

Physiological Parameters of Movement of Children with Disabilities

Bekmurzaev Abdikarim Kulmurzaevich

Nukus State Pedagogical Institute named after Ajiniyaz, Senior teacher of "Physical education" department

Utegenov Marat Bisenbaevich, Tajetdinov Makhamaddid Koptilewovich

Nukus State Pedagogical Institute named after Ajiniyaz, Assistant of the "Physical Education" department

ANNOTATION

The article examines specific motor stereotypes associated with limited joint mobility in children with disabilities and based on functional compensatory mechanisms, as well as factors that directly affect the formation and processes of functional adaptation of specific motor stereotypes that hide the presence of biomechanical changes.

KEYWORDS: adapt to action, move, physiology, children with disabilities, basic motion system.

In this scientific work, the physiological features of motor adaptation in children with disabilities related to impaired work of the musculoskeletal system, reduced range of motion of joints in the upper and lower extremities were studied.

60 children between the ages of 8 and 12 participated in the study, they were divided into three groups: children capable of independent movement; children capable of independent movement with support; disabled children. Electromyography, rheovasography and movement tracking methods were used [1:95].

It was found that disabled children have a special motor stereotype associated with limited joint mobility and based on functional compensatory mechanisms. In addition, factors that directly affect the process of functional adaptation were identified:

firstly, reconstruction of motor programs, formation of a special motor stereotype that compensates for the presence of biomechanical changes during walking;

secondly, the functional reserve of hemodynamics in the proximal parts of the lower extremities;

thirdly, simultaneous activity of flexor and extensor muscles during hypersynchronization of motor units.

Thus, it was found that the limited mobility of joints in the upper and lower extremities can activate compensatory mechanisms aimed at functional compensation for lost functions by creating a special motor stereotype for the development of motor adaptation in disabled children.

In medical and physiological aspects, disabled people are still considered as patients who need special medical care, which remains a serious obstacle for the full integration of disabled people, especially children, into society.

Movement is the main physiological component of the normal formation and development of the body in children. It takes an active part in the development of all areas of the cerebral cortex, in the coordination of intercentral connections, in the correction and compensation of deficiencies in physical and mental development, in the formation of the motor interaction of analyzer systems and cognitive processes.

Movement is a necessary condition for sustaining the life of the body, as well as a means and method for ensuring its functioning. Therefore, the formation of motor skills in disabled children is the basis of the adaptation process. In this case, first of all, it is necessary to mobilize their compensatory mechanisms based on the study of the physiological characteristics of motor adaptation of disabled children. Any movement (walking, running, etc.) has its own motor stereotype, which is characterized by a stable individual complex of unconditioned reflex motor reactions that are carried out in a certain sequence, ensuring postural-tonic functions.[2:36]

It is known that walking is one of the ballistic movements in which inertial forces and reactive forces are used to reduce the effect of muscle forces.

During walking, the main motor function is performed by a group of extensor muscles, which raise and move the general center of mass forward, and then control its descent. Flexor muscles mainly perform a corrective function, in which the movements of individual body segments in accordance with the amplitude-speed parameters, especially in the step phase, the movements of the lower and upper limbs determine the result of their own muscle activity, the movement of the lower half of the body during walking is the support surface of the legs reflects a strong interaction with the pelvis, back and abdominal muscles do not create these movements, but mainly work in the lower mode, determining their amplitude and speed. The main function of these muscles is to stabilize the vertical position and reduce vibrations in the general center of mass. Thus, the lower limbs perform a supporting function, the spine and trunk muscles perform a stabilizing function, and the upper limbs perform a balancing function.

It is known that in the process of social and psychological adaptation of disabled children, the integrated method is more successful than the physiological method. A number of authors are looking for a solution to this problem using a neurophysiological approach, considering motor activity as a method of socialization and psychophysiological adaptation. In addition, the evaluation of the effectiveness of this approach is based on the theory of functional systems. As a result of his research on compensatory adaptations of impaired functions in the body, any compensation for impaired functions can occur only when a large number of physiological components located in different parts and workplaces of the central nervous system accumulate.

