

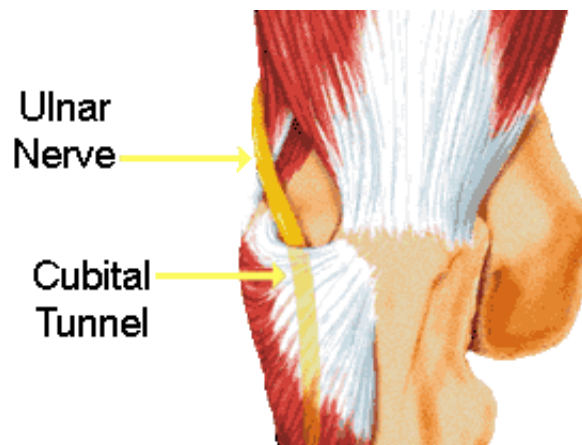
# Cubital Tunnel Syndrome

**Introduction** Cubital tunnel syndrome is a condition that affects the ulnar nerve where it crosses the elbow. The symptoms are very similar to the pain that comes from hitting your funny bone. The funny bone is actually the ulnar nerve on the inside of the elbow that runs in a passage called the cubital tunnel! Sometimes this area becomes irritated from repeated injury or pressure, leading to a condition called cubital tunnel syndrome.

**Anatomy** The ulnar nerve actually starts at the side of the neck, where the individual nerve roots exit the spine through small openings between the vertebra called foramen. The nerve roots then join together to form three main nerves that travel down the arm to the hand. The ulnar nerve is one of those nerves. After leaving the side of the neck, the ulnar nerve then travels through the arm pit, down the arm to the hand and fingers.



At the inner portion of the back of the elbow, the ulnar nerve passes through a tunnel of muscle, ligament and bone - the cubital tunnel.



The nerve ends in the hand, supplying feeling to the pinky and half the ring finger. In addition, these nerves cause movement in the small muscles of the hand.

**Causes** There are several possible causes of cubital tunnel syndrome.

Frequent bending of the elbow such as pulling levers, reaching, or lifting are common sources of problems. Even anatomy may play a role. The ulnar nerve actually stretches several millimeters when the elbow is bent. Sometimes the nerve will shift or actually snap over the bony medial epicondyle causing irritation.

Leaning on the elbow, or constant direct pressure on the elbow may eventually cause cubital tunnel syndrome. For instance, resting on the elbow while driving long distances or when running machinery with an elbow rest can cause prolonged pressure and irritation on the nerve. A direct blow or injury to this area may damage the ulnar nerve.

**Symptoms** Early signs of trouble include numbness on the inside of the hand and in the ring and little fingers. This may later develop into hand pain and clumsiness in the hand and thumb as the muscles are affected and grow weaker. Symptoms may also be similar to those in Medