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DISEASES OF SCHOOLCHILDREN ARISING FROM IMPROPER PLANTING

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Abstract:

Based on the analysis of scientific publications, the paper presents hygienic problems associated with the use of student furniture: the organization of the workplace, the correct seating of students is presented, the harmful effects of incorrect working posture on the health of students arising from improper organization of the workplace and the selection of school furniture are indicated.

Keyword

Health of schoolchildren, school furniture, proper seating of students

The health status of schoolchildren is largely determined by the conditions of their education and upbringing [4-6]. In the last decade, the health of children, especially of school age, has been deteriorating [2,4,8,11]. Studies have shown that among the main factors determining the health of schoolchildren, 20% are factors of the school environment [12].

Currently, the problem of creating optimal hygienic learning conditions has acquired particular importance due to negative trends in the health status of secondary school students, as well as due to changes that have occurred in school education in recent years [3,4].

According to WHO, out of every 100 students at school, 50 inevitably acquire scoliosis, 30-40 – abnormalities in the cardiovascular system, 20-40 - myopia, 20-30 suffer from neuropsychiatric dysfunctions. It turns out that there are practically no healthy children among those graduating from school.

Various posture disorders primarily negatively affect the work of the heart and lungs, other vital organs, as well as distort the shape of the body and worsen metabolism.

Disorders and diseases of the musculoskeletal system of children lead to further restriction of their vital activity and social insufficiency, restriction in the choice of profession, serve as contraindications to military service, have a negative impact on reproductive health and significantly reduce the quality of life. Therefore, the problem of disorders of the musculoskeletal system goes beyond only medical and acquires high medical and social significance.

The formation of a child's muscles and skeletal apparatus is significantly influenced by children's furniture [14, 15]. One of the important reasons for the development of school pathology may be the prolonged presence of students in a static tense position sitting with their heads bowed low behind furniture that does not meet the hygienic requirements and physiological characteristics of the child's body. The working posture of a student refers to important hygienic factors.

One of the important school factors influencing the formation of the musculoskeletal system, the vegetative provision of educational activities and the maintenance of an optimal level of mental performance of students is the organization of the workplace, which depends on the type of student furniture and its use options. The use of such furniture requires an ergonomic and hygienic assessment of its design features.

Violations of the requirements of sanitary rules for providing students with student furniture corresponding to their body length in general education institutions are among the most frequently detected by specialists during control and supervisory activities. Among the possible reasons, the lack of up-to-date data on the distribution of educational kits in primary classes, low awareness of teachers about the impact of furniture on the health of schoolchildren are noted [10,11]. The organization of the student's workplace largely depends on the functional dimensions of the student furniture, the values of which are fixed in the relevant regulatory documents (GOST and sanitary rules and regulations). There are 5 groups of furniture, which, depending on the student's height, have different seat heights above the floor.

Posture is the habitual position of the body when standing, walking, sitting; it is formed in the process of growth, development and upbringing.

Posture is an important indicator of health and harmonious physical development, since proper posture provides optimal conditions for the functioning of all organs and systems of the body [13]. And severe posture disorders, on the contrary, significantly reduce the level of vitality and the degree of endurance of a person of any age, therefore the problem under consideration is relevant.

The child's posture is a dynamic stereotype and at preschool age is unstable, easily changing under the influence of positive or negative factors. Posture depends on the state of the neuromuscular apparatus and the human psyche. Weakness of the muscular corset, incorrect poses that the child takes in a sitting, standing, lying, walking, playing, sleeping position; congenital anomalies of the development of ribs, chest, vertebrae, lower extremities lead to the development of posture disorders [9].

Violations of posture – deviations of the vertebral column from the anatomical norm in the anteroposterior or transverse planes – are accompanied by a change in the shape of the body, the relative position of the head, trunk, pelvis, arms, legs.

One of the main tasks of physical education at school should be to monitor not only the physical fitness of students, but also the basics of theoretical knowledge, the ability to independently use developmental, rehabilitation complexes and exercises, as well as the ability to maintain the correct working posture.