The criteria of successful adaptation is not the return of a certain function to the physiological norm, but the successful integration of a disabled child into society by the rational use of his abilities and the mobilization of compensation mechanisms.

The distribution of points of the amplitude-rotational analysis of the gastrocnemius muscle in disabled children is significantly different from the control. In children who move only with support, they moved horizontally to the right, and in those who are able to walk independently, they moved up vertically. In the extensor lateralis muscle, the point is distributed to the right, forming a row in both main groups. The EMG of the posterior rectus

muscles was characterized by a horizontal shift of points to the right in the group of children walking with support. In children who walk independently, the turning points form two groups, one of which moves horizontally to the right, and the other to the right and up. The obtained results make it possible to distinguish the main differences in the establishment of a dynamic walking stereotype in children with disabilities. The dominant flexed state of all extremity movements associated with the limitation of movements in the hip joint during the entire period of movement is compensated by increased body sway, a decrease in activity in the reverse thrust phase and a sharp increase in its thrust phase. Changes in the structure of movements of the shoulder girdle and upper limbs can be considered compensatory, the vertical movements of the shoulder are adapted to the movements of the CCM and remain in antiphase with the latter.

Inconsistency of movements in the elbow and wrist - they also move in antiphase.

In children of both main groups, the activity of the hip muscle group decreased slightly; the activity of the anterior thigh muscle group increased in both groups, but to a greater extent in children able to move independently, in children with disabilities, the simultaneous activity of extensor and flexor muscles during walking is not an episodic phenomenon that is a manifestation of pathological disorders and a compensation mechanism, the main sign of movement control seems to be. The dynamic stereotype of walking in disabled children is characterized by excessive involvement of the calf and rectus muscles of the back in the movement.

After the locomotor load in the main group, there is an increase in pulse filling and blood flow volume, as well as blood flow speed, mainly in the lower part of the leg. Thus, disabled children are mainly characterized by a decrease in the vegetative nutrition of the distal extremities while maintaining a certain functional reserve in the proximal regions. This ensures that it is recommended to load the muscles of the upper leg and relieve the muscles of the lower leg in the formation of adaptive stereotypes of movement.

Five factors limiting mobility in disabled children were identified, each of them activates one or more compensatory mechanisms, on the basis of which a new motor stereotype is formed [4:87].

Based on the above, it is possible to identify a number of factors that directly affect the process of functional adaptation: firstly, the reconstruction of motor programs, that is, the creation of a special motor stereotype that allows to compensate for the presence, biomechanical changes during movement, secondly, the functional reserve of the hemodynamics of the proximal lower extremities, thirdly, the simultaneous activity of the flexor and extensor muscles with the phenomenon of hypersynchronization of the movement units.

As a result of the interaction of the three mentioned groups of factors (restrictive, compensatory and functional adaptation), a beneficial result is achieved

All that has been said shows that based on the physiological approach, there is a real opportunity to ensure full adaptation of disabled children, including in all spheres of social life, overcoming both social and physical barriers.

References:**Basic textbooks and manuals**

1. Forming a healthy lifestyle in students. D. J. Sharipova, G. S. Fuzaylova, M. Turkmenova, D. Zufarova, Fergana 2010.
2. Physical culture of a healthy lifestyle Sh. Honkeldiev, A. Abdullaev, Yu. M. Kasach, A. T. Khasanov, M. M. Yuldashev. Ferghana, 2010.
3. Almatov K.T. Physiology of growing up textbook UzMU publishing house named after M.Ulugbek. T. 2004 165-168 p.
4. Sodikov B.A Young Physiology and Hygiene Study Guide New Century Generation 2009. 88-95 p.
5. D. J. Sharipov "Health is everyone's business" T., 2001.
6. Dokuchaeva G. N. "Biologically active additives: healthy cardiovascular system", Publishing House "ENAS-kniga", Moscow, 2016 - 129 p.
7. Bichkova T.I. Organization of educational process in a general education school based on healthy technologies; 2005. - 18 p.
8. Aleksina S.V. Principles of integration in the context of changes in educational practice Psychol. Magazine. scientific image. 1, page 5.
9. Sitarov V.A. The problem of social adaptation of children with disabilities to education Knowledge. 3. S. 243.