

Innervation of the muscle

Each muscle enters the nerve, which consists of individual nerve fibers. The nerve fibers contained in the nerve entering the muscle are three types: motor, sensitive and vegetative. But where the nerve comes from the origin of the muscle.

Muscle groups and their origin

The muscles on the head and neck are developmentally derived from the muscles of the gill arches. Thus, they are innervated through their former nerves - cranial nerves [(nerve trigeminus | V), VII, IX, X, XI].

Muscles moving eye balls are innervated from separate head nerves, N. & nbsp; III, IV, VI.

The muscles of the remaining parts (ie the muscles of the fuselage and limbs) are innervated from spinal nerves. The spinal nerves are divided into dorsal and ventral branch. The dorsal branch innervates the back muscles (the so -called epaxonal muscles, which were originally stored above the axis of the embryo). The nerve organization is close to the original, primitive arrangement. The course of the nerve branches is therefore mostly parallel. Ventral branches innervate the muscles of the front of the torso and limb muscles (so -called Hypaxial muscles). Especially in the field of limbs, there were major changes and movements during development, so there were complex nerve knit, so -called plexes (eg Plexus brachialis], from which the upper limb is innervated), from which only the nerves designed to innervate the actual innervation itself. muscles.

Neurovascular Hilus

[File: Synapse Diag4.png Nerves enter the muscle in a place called neurovascular hilus. Along with the nerves, blood vessels come here. It is a specific location for each muscle. In the case of damage, the muscle becomes non - functional and atrophic.

Types of nerve fibers

'*Motor fibers*' are axons spinal cells that lead impulses to shrink muscle fibers into the muscles. They can be divided into two types: alpha-motoneurons and gamma-motoneurons. Alpha-motoneurons lead pulses into muscle fibers that irritate into interaction through a motor disc. The motor disc is therefore a place where the motor fiber ends on the muscle fiber. In order to transmit the signal, the substance acetylcholin must be excluded, in the case of the transfer blockage, the substance KURARE myorelaxancia is excluded here. The second type is gamma-motoneurons that innervate the fibers in muscle spindles-intrafusal fibers.

'*Sensitive fibers*' detailed information on the tension and orientation of the muscle from the deep sensor receptors (so -called proprioceptors) - muscle spindles and the tendon bodies]. Information about pain comes from free nerve endings, which are differently arranged around muscle fibers. Cells of sensitive fibers are stored in a spinal ganglion.

'*Vegetative (autonomous) fibers*' are primarily involved in the innervation of organs and smooth muscles. In the transverse striped muscles, the walls of the blood vessels innervate - they regulate their linked and thus regulate blood flow through the muscle.

'*Motor unit*' *'is a group of muscle fibers that is innervated by a single nerve cell, motoneuron. Muscles performing gross movements have a large motor unit - up to 150 muscle fibers. On the other hand, muscles performing fine and accurate movements (eg eyeball muscles) have a small (approximately 8-15 muscle fibers).*

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Sources

- PETROVICKÝ, Pavel. *anatomy with topography and clinical applications*. 1. edition. Martin. 2002. 542 pp. ISBN 80-8063-048-8.
- PETROVICKÝ, Pavel. *systematic, topographic and clinical anatomy: General foundations of anatomy*. 1. edition. Prague : Charles University - Karolinum publishing house, 1999. 123 pp. ISBN 80-7184-108-0.
- DRUGA, Rastislav – GRIM, Miloš. *basics of anatomy: 1. General anatomy and movement system*. 1. edition. Galén, 2001. 159 pp. ISBN 80-7262-112-2.
- ČIHÁK, Radomir – GRIM, Miloš. *anatomy 1*. 3. ref. edition. Prague : Grada, 2011. 552 pp. ISBN 978-80-247-3817-8.

