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SCOLIOSIS PREVENTION AS AN IMPORTANT COMPONENT FOR MAINTAINING SPINAL HEALTH

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Introduction and topicality. Scoliosis in adults is one of the most common spinal deformities, belonging to the group of Adult Spinal Deformity (ASD). Kyphosis and spondylolisthesis also belong to this category. Depending on the degree of curvature, scoliosis can cause various physical and psychosocial complications, including pain, mobility limitations and other dysfunctions that negatively affect the quality of life.

This pathology can develop in childhood or adolescence, but often remains unnoticed until adulthood. It occurs in approximately 2-4% of school-age children.

In adulthood, scoliosis can also occur de novo as a result of degenerative changes in the spine. The relevance of this problem is constantly increasing due to its high prevalence among older people. The overall incidence of spinal deformities in adults reaches 32% and tends to increase with age: if in the age group 25–74 years it is 8%, then among people over 50 years of age this figure reaches 68%.

Despite its high prevalence, the early stages of scoliosis often remain asymptomatic, which complicates diagnosis and timely treatment. Understanding the

impact of scoliosis and its potential complications is important to prevent disease progression, improve the quality of life of patients and reduce the burden of this pathology on the health care system.

The aim. To determine what complications scoliosis can lead to and develop preventive measures to prevent the development of spinal curvature.

Materials and methods. Analytical review and analysis of scientific literature in recent years, covering studies on the topic of scoliosis in medical databases PubMed, UpToDate and others.

Results and discussion. Scoliosis is defined as a lateral curvature of the spine in the coronal plane, exceeding 10 degrees according to the Cobb angle. If the Cobb angle does not exceed 10 degrees, then this is considered a variant of the norm.

The direction of scoliosis is determined by the convexity of the curvature, and its location depends on the apical body of the vertebra, which is most deviated from the midline.

Classification by localization: cervical scoliosis (C_2-C_6) is the least common form, which may be accompanied by compression of the vertebral arteries; Cervical-thoracic scoliosis (C_7 or Th_1) – both the cervical and thoracic regions are involved in the process; Thoracic scoliosis (Th_2-Th_{11}) – the most common type of scoliosis, affecting the shape of the chest; Thoracolumbar scoliosis (Th_{12} or L_1) – the thoracic and lumbar regions are involved in the process; Lumbar scoliosis (L_2-L_4)-its peculiarity is that this type causes significant lower back pain due to the load on the lower spine; Lumbosacral scoliosis (L_5 or below) – can lead to problems with the pelvic organs.

Untreated scoliosis can lead to complications such as chest deformity and respiratory and cardiovascular system dysfunction. Due to significant curvature of the spine, the structure and shape of the chest may change, which in turn can negatively affect the lungs and reduce their volume. This limits respiratory function, causing shortness of breath, especially if the Cobb angle exceeds 80 degrees. In severe cases, this leads to respiratory diseases and a decrease in the level of oxygen in the blood.

Chest deformity can also limit the work of the heart, causing heart failure,

especially in severe thoracic scoliosis.

Pain syndrome is the most common manifestation of complex scoliosis. It occurs due to uneven distribution of the load on the spine, excessive muscle tension and degenerative changes in the intervertebral discs.

With scoliotic deformation, compression of the nerve roots and spinal cord is often observed, which can cause neurological symptoms such as numbness, muscle weakness in the limbs and decreased reflex activity. In severe cases, motor disorders are possible.

Lumbosacral scoliosis can lead to dysfunction of the digestive and urinary systems, which is manifested by constipation, intestinal compression and impaired kidney function.

Uneven load on the spine during scoliotic changes contributes to accelerated wear of the intervertebral discs, which increases the risk of developing osteochondrosis, intervertebral hernias, spondylosis and arthrosis of the facet joints.

Bone tissue also undergoes changes due to impaired nutrition, which increases bone fragility and increases the risk of fractures.

Scoliosis, especially at stages 3-4, can have negative psychological consequences: cosmetic defects affect self-esteem and can cause depressive and anxiety disorders.

In women, pronounced curvature of the spine can complicate the course of pregnancy and childbirth, as it affects not only pain, but can also contribute to pelvic deformation, which complicates the natural process of childbirth.

Scoliotic deformation of the cervical spine can compress the vertebral arteries, which leads to impaired cerebral circulation. This can cause headaches, dizziness, tinnitus, as well as impaired memory and concentration.

Conclusions. Thus, scoliosis is a serious disease that can significantly affect the quality of life if it is not diagnosed and treated in a timely manner. Avoiding complications of this disease begins with prevention, which must be implemented in childhood. It is at a young age that the foundations of correct posture are formed, which is crucial for the health of the spine.

Effective prevention of scoliosis is impossible without the participation of adults who are responsible for the upbringing and education of children. Parents must ensure the correct daily routine for the child, including sufficient physical activity, balanced nutrition and organization of a workplace that corresponds to his height. Monitoring correct posture at home is also their task.

Regular medical examinations allow for timely detection of posture disorders and scoliotic changes. Pediatricians and orthopedists should provide recommendations on preventive measures. In schools, teachers need to organize regular physical education sessions, monitor the correct position of students at their desks, and encourage children to play sports.

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