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I would like cordially welcome the readers, authors and publishers of the new journal **"Medical Journal of Young Scientists".**

Since the first years of its existence, the Tashkent Medical Academy has been training highly qualified medical personnel. Moreover, today this direction remains the main one. The content of the training has changed qualitatively. The world is changing rapidly today. In Uzbekistan, there is an urgent need for the formation of medicine – knowledge, leadership and innovation, which is based on the integration of both education, science and medicine.

Having completed fundamental professional training at TMA, the student becomes a highly qualified specialist. A wide profile of training, acquired practical skills allow him to constantly improve in the course of his work and master additional specialties.

The main purpose of the scientific journal is to study the intellectual potential of young people, analyze and systematize scientific achievements in the field of medicine. The journal will present both the results of experimental studies and publications on clinical topics in various fields: therapy, surgery, pediatrics, endocrinology, neurology, obstetrics, hygiene, social medicine and health management.

Current issues of modern medicine will be published in the materials. Tashkent Medical Academy opens up wide opportunities for everyone who crosses its threshold. The TMA is for those who believe in themselves and strive for success.

I wish all enrollees, students, postgraduates, professors and staff of TMA successful implementation of their goals, creative success in their studies and work, new achievements for the benefit of medicine.

Rector of Tashkent Medical Academy,
Doctor of Medical Sciences **A.K.Shadmanov**

Tashkent Medical Academy
«Medical Journal of
Young Scientists»

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HYGIENE, SANITARY AND EPIDEMIOLOGY

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STUDYING CHANGES IN THE HEALTH STATE OF SCHOOL CHILDREN ARISING FROM INCORRECT FITTING

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Annotation. *Based on the analysis of scientific publications, the paper presents hygienic problems associated with the use of pupils furniture, the organization of the workplace, the correct seating of pupils is presented. Despite this, the harmful effects of poor posture on the health of pupils arising from improper organization of the workplace and the selection of school furniture are indicated.*

Keywords: *health of schoolchildren, school furniture, correct seating of pupils*

ИЗУЧЕНИЕ ИЗМЕНЕНИЙ СОСТОЯНИЯ ЗДОРОВЬЯ ШКОЛЬНИКОВ ВОЗНИКАЮЩИХ ПРИ НЕПРАВИЛЬНОЙ ПОСАДКЕ

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Аннотация. *На основе анализа научных публикаций в работе представлены гигиенические проблемы, связанные с использованием ученической мебели: представлена организация рабочего места, правильной посадки учащихся, указаны вредные воздействия неправильной рабочей позы на состояние здоровья учащихся, возникающее при неправильной организации рабочего места и подбора школьной мебели.*

Ключевые слова: *здоровье школьников, школьная мебель, правильная посадка учащихся.*

O‘QUVCHILARNI NOTO‘G‘RI O‘TQAZILGANDA ULARNING SALOMATLIGIDAGI O‘ZGARISHLARNI O‘RGANISH

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Annotatsiya. *Maqolada ilmiy adabiyotlarni tahlil qilish asosida maktab o‘quvchilari mebellaridan foydalanish bilan bog‘liq gigiyenik muammolar keltirilgan: ish joyini to‘g‘ri tashkil qilish, maktab o‘quvchilari to‘g‘ri o‘tqazish, ish joyini noto‘g‘ri tashkil etish va maktab mebellarini*

tanlash natijasida kelib chiqadigan maktab o'quvchilari sog'lig'iga noto'g'ri ish holatining zararli ta'siri yoritilgan.

Kalit so'zlar: *maktab o'quvchilari salomatligi, maktab mebeli, o'quvchilarni to'g'ri joylashtirish*

The health status of schoolchildren is largely determined by the conditions of their education and upbringing [4,5]. Over the past decade, a generally recognized fact is the deterioration in the health of children, especially of school age [2,9,4,13]. Research evidence have shown that among the main factors determining the health of schoolchildren, 20% are the factors of the school environment [14].

Currently, the problem of creating optimal hygienic conditions for learning has acquired particular importance due to negative trends in the health of secondary school children, as well as due to changes that have occurred in school education in recent years [3,4]. Statistical data on the health indicators of pupils in general education schools in the Russian Federation indicate an increase in the incidence of schoolchildren in all classes of diseases. The leading position among 75utria75ningdren is occupied by morphofunctional disorders of the musculoskeletal system, accounting for 46.5% [8, 11]. According to WHO, out of every 100 pupils at school, 50 inevitably acquire scoliosis, 30-40 – functional deviations in the cardiovascular system, 20-40 – myopia, 20-30 – suffer from neuropsychic dysfunctions. It turns out that there are practically no healthy children among those finishing school. Various posture disorders adversely affect to the functioning of the heart and lungs and other vital organs, as well as distort the shape of the body and impair metabolism.