The educational process is associated with great mental and physical stress. Sitting at a desk, drawing board, standing at a workbench are associated with a certain, mostly static position of the body, causing tension in the muscles of the back, neck, abdomen, upper and lower extremities. The posture control system includes the central nervous system (corresponding segments of the spinal cord) and peripheral receptors in the muscles; the posture is controlled through the muscular apparatus, due to tremor – a slight tremor of the muscles. Poses with a slight inclination are more advantageous from the point of view of

statics and biomechanics – less fluctuation of the center of gravity. With large inclinations, additional motor units are involved in the work, the pulse rate increases, the amplitude of breathing decreases, visual disturbances are possible, stagnation occurs in the bloodstream of the legs and pelvis, compression of the vertebral discs occurs.

Static voltage is a significant part of the total school load of children. It occurs as a result of the forced immobile position of the body during most of the lesson. Students spend 4-6 hours at the desk in the lower grades and 8-10 hours in the upper grades. At the same time, static endurance in children and adolescents is low, fatigue of the body develops relatively quickly, which is associated with age-related features of the motor analyzer. So, in first–graders after 5-7 minutes, and in second-graders - after 9-10 minutes, the contracted muscles move from a state of tension to a state of relaxation. Externally, this is manifested by a change in posture, motor anxiety.

A large static load increases even more if the student is sitting behind furniture of an incorrect design or does not meet the length and proportions of the student's body with its dimensions. In these cases, the student also cannot maintain the correct working posture, as a result of which the posture is violated.

The reduction of static stress can be achieved by maintaining the correct working posture. It depends on the appropriate selection of furniture.

The mismatch of furniture with the growth of children, the change in the ratio between the table and the chair can lead to uneven load and uneven fatigue of various muscle groups. There is a muscular asymmetry, which is one of the causes of various kinds of posture disorders. An incorrect landing causes faster fatigue of students, a decrease in attention and efficiency. It contributes to the development of myopia as a result of non-compliance with the optimal distance from the book to the eyes.

The correct landing is considered to be such a student, in which he sits straight with a slight forward tilt. The notebook and the book are at a distance of 25-35 cm. The hand passes freely between the chest and the table. The back rests on the back of a chair or bench at the level of the lower back. The legs are bent at the hip and knee joints at a right or obtuse angle and rest the entire foot on a stand or floor. Both hands are lying freely on the table, the shoulders are at the same height, parallel to the edge of the table. With a proper fit, the organs of the thoracic and abdominal cavities are not constrained, breathing is free. The load on the musculoskeletal system is minimal, vision is not strained. The correct fit is possible if the furniture matches the height and size of the child's body. The height of the seat should correspond to the length of the lower leg together with the foot with the addition of 1.5-2 cm to the height of the heel. It is necessary that the relief of the seat corresponds to the shape of the hips and buttocks, and the seat itself has a slight tilt back. The seat depth is within 1/2-3/4 of the thigh length, with a lower seat depth, the support area decreases. Landing becomes more tedious and less stable. At a greater depth, the edge of the seat squeezes the neurovascular bundle in the popliteal fossa. The correct fit is ensured by the rational arrangement of the table and the ratio between the table and the seat. The inclined position of the table cover facilitates the accommodative work of the eyes when writing and reading. With a low table and a high chair, the student is forced to lean forward strongly

and lean on the table. This leads to compression of the chest and abdominal organs. The right shoulder is lowered, which contributes to the appearance of left-sided scoliosis. With a high table and a low chair, the right shoulder is raised, the muscles of the shoulder girdle are tense. This contributes to the formation of right-sided scoliosis.

Scoliosis is a curvature of the spine in the lateral plane due to uneven tension of the muscles on the left and right sides of the spine. Very often in children, scoliosis is also combined with kyphosis. And if scoliosis is a curvature in the lateral plane, then kyphosis is in the anterior. That is, in addition to the fact that the child develops an asymmetric posture, he also slouches.

Scoliosis refers to very common diseases of the musculoskeletal system of childhood and adolescence. Data on the prevalence of scoliosis are contradictory and range from 1 to 53% [1,7].

Thus, the organization of the workplace with the selection of student furniture has a huge impact on the health of schoolchildren.

In conclusion, we emphasize that in order to maintain the correct posture of schoolchildren, it is necessary to select furniture appropriate to the growth of children, to carry out the correct seating of students and to monitor the maintenance of the correct working posture, and to reduce static tension, it is necessary to organize physical training pauses.

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