation of spatial organization of a body compared to their healthy peers [2; 5; 8]. However, in our time a certain amount of features studied, training and education of visually impaired children mostly preschool, and insufficiently conducted studies of junior pupils with visual deprivation in the process of physical education in terms of special educational institution [8–10 etc.].

Modern approach to research problems of physical development of children of primary school age with deprivation of vision is presented as a multifaceted, versatile and historically conditioned need of society in renewed vision of targeted bases and installations on the physical perfection of the individual, which today faced with the need to be sustainable, physically hardened, social adapted to rapidly changing conditions of life. However, studying the state of the spatial organization of the body and the process of its correction among visually impaired pupils of primary school age in special institutions requires attention of teachers and scientists.

In this connection there is a need of reorientation on the formation and development of all functional systems of a child in its natural motor acts. While in special schools for children with deprivation of vision there is still a tendency of assessing the physical parameters of a healthy child. This practice, of course, is unacceptable. There are enough displays of «general pedagogical» approach to the analysis of physical education in special school institutions which can be found in practice. But it is illegal to children with deprivation of vision, because here we see a slightly different purpose and objective aimed at overcoming illness and correcting the spatial organization of a body. This is particularly s thought on when looking at the physiological mechanisms of motion of children who manifested a systematic relationship and hierarchy as regulatory and performing structures of the human body.

Thus, there is a contradiction between the need for implementation in the process of physical education of visually impaired pupils of primary school age in terms of special education traditional and non-traditional means of physical education, suggesting corrective and health impact, and insufficient theoretical and methodological elaborated through integrated use of these tools on this group, fragmented their use in physical education of visually impaired students.

Analysis of recent research and publications. The analysis of literature indicates that the levels of physical development and physical readiness of younger pupils with visual deprivation significantly behind similar indicators of healthy children (R. N. Azarian, L. I. Plaksina, B. V. Sermyeyev, L. N. Solntseva, L. N. Rostomashvili, etc.). In violation of vision there is a restriction of motor activity of a child, causing

a number of secondary abnormalities in physical development of visually impaired pupils (R. Schindele, L. H. Rostomashvili, G. G. Demyrchohlyan, A. G. Demyrchohlyan etc.).

Analyzing the available published data about the features of physical development of children with disorders of vision, we can say that this defect complicates the whole course of mental and physical development of children with visual impairment [2; 3; 4; 8]. Several researchers of various activities such as training (M. I. Zyemtsova, A. I. Caplan, M. S. Pevzner, A. G. Litvak, E. P. Synyavyj, Remazhevska V. M.), labor (V. P. Ermakov, T. P. Sviridyuk etc.), games (L. I. Solntseva), physical education (V. Z. Deniskina, V. A. Kruchinin, D. M. Mallayev, L. S. Sekovets, B. V. Sermyeyev, B. G. Sheremet etc.) showed that in violation of vision the motor function is successfully developing on the poly-sensory basis when self-control and self-regulation of movements are involved, along with vision auditory, tactile and muscular sensitivity. In this regard, the general system of educational work undertaken with pupils with deviations in the visual analyzer invariably increases the role and importance of physical education.

Weakening of motor activity among visually impaired children leads to lower levels of cognitive processes. At a primary school children with visual disorders by fear of space there are limited in mobility and cognitive activities. Sometimes they lack elementary skills of walking and running, spatial orientation and basic self-service. Poses of children while reading and writing with lowered head and residual vision, monocular, violation of binocular vision negatively affects the development of the respiratory system, musculoskeletal system, leading to torticollis, scoliosis, osteochondrosis of cervical and other irregularities. Therefore, children with disorders of vision need more muscle activity than children with normal vision. There is no doubt the fact that the effectiveness of treatment of visual pathology is the highest among children with increased physical activity (D. M. Mallayev, N. L. Litosh, L. V. Shapkova, A. A. Nesterov, T. A. Ovchinnikov, S. A. Filippova).

