

Elbow is a common name for the ulnar joint which connects the shoulder with the forearm. It's a ginglymoidal-pivot joint of two motion axis. It consists of three junctions which are surrounded with a common articular capsule. The capsule on the lateral and medial sides is strengthened with durable ligaments.

Flexion and extension of the elbow take place in the: acromio ulnar and acromio humeral parts. They're anatomically separate, yet they're one element in terms of function. The radio ulnar junction is called the proximal radio ulnar joint and it's a rotating joint type.

The elbow is built of three pairs of the joint surfaces:

- the acromio ulnar part which makes the joint surface for the block of the humeral bone and the block cut of the ulnar bone,
- the humero radial part built of the joint surface of the humeral bone and the articular fossa of the head of the radial bone,
- the radio ulnar part is made of a cut of the radial bone with the joint circumference of the head of the radial bone.

The tennis elbow

The name "tennis elbow" is a common name of an illness called tendinopathy or entesopathy and it affects not only tennis players, but many people and work groups. Chances are some of you reading the text may also be prone to this illness.

Tennis elbow is a disease of the wrist extensor muscles. It's also called the lateral humeral epicondylitis. It sounds complicated but it's only a painful ailment caused by a pathologically changed site of the extensor muscles' attachments to the humeral bone.

Up to the end of the 20th century, the tennis elbow was treated just like a tendonitis, by administering anti inflammatory drugs, steroid injections, various ointments and gels. Only in 1999 scientists proved that this illness is caused by damaged collagen fibres that make up tendons together with incorrect vascularization of the attachment site.

Despite thorough research we still don't know where pain comes from. There're no nervous fibres in the tendon. Maybe atypical protein substances are responsible for pain? The most important is, however, that we can treat tennis elbow ailments.

Who suffers from tennis elbow ?

Despite the name, people who play tennis make up only 10% of all tennis elbow cases. The most numerous group is made up of people who work with computers (office workers, secretaries, IT workers and people who work in the radio or sound

engineers who sit for hours mixing broadcasts), electricians and orthopaedists :). Anyone whose arms are often positioned atypically or who make semi pivoting movements of the wrist (screwing with a strong grip – electricians and, not long ago, dentists). Tennis players sometimes use gum inserts between the strings of the racket in order to reduce vibrations. Yet using the inserts doesn't reduce vibrations and doesn't prevent from the illness. We observe increased morbidity among smokers.

The greatest morbidity is observed among people of age between 30 and 65. The most dangerous period is between 45 and 54 years of age.

Diagnosis

The basic method is an interview with a patient and a test of wrist extension against resistance, performed by an experienced orthopaedist. When it's necessary, an ultrasound Doppler test with comparison to the other side, X-rays, an MRI or an electromiography are done.

Sometimes the inflammation of the attachment heals itself (especially tendinitis type 2 and 4) and the process takes about 9-12 months, even if the patient carries on with his/her activities.

The main symptoms of the tennis elbow are:

- pain felt on the lateral side of the elbow, which radiates and intensifies during activity,
- clear, never present before, tissue sensitivity during palpable examination (touching with fingers),
- difficulties with performing everyday activities, eg. shaking hands or raising a glass.

International Academy of Orthopedic Medicine differentiates 5 types of the tennis elbow, according to damaged tendons.

Type 1 – the proximal attachment of the long radial extensor muscle of the wrist (rare), Type 2 – the proximal attachment of the short radial extensor muscle of the wrist,

Type 3 – the tendon of the short extensor of the wrist,

Type 4 – connection of the muscle and tendon part of the short radial extensor of the wrist. It's usually accompanied by the irritation of the fingers' extensor.

Type 5 – the proximal attachment of the fingers' extensor muscle.

[The tennis elbow – treatment \(find out more\)](#)

Compression neuropathies of the ulnar nerve

Chronic compression of the nerves of the upper limb is a frequent reason of patients' ailments. The disorders may be of sensory, locomotor or sensory and locomotor character. Locomotoric symptoms vary from weakening of the limb to complete loss of function. Sensoric symptoms include numbness, formication and lancination but they don't show pain features. At first the sensoric perception is disturbed, at last – the feeling of temperature and pain. The pain connected to the peripheral nerve is most frequently caused by an acute compression of the nerve due to an injury or insufficient vascularization. The ulnar nerve is usually compressed in the site of the elbow and wrist.

Ulnar nerve groove syndrome

The compression of the ulnar nerve in the elbow groove comes second in frequency of occurrence, after the ulnar canal syndrome. It usually occurs in men, in their dominant limb.

Reasons

The reasons of the ulnar nerve compression in the site of elbow may be:

- a direct stroke or a chronic compression,
- dislocation of the ulnar nerve due to the groove being too shallow or to the lack of the aponeurosis. As a result, the nerve may leave the groove during flexion and come back during extension, which leads to its irritation,
- tumors of the ulnar nerve groove, like ganglions, adipomas and others,
- the medial head of the arm triceps or other muscle anomalies.

Symptoms

The sensory symptoms usually include numbness of the little and ring fingers. Numbness intensifies when the arm is flexed in the elbow. The locomotor symptoms include weakness, motoric clumsiness and dropping objects, plus difficulties with crossing the index and middle fingers, reducing the size of the hypothenar eminence and of the first space between the metacarpal bones. During an examination, a doctor must check the position of the ulnar nerve, the Tinnel's syndrome, paresthesias, sensitivity and function of muscles that are innervated by the ulnar nerve. Neurological tests show muscle weakening. X-rays, EMG and MRI tests may be of help in diagnosis.

[Ulnar nerve groove syndrome \(find out more\)](#)

Ulnar cannal syndrome (Guyon's canal)

It's a compression of the ulnar nerve at the wrist level. The main causes are: ganglions, adipomas or an aneurysm of the ulnar artery, all of which compress the ulnar nerve. The symptoms of nerve compression always include numbness of the fingertips of the little and ring fingers. Gradually the muscles innervated by the ulnar nerve weaken and we observe muscle atrophy and muscle contractures in flexion of the little and ring fingers. In more severe injuries we observe the claw position of the little and ring fingers and abducted position of the little finger.

In order to diagnose the illness correctly, the doctor needs to examine the patient thoroughly and confirm the diagnosis with an EMG test which shows the muscle activity and the conductivity in the peripheral muscles. The test consists of two stages: ENG (which checks the conductivity) and EMG (which checks the muscle with the help of a needle electrode).

[The treatment of the ulnar cannal syndrome \(find out more\)](#)

Ulnar bursitis

This illness is caused by summing up irritations of the olecranon (tip of the elbow), where the "container with fluid" that prevents friction and protects the eminent bone fragment, is located. The bursa swells and overproduces fluid and it looks like a tumor. The patient feels moderate pain, swelling, warmth and redness. If there's an infection, the inflammation may turn into purulent and we observe severe pain and temperature. When such symptoms are observed, the patient needs to see the doctor immediately.

[Treatment of the ulnar bursitis \(find out more\)](#)

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