

# Examination of the ulnar nerve

## Anatomy

**The ulnar nerve** arises from the C7–Th1 segments of the cervicobrachial plexus. It runs along the inner side of the arm, then continues dorsally from the epicondylus medialis humeri to the sulcus nervi ulnaris, where it is placed superficially. It descends on the forearm, then passes under the hypothenar to the thenar. It has both a sensory and a motor component, so it is a mixed nerve.

## Motor innervation area

- m. flexor digitorum profundus
- m. flexor carpi ulnaris
- m. flexor pollicis brevis
- m. adductor pollicis
- m. abductor digiti minimi
- m. flexor digiti minimi
- m. opponens digiti minimi
- mm. interossei
- mm. lumbricales III. et IV.
- m. palmaris brevis

## Sensitive innervation area

N. ulnaris sensitively supplies the medial side of the forearm, the 5th finger and half of the 4th finger.

## Examination in paresis

### Thumb adduction test

Due to the weakening of the adductor pollicis muscle on the side of the lesion, the patient is unable to pull the thumb back to the other fingers.

### Little finger abduction test

Due to the weakening of the abductor digiti minimi muscle, the patient is unable to move the little finger away from the other fingers.

### Rudder symptom

The patient places the hand dorsally on the table. We encourage him to perform isolated flexion at the metacarpophalangeal joints. When weakening mm. lumbricales III. and IV. the patient is unable to simultaneously flex in the MP joints and maintain extension in the proximal and distal interphalangeal joints.

### Froment's test

We ask the patient to put the fingers into a light fist, we insert a piece of paper between the thumb and forefinger of both hands and invite the patient to tear it with a pull of the hand. On the paresis side, the paper will slip out of the grip due to the weakening of the adductor pollicis muscle.

### Middle finger mobility test

The patient places the hand palm side down on the table, we passively set the fingers into abduction and ask the patient to perform duction III. finger, thanks to the weakening of mm. lumbricales III. and IV. however, it does not lead.

### Muscle test

A muscle test for the relevant muscles is the most objective indicator of the extent of damage.

## Clinical picture of the lesion

The lesion begins slowly, first with sensitive denervation and then with motor denervation. A typical symptom is the so-called clawed hand. The thumb is held in flexion, the 5th and 4th fingers are hyperextended at the metacarpophalangeal joints. The ulnar nerve in the sulcus nervi ulnaris swells and is very tender to palpation.

# Causes of the lesion

Lesions most often occur in the area of the elbow joint, where the ulnaris nerve is located just under the skin. We are talking here about the so-called cubital tunnel syndrome. It is caused by chronic microtraumatization of the elbow joint or frequent leaning on the elbow on hard and cold mats. In the area of the axilla, the axillaris nerve may be compressed, but the involvement is more extensive.

## Links

### Related articles

- Examination of the radial nerve
- Examination of the tibial nerve
- Examination of the median nerve

### References

- AMBLER, Zdeněk. *Základy neurologie : [učebnice pro lékařské fakulty]*. 7. edition. Galén, c2011. ISBN 9788072627073.
- OPAVSKÝ, Jaroslav. *Neurologické vyšetření v rehabilitaci pro fyzioterapeuty*. 1. edition. Univerzita Palackého, 2003. ISBN 80-244-0625-X.
- MUMENTHALER, Marco - BASSETTI, Claudio L. *Neurologická diferenciální diagnostika*. 1. edition. Grada, 2008. ISBN 978-80-247-2298-6.
- FULLER, Geraint. *Neurologické vyšetření snadno a rychle*. 1. edition. Grada, 2008. ISBN 978-80-247-1914-6.