Nowadays efforts of specialists are focused on finding the most effective ways that reveal the role of different types of muscle activity in perfection of all human systems and correction of existing shortcomings in it [1; 4; 7]. Thus, the analysis of scientific and methodological literature has showed that the characteristics of the study of physical education of primary school children with disorders of vision dedicated works of many researchers (B. V. Sermyeyev, A. P. Pavlov, E. S. Avetisov, E. I. Livado, R. N. Azarian, L. N. Rostomashvili, E. V. Chernobylska, G. G. Demyrchohlyan, A. G. Demyrchohlyan, V. P. Ermakov, G. A. Yakunin, L. I. Plaksina, etc.). However, studies aimed at correction of spatial organization of bodies of primary school children with deprivation of vision by means of physical education, are very little.

Research objectives: to reveal spatial features of bodies of primary school children with deprivation of vision in the process of physical education in special boarding schools.

Methods: analysis and synthesis of literature, analysis of experience of the leading industry experts.

Results and discussion. The main material research. The analysis of the literature has shown that violation of visual function leads to secondary violations in spatial organization of bodies of children with deprivation of vision: posture, working posture, coordination and accuracy of movements, rhythm (G. G. Demyrchohlyan, M. I. Zemtsova, A. I. Kaplan, B. V. Sermyeyev, V. P. Filatov, V. V. Skorodynska, etc.). As we know from publications of M. I. Zemtsova, L. I. Solntseva, L. A. Semenova (1990) and other authors, severe visual defect in the early period of life reduces not only informative, but also physical activity, leads to the fact that a child much later than its healthy peers, keeps vertical position while walking, while natural rack often marked incorrect position of feet.

According to G. G. Demyrchohlyan, S. I. Shkarlovoyi, G. V. Nykulinoyi, C. Roberto, L. N. Rostomashvily and other authors, for primary school children are those most characteristic visual impairments: myopia, hyperopia, astigmatism, amblyopia, nystagmus, strabismus. V. P. Ermakov, G. A. Yakunin, L.V. Shapkova and other authors note that the observed visually impaired children lag behind in length, body weight, lung capacity, volume of a chest and other anthropometric indicators. Many visually impaired pupils experiencing difficulties in orientation in space. They have greatly reduced motor functions and qualities, namely: coordination, endurance, speed and rhythm of movement (lag from the norm is 53 %). To a lesser extent (by 8–12 %) pronounced lag in terms of muscle strength and power-speed (S. N. Popov).

Scientists-pathologists T. A. Vlasova, V. P. Ermakov, M. I. Zyemtsova, L. F. Kasatkina, A. G. Lytvak, I. S. Morgulis, M. S. Pevzner, B. V. Sermyeyev, L. I. Solntseva, B. G. Sheremet and others note that the examined children with visual impairments lag in physical development due to limited physical activity. A. P. Pavlov showed that the specific features of physical development can manifest in various disorders of the musculoskeletal system and posture. Violation of posture and degree of its severity stipulate by the condition of vision of children with visual deprivation. Prevalence of disorders of posture among children with visual impairment is 60–65 %, depending on the nature of visual disorders.

In strabismus, myopia child is forced to tilt his head in a comfortable position to provide the best vision of the subject, tilted his head low during movement (walking, running, etc.). In addition, according to T. V. Popova, N. B. Pyastovalova, A. A. Udalova, incorrect posture among children is the result of residual effects of birth traumas, rickets, various muscle paresis, easing muscular system from frequent prolonged sitting in the wrong position: tilted to the side of the body, lowered head. Violations of posture are also cased because of incorrect organization of ophthalmia hygienic conditions of educational process, violation of motor mode, the absence of specific corrective exercises that would improve the formation of correct posture and intensified their motor activity.

It should be noted that violation of posture among blind and visually impaired children occurs much more frequently than among healthy people. According to B. P. Ermakova (1990), violation of posture is observed among 59,2 % of visually impaired boys and 58 % girls, while among healthy children respectively 40 % and 45 %. According to L. V. Shapkova, children with visual impairments come to school already with stable violations of posture with rounded backs, increased thoracic kyphosis and flattening the lumbar lordosis, scoliosis, flat feet and so on. According to G. G. Demyrchohlyan among 87 % of visually impaired students there is kyphotic deformity of the spine [6].

Along with violation of posture among children, there occur deformations of the lower limbs, resulting in distortions feet (I. D. Loveyko, M. I. Fonarev). Flatfeet among children with deprivation of vision arises as a result of constant static overload of lower extremity, because muscle weakness of the feet and as a result of partial paralysis. A flatfoot dramatically reduces the supporting function of the legs and creates a greater threat to flattening. Improperly formed skills in walking, running and other movements, lack of physical activity of children also produce danger to greater manifestations of these disorders (Brukart E.).

Children with visual impairment lag behind in all indicators of movements from their peers (T. V. Popova, N. B. Pyastovalova, A. A. Udalova). When walking and running in them there is a large muscle tension, head lowered, movements of the arms and legs are not approved, the feet are wide, uneven pace, because of the imbalance they have to stop while walking, herewith lost direction. N. A. Fomin, Y. N. Vavilov affirm that posture defects and visual disturbances have been reported among students the more, the less time they take away physical exercise, activity outdoors.

Physical education not only solved the common problem – the development, training and education, but also specific tasks that have corrective, compensatory, preventive and restorative therapeutic orientation. According to B. G. Sheremet, among children with visual impairment because of the lack of visual monitoring and analysis of the movement it is observed a decrease of physical activity, which leads to difficulties in formation of the basic parameters of walk and especially in maintaining the straightness of motion. According to L. S. Sekovets, violations of the straightness while walking are associated with narrowing field of vision because one eye shuts down of the act during occlusion with strabismus, decreased visual acuity visually impaired. Even greater difficulties children experience while walking in small spaces (M. I. Zemtsova, L. I. Plaksina). Feeling visual limitations, children still rely on visual orientation, so walking characterize as more undulatory, and the line of the movement which is close to one side of the constraints, in some areas comes for them, then moves closer to the original. All this gives the impression of walking «from side to side». This is due to the fact that violations of the stereoscopic vision at monocular vision difficult the spatial orientation, create flat perception of space.

Violation of the walk in a confined space is caused by a decrease in visual acuity, because child with the visual deprivation cannot trace and reproduce the movement without mistakes, which manifest in poor coordination of hands and feet, lack of coordination between the left and right hands. This also explains the fact that the hand is pressed to the body or pulled forward for determining the direction of motion while walking. In all kinds of walking in children is revealed an incorrect statement of the feet. More than 20 % of children have staged parallel setting of the feet, 40 % of children put feet toes inward, whereas in healthy peer rejection in feet setting observed in 15 % of the cases. The peculiarity of walking in children is sometimes caused by a violation of the uniformity of walking. Uniformity while walking is determined by length of a step. It has established that from the start of walking step of children is more even than on the next segments. Reduction of straightness, impaired balance and coordination, visual fatigue cause a decrease of step length. Among children with visual impairment step length while walking in all age groups is below the norm by 4–5 cm.

In the area of AFV most significant components of the spatial organization of bodies of children with reduced vision of primary school age study was conducted by A. A. Dyachenko which allowed determining the state of the physical development of primary school children with weak eyesight. It has been received by

the scientist entirely new quantitative of biogeometric profile of the children with weakened eyesight. Based on the data it was identified scoliotic posture among 22 % of the examined, round-concave back – among 16 %, flat – 6 % and concave – 2 % of children with reduced vision [7].

Conclusions. The analysis of the literature showed that among children with visual deprivation it is observed lagging in psychophysical development; specific features of physical development can become apparent in various disorders of the musculoskeletal system and posture that is in violation of the spatial organization of the body compared to their healthy peers. Noting that determine the characteristics of the spatial organization of the body of primary school children with deprivation of sensory systems is an important factor for the formation of motor skills and abilities, and given the small number of works on this direction among the studied contingent, the study of spatial organization of the body in the process of physical education is timely and important and requires detailed study to further correction of the parameters of motor areas of child and development of the technologies of correction of its violations that will be the prospect of further researches.

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