Violations and diseases of the 75utria75-skeletal system of children further lead to the limitation of their life and social insufficiency, restrictions to entry into the occupation, contraindications for military service, a negative impact on reproductive health and significantly reduce the quality of human life. Based on this, the problem of disorders of the musculoskeletal system goes beyond the scope of only medical and acquires a high medical and social significance. The formation of the child's musculoskeletal system is significantly influenced by children's furniture [17, 16]. One of the important reasons for the development of school pathology may be the prolonged presence of pupils in a static tense sitting position 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 pupil is one of the Important hygienic factors. One of the important school factors influencing the formation of the musculoskeletal system, the vegetative support of educational activities and maintaining the optimal level of mental performance of students is the organization of the workplace, which depends on the type of school furniture and options for its use.

The use of such furniture requires an ergonomic and hygienic assessment of its design features.

Violations of the requirements of sanitary rules for providing pupils with furniture corresponding to their body length in general educational schools are among the most frequently detected by specialists during control and supervision activities. Among the possible reasons noted are the lack of modern data on the distribution of educational sets in primary classes, low awareness of teachers about the effect of furniture on the health of 75utria75ningdren [12, 13]. The organization of the workplace, the student largely depends on the functional dimensions of school furniture, the values of which are recorded in the relevant regulatory documents (state

standard and SanRandN). There are 5 groups of furniture, which have different seat heights above the floor, depending on the height of the student.

Posture is the position in which you hold your body while standing, sitting or lying down. It is formed in the process of growth, development and education.

Posture is an important indicator of health and harmonious physical development, since correct posture provides optimal conditions for the functioning of all organs and body systems. And severe postural disorders, on the contrary, significantly reduce the level of vitality and the degree of endurance of a person of any age, so the problem under consideration is relevant. The child's posture is a dynamic stereotype and is unstable at preschool age, 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 postures that the child takes while sitting, standing, lying, walking, playing, sleeping; congenital anomalies in the development of the ribs, chest, vertebrae, and lower extremities cause the development of posture disorders [10].

Posture disorders – deviations of the spinal 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 and legs.

One of the main tasks of physical education at school should be to control 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. Classes at a desk, drawing board, standing at a workbench are associated with a certain, predominantly 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; posture control is carried out through the muscular apparatus, thanks to tremor – a slight trembling of the muscles. Postures with a slight slope are more beneficial from the point of view of statics and biomechanics – less fluctuation of the center of gravity. Additional motor units are involved in the work of large inclinations, the pulse quickens and the amplitude of breathing decreases. Furthermore, visual disturbances are possible, stagnation occurs in the bloodstream of the legs and small pelvis, compression of the vertebral discs occurs.

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

A large static load increases even more if the pupil sits behind furniture of an irregular design or that does not correspond to the length and proportions of the body. In these cases, the pupil also cannot maintain the correct working posture, as a result of which the posture is also disturbed. Reducing static stress can be achieved by maintaining the correct working posture. It depends on the appropriate selection of furniture.

Inconsistency of furniture with the growth of children, a change in the ratio be-

tween the table and the chair can lead to uneven loading and non-simultaneous fatigue of various muscle groups. There is a muscular asymmetry, which is one of the causes of various kinds of posture disorders. Incorrect landing causes faster fatigue of learners, a decrease in attention and performance. It contributes to the development of myopia as a result of non-observance of the optimal distance from the book to the eyes.

The correct position is one in which the scholar sits straight with a slight lean forward. So, the notebook and the book are at a distance of 25-35 cm. Noticeably, the hand passes freely between the chest and the table, however, the back rests on the back of a chair or bench at the level of the waist. Thus, the legs are bent at the hip and knee joints at a right or obtuse angle and the entire foot rests on a stand or floor. Therefore, both hands lie freely on the table, shoulders are at the same height, parallel to the edge of the table. The organs of the chest and abdominal cavity are not constrained and breathing is free with proper fit. On this account, the load on the musculoskeletal system is minimal and vision is not strained.

Proper 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 matches the shape of the thigh 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. Correspondingly, landing becomes more tiring and less stable. At greater depths, the edge of the seat compresses the neurovascular bundle in the popliteal fossa.

Correct seating is ensured by the rational design of the table and the ratio between the table and the seat. The inclined position of the table top facilitates the accommodation work of the eyes when writing and reading. With a low table and a high chair, the pupil is forced to lean forward strongly and lean on the table. This leads to compression of the chest and abdominal organs. The right shoulder drops, 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.

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 stoops.

Scoliosis is a sideways curvature of the spine that most often is diagnosed in adolescents. It can also be combined with kyphosis, though the conditions may be similar, they aren't exactly the same. Scoliosis is a sideways curve of your spine, kyphosis is more of a forward rounding of the back, which leads to a hunchback or slouching posture.

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].

In connection with the above data, the organization of the workplace with the selection of school 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 appropriate furniture for the growth of children, carry out the correct seating of pupils and monitor the maintenance of the correct working posture, and to reduce static stress, it is necessary to organize physical education breaks.

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