

Influence Of The Water Factor On Diseases Of The Locomotor System

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Abstract: Water is a structural component of all cells and tissues. It binds to a number of biologically active polymers, in particular, glycogen (one gram of glycogen holds 1.5 ml of water); proteins whose molecules are surrounded by a solvate shell; glycosaminoglycans, resulting in the formation of a special gel-like state of the main intercellular substance, structured at the molecular level. Metabolic processes occurring in cells require a constant supply of nutrients to them. Their movements are carried out together with water, which is a universal solvent of organic and inorganic compounds. Together with water, metabolic products formed in the cells are transported and excreted from the body. Water is an essential component of many metabolic reactions: hydrolysis, oxidation, hydration, etc.; it is involved in the implementation of anabolic and catabolic processes and maintaining body temperature. Water is directly involved in the regulation of the body's heat balance (preservation, distribution and release of heat). One of the most important properties of a living organism is movement in space. This function in humans is performed by the musculoskeletal system (ODA), which consists of two parts: passive and active. The first includes bones that connect to each other in various ways, the second - muscles. The bones of the skeleton are levers driven by muscles. As a result of this, body parts change position relative to each other and move the body in space. Bones and joints participate passively in movement, obeying the action of muscles, but play a leading role in the implementation of the supporting function. A certain shape and structure of the bones give them great strength, the reserve of which for compression, stretching, bending significantly exceeds the loads that are possible during the daily work of the musculoskeletal system. The ligaments and cartilages of the joints also have a large margin of safety.

Keywords: Water, musculoskeletal system, bone, glycogen, protein, ODA, joint, molecule, muscles, muscles, vessel, skeleton, bone system, processes, protrusions, awns, ridges, tubercles, tubercles, rough, fibrosis, arthritis, tuberculosis, brucellosis, dysentery, paresis, paralysis, bursitis, gangrene, osteochondrosis, scoliosis, osteophyte, gonorrhea, swimming, osteochondrosis, rickets, periostitis, feet, flat feet, branchial asthma

Muscular system. Human muscles are divided into three types: smooth muscles of internal organs and blood vessels, characterized by slow contractions and great endurance; striated muscles of the heart, the work of which does not depend on the will of a person, and the main muscle mass - striated skeletal muscles, which is under volitional control and provides a person with the function of movement. Performing their work, the muscles simultaneously improve the functions of almost all internal organs, primarily the cardiovascular and respiratory systems. Skeletal muscles carry out both static activity, fixing the body in a certain position, and dynamic, ensuring the movement of the body in space and its individual parts relative to each other. Both types of muscular activity closely interact, complementing each other: static activity provides a natural background for dynamic activity. As a rule, the position of the joint is changed with the help of several muscles of multidirectional, including opposite, action. Complex joint movements are performed by coordinated, simultaneous or sequential contraction of non-directional muscles. Consistency (coordination) is especially necessary for the performance of motor acts that involve many joints (for example, skiing, swimming)

The skeletal system. Bones are a solid support for the soft tissues of the body and levers that move with the force of muscle contraction. The bones in the whole body form its skeleton. Outside, the bone is covered with periosteum. Only the articular surfaces of the bone are not covered by the periosteum; they are covered by articular cartilage. The shape distinguish between long bones, short and flat. A number of bones have a cavity filled with air inside; such bones are called air-bearing, or pneumatic. Some bones of the limbs

resemble a tube in structure and are called tubular. On the surface of the bones there are elevations, depressions, platforms, openings of various sizes and shapes: processes, protrusions, awns, ridges, tubercles, tubercles, rough lines and a number of other formations. The bones are divided into: the bones of the trunk, the bones of the head, which together make up the skull, the bones of the upper limbs and the bones of the lower limbs. All types of bone joints are divided into two groups: continuous and discontinuous. A continuous connection (fibrous connection) is a type of connection in which the bones are, as it were, fused together through one or another type of connective tissue. Discontinuous soy bone dynamism, a joint (synovial joint) is a movable articulation of two or more bones with a slit-like articular cavity between them.

ODA diseases

2. The human body has the ability, formed in the process of evolution, to adapt (adapt) to changing environmental conditions. However, these abilities are not unlimited. As a result of environmental conditions, physical activity, diseases can occur. The impact of extreme factors leads to significant changes in both physiological and biochemical parameters, to the development of morphological and functional changes in the tissues of the musculoskeletal system. Among the many factors that cause diseases of the musculoskeletal system, in addition to the physiological wear of tissues, its functional overstrain, which is the cause of pathological changes, is of no small importance. Pathological phenomena arising on the basis of tissue overload of the musculoskeletal system are manifested in the form of hypoxia and hypoxemia, muscle hypertonicity, microcirculation disorders and other abnormalities. The most severe functional disorders are observed in patients with joint deformities and contractures of paralytic etiology due to poliomyelitis, paresis of peripheral nerves, postpartum plexitis and cerebral paresis. Poliomyelitis is characterized by damage to the motor cells of the anterior horns of the spinal cord with a mosaic loss of the functions of various muscles, leading to motor disorders - impaired active movements in the joints of the lower, upper extremities, spine, static disorders (sitting, standing skills) and locomotor functions (walking, climbing stairs, run). A vicious position in the joints can worsen the functional state of the muscles due to their prolonged overstretching. The severity of movement disorders is determined by their depth (paralysis, paresis) and prevalence. Chronic diseases of the musculoskeletal system include diseases of the joints: deforming arthrosis, chondromalacia, diseases of fatty bodies and chronic microtraumatization of the ligaments, osteochondropagia, meniscopathy, chronic synovitis, bursitis. The main causes of arthrosis are the decentration of the load on the joint, its overload, as well as circulatory disorders. Degenerative changes in the cartilaginous structures of the joints of the lower extremities have a particularly negative effect on motor function.

Arthritis - inflammation of the joint or several of its elements, which is most pronounced in the synovial membrane, and then goes to the cartilage. The causes of inflammatory lesions can be: rheumatism, collagenosis, metabolic disorders (gout), specific infectious diseases (gonorrhea, brucellosis, tuberculosis, dysentery, etc.), chronic foci of infection (tonsillitis, urethritis, etc.), acute infections of the upper respiratory tract (flu, tonsillitis, etc.).

Bursitis - inflammation of the synovial membranes of synovial bags.

Periostitis - inflammation of the periosteum. One of the common diseases of the spine, leading to impaired motor function and damage to the peripheral nervous system, is osteochondrosis.

Osteochondrosis is a degenerative-dystrophic lesion of the connective tissue structures that provide movement between the vertebrae. This is a disease of the spine, accompanied by a gradual and steady destruction of intervertebral structures (articular cartilage, nucleus pulposus, annulus fibrosus), which leads to a decrease in the joint space between the vertebrae, growth of bone tissue in the form of outgrowths (osteophytes), persistent pain syndrome, prolonged muscle spasm and dysfunction of the spine. Pain can be localized in the region of the spine, diffusely radiate along the autonomic nerve pathways to the joints, internal organs, or spread along the roots of the spinal nerves (radiation to the upper or lower limb, as well as with damage to the discs of the thoracic spine, girdle pain). With compression of the nerve root during the protrusion of a herniated disc, neurological symptoms may appear: impaired sensitivity, reflexes, movement disorders (paresis). The causes of osteochondrosis have both exogenous and endogenous factors. The most common endogenous risk factors for the development of osteochondrosis are dysplastic processes of the musculoskeletal system: osteochondropathy of the spine, rickets, scoliotic disease, as well as birth trauma and other pronounced disorders of the musculoskeletal system of various etiologies. Of the exogenous

factors, the most significant are: irrational motor activity - hypokinesia, hyperkinesia, inadequate nutrition and physical education of children, adverse environmental factors, and others. An increase in the number of children and adolescents suffering from diseases of the spine is one of the urgent problems of modern practical medicine. According to statistics, osteochondrosis of the spine today is detected in children from 9-10 years old, and by the end of school, about 30-40% of schoolchildren suffer from this disease. The cause of early osteochondrosis is scoliosis, posture disorders, injuries. One of the main predisposing factors for early development The causes of osteochondrosis are hypodynamia and prolonged static overload of the spine. School-age children quite often develop various kinds of posture disorders associated with curvature of the spine. One of the main reasons for these violations is the incorrect position of the student during classes. Significant functional disorders are accompanied by spinal deformities observed in children. With scoliosis, which often has a progressive character, endurance to prolonged static-dynamic load is impaired, cardiopulmonary insufficiency develops, and at an older age pain sometimes occurs. Along with bone changes, muscle hypotonia, weakness of the ligamentous apparatus, looseness in the joints with misalignment of the joints, lateral curvature of the spine, and the development of flat feet are often found. Flat feet are characterized by the flattening of the arches of the foot and the deviation of the calcaneus outward. Flat feet lead to a deterioration in the spring qualities of the foot and, in this regard, to a decrease in endurance to prolonged static load, the appearance of pain in the muscles of the lower leg and foot. The musculoskeletal system, being one of the most important human systems, undergoes constant stress in everyday life, in various activities, which can cause various disorders and diseases that require correction and treatment.

Conclusion. Water is useful for both healthy and sick people. Healthy people get excellent hardening, improve their physical abilities, and for those who suffer from various diseases, swimming helps to cure diseases such as neuroses, neurasthenia, spinal injuries, the consequences of injuries and diseases of the musculoskeletal system. In metabolic diseases, bronchial asthma and chronic inflammatory diseases of the respiratory system, swimming is an indispensable means of healing. During swimming, excellent conditions are created for improving the functioning of the circulatory system: the amount of oxygen absorbed by all organs and tissues of the body increases, venous outflow from the legs increases, almost all muscles of the body contract. Swimming develops the cardiovascular system and greatly strengthens the entire body. Swimming is also an excellent means of preventing and correcting postural disorders. The mechanism of action is simple, during swimming, the static load on the spine is reduced, the imbalance of the back muscles, which leads to curvature of the spine, is leveled. At the same time, the active movement of the legs in the water in an unsupported position strengthens the feet and prevents the development of flat feet.

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