

## Ulnar Neuropathy

### What is Ulnar Neuropathy or Ulnar nerve dysfunction?

Ulnar neuropathy also known as ulnar nerve entrapment occurs when there is damage to the ulnar nerve which runs down the length of the arm and is often caused by it being trapped or pinched near the elbow or wrist (see figure 1).

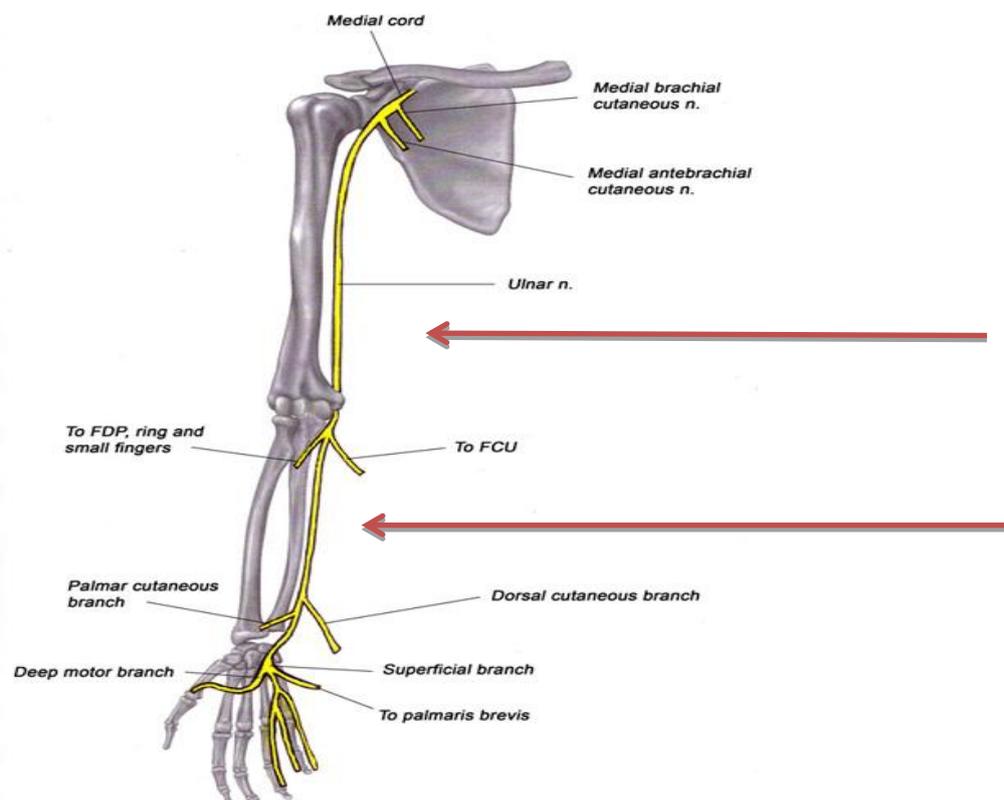


Figure 1: Ulnar nerve

The ulnar nerve supplies innervation (supply a part with nerves) to the muscles of the forearm and hand (figure 2).



Figure 2: Forearm and hand

It provides sensation over the inner aspect (little finger side of the hand) of the hand and to the ring and little fingers (Figure 2).



Figure 3: Ulnar nerve sensory distribution

### Facts about the ulnar nerve

The compression / pinching may affect the nerve covering (myelin sheath) or part of the nerve (axon). The damage slows or prevents nerve impulse (instruction to a muscle).

The causes of compression at the wrist include long-term pressure at the base of the palm, a clot, swelling, ganglia (cluster of nerve cells bodies) or by repeated trauma (e.g. a cyclist gripping the handlebars) or work activities (such as a construction worker swinging a heavy tool).

The ulnar nerve can be damaged at the elbow by dislocation (the elbow joint is put out of place) or fracture (broken bone). The nerve can become entrapped in the cubital tunnel (see figure 1 – arrow at the elbow) when it becomes inflamed during repetitive stress such as a construction worker swinging a heavy tool. The cubital tunnel is a channel which allows the ulnar nerve to travel over the elbow. Damage can also be caused by long-term pressure on the elbow. Temporary pain and tingling of this nerve can occur if the elbow is hit, producing the experience of hitting the ‘funny bone’ at the elbow.

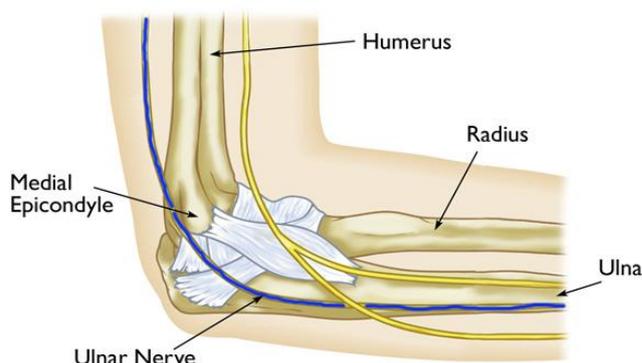


Figure 5: Ulnar nerve in the cubital tunnel

### Symptoms include

- Hand weakness (especially of the little finger and hand grip)
- Numbness, tingling or decreased sensation of the little finger and part of the ring finger, usually on the palm side. This may be worse at night while sleeping.

- Pain which can be a burning sensation in the elbow, palm and /or the little and ring finger
- Sensitivity to cold
- Loss of finger coordination

### *What can I do to help myself to get better?*

Mild cases of ulnar neuropathy may get better without treatment. The following may help in the first few weeks.

**Getting the balance right between rest and activity:** It is important to identify activities that may be causing your symptoms or making it worse such as repetitive movements. Try to adapt and change any movements that might be causing symptoms such as pressure to the elbow, work postures, or sporting activities (e.g. cycling). If you are a keen cyclist, you could look at adjusting the handlebars.

When you bend your elbow, the ulnar nerve is stretched. Avoid activities that require you to keep your arm(s) bent for long periods or repeatedly bending your elbow. It is also important to ensure you do not sleep with your elbows bent at night as you may be awoken with pins and needles sensations or numb sensations (your fingers may fall asleep especially your ring and little finger).

**Some exercises** can be useful to ease your symptoms. Nerve gliding exercises (movements which glide a nerve) may help the ulnar nerve slide through the cubital tunnel (See arrow 1, figure 1) at the elbow and through a canal (see red arrow 2, figure 1) at the wrist which can improve your symptoms. These exercises may also prevent stiffness of the arm and wrist.



Figure 3: Ulnar nerve sliding exercises

**Posture:** Avoid leaning on your elbow for long periods of time as this can put pressure on the nerve. If you use a computer frequently, ensure your chair is not too low. Avoid leaning your elbows on the armrests. The frequency of ulnar nerve compression is increasing, partly due to the use of mobile phones, as the elbow is held in a bent position for long periods.

**Painkillers:** Over the counter painkillers may be helpful, such as paracetamol, ibuprofen or creams that you can buy at the chemist. Your pharmacist will be able to give you expert advice.

**Splints:** Using a splint called a cubital tunnel syndrome elbow brace or a cubital tunnel elbow splint may be helpful for symptoms coming from the elbow. A wrist splint can help

when the compression is coming from the wrist. You can also wrap a towel around your straight elbow, to keep your elbow straight at night.



Figure 4: Home splint for the elbow to use at night

### ***How long will it take to get better?***

Mild cases may resolve within 4 to 6 weeks.

### ***When should I see my doctor?***

- If you develop numbness affecting the little and ring finger that persists for [4] weeks and has not responded to “*what I can do to help myself get better*”

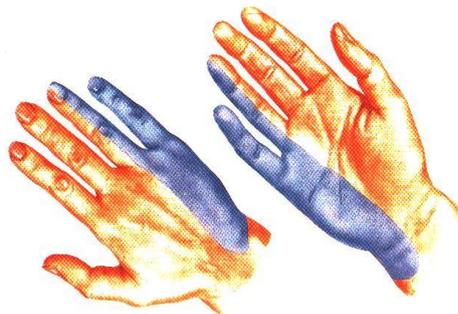


Figure 6: Sensory distribution of the ulnar nerve

- If you develop wasting of the muscles on the inner aspect of your forearm

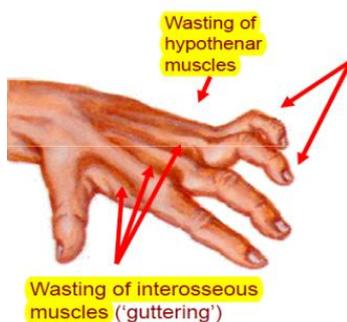


Figure 7: Wasting and weakness of the ring and little finger

- If you develop weakness of the 4<sup>th</sup> and 5<sup>th</sup> fingers, where you struggle to bend these fingers
- With your palm of your hand placed flat on a table, you struggle to take your little finger away from your 4<sup>th</sup> finger



Fig 8: Weakness of the little finger

- If you develop a claw hand deformity



Fig 9: Claw hand deformity

### *How can a clinician help?*

Your GP may refer you to a specialist MSK (musculoskeletal) clinic. The specialist can examine you and ask questions about your symptoms and medical history. They can offer further self-help recommendations. They can request investigations to include nerve conduction studies, nerve ultrasound, recording of electrical activity in muscles (EMG) and X-rays.

**Physiotherapy** may be considered.

If the symptoms persist and cause disruption to daily life and functions, you may be referred for a decision on whether to have an operation. Types of surgery include a cubital tunnel release, ulnar nerve anterior transposition and medial epicondylectomy (removal of the medial epicondyle).

Indications for surgery for ulnar nerve entrapment include

- No improvement in your presentation of ulnar neuropathy after 6-12 weeks of conservative treatment
- Progressive weakness of muscles
- Signs of longstanding compression / damage (muscle wasting or clawing of the ring and little finger)

### **Surgical recovery**

Depending on the type of surgery you have, you may have to wear a splint for a few weeks after the operation. Your surgeon may recommend physiotherapy exercises to help regain motion and strength in your arm. The surgeon will also discuss when it is safe to return to normal activities.

### Surgical Outcome

The results of surgery are usually good. Each method of surgery has a similar success rate for routine cases to decompress (take the pressure off) the nerve. If the nerve is badly compressed or if there is muscle wasting, the nerve may not be able to return to normal and some symptoms may remain after the surgery. Nerves recover slowly and it may take a long time (up to a year) to know how well the nerve will do after surgery.