

АНАТОМИЧЕСКИЕ И ФИЗИОЛОГИЧЕСКИЕ ОСОБЕННОСТИ БИОМЕХАНИКИ
ВИСОЧНО–НИЖНЕЧЕЛЮСТНОГО СУСТАВА

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ANATOMICAL AND PHYSIOLOGICAL FEATURES OF THE BIOMECHANICS OF
THE TEMPOROMANDIBULAR JOINT

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The most frequent pathologies of the temporomandibular joint (TMJ) are functional disorders, the cause of which - discoordination activity forming the joint elements.

Knowing the anatomical and physiological characteristics of the biomechanics of the (TMJ) is the main tool for the correct diagnosis and the treatment methods of functional disorders of the (TMJ) joint.

TMJ is a combined joint, representing a functional combination of two anatomically separate block joints (left and right). The mating surface of the head of the mandible and the articular surface of the temporal bone supplemented there between intraarticular fibrous cartilage, which edges to increment to the joint capsule, divides the joint cavity into two separate departments. Both temporomandibular joints function simultaneously, presenting a single combined joint.

Temporomandibular joint though structurally related to condylar , but due to the presence of intra-articular cartilage disc in it the possibility of movement in three directions. In the joint may raise and lower mandible by a slight lowering of the lower jaw movement occurs around the front axle in the lower chamber of the joint. By this the head of mandible produces rotational movement on the lower surface of the disc. Movement of the mandible forward made in the upper chamber of the joint. In this case the head with the disc constitute one unit and slide forward and down the slope of the articular tubercle .

Simultaneously with these movements articular head commits a rotational movement in the lower chamber of the joint. Lateral movements of the lower jaw are due unilateral reduction of lateral pterygoid muscle and anterior temporal muscle bundles opposite side. The angle of deviation toward the lower jaw is 15-17 °.

Movements occur in the upper joint space between the upper surface of the articular disc and articular tubercle ramp. In the opposite side of the joint where the lower jaw is moved, articular head in the glenoid fossa of rotational movement around the vertical axis. Furthermore, the head is shifted backwards and inwards.

Movement is carried out in the lower chamber of the joint between the lower surface of the disk and the head of the joint. Normal position of the condyle within these limits. Any position of the condyle of the specified range is considered adaptive position.

Movement in the temporomandibular joint are rotation and linear displacement. Most of the movements of the lower jaw -are a combination of muscles work, which are located on both sides.

To the front edge of the disk attached the upper head with outer wing muscles, which provides synchronous movement of the disc along with the head of the mandible. However, the disc can remain in its place, and the jaw is displaced anteriorly, or jaw is stabilized, and the disc is displaced anteriorly. This movement is characterized by the displacement of the condyle crest of 8-10 mm as for the meniscus and 15 mm as for the temporal bone, which leads to the conclusion - the meniscus moves 7 mm when moving the lower jaw forward, thus retro-disk tissue is drawn into the hole in the area, liberated condyle and the meniscus.

The front articular eminence and back part of the articular surface of the condyle are subject to remodeling with age. This may result in compression of the retro - disc tissue by rearward displacement of the condyle and the bone wall of the glenoid fossa rear. Additional problems arise when there is insufficient blood supply at this level.

Consequently, the temporomandibular joint is a crane-mandibular joint. In repose articulated only part of the front surface of the articular heads the bulge on the rear surface of the articular tubercle, which means that articular head moves along the slope of the articular tubercle, which appears in its infancy only on the age of 7-8 months and is totally formed by the age of 6-7 years. Absolutely you can firmly assert that the magnitude of the sagittal occlusal curve (as well as transversal) depends on the size of the articular tubercle.

Sagittal occlusal curve formed by the age of 10 - 12 years. When moving the lower jaw forward joint head moves forward and down. Thus formed joint sagittal path that extends with respect to the occlusal plane of the average angle of 33 degrees. When the lateral movement of the mandible from the position of central occlusion articular head on the side offset (sidelaterotrusion) rotates on its axis in the corresponding articular fossa and commits the same lateral movement called Bennett movement. This lateral movement of a joint head of an average of 1 mm, can have a small front or rear component. Articular head on the opposite side (the side of mediotruzii) moves downward, forward and inward.

Angle between this by moving the head and the sagittal plane is called Bennett angle. It is equal 15-20 degrees. Thus, TMJ formed in phylogeny depending on the nature of the bite and movement of the mandible, which are necessary to grind food. It appears as a closed kinematic system, as the movement in one joint causes movement in the other. Consequently, TMJ - is a specific joint, inherent only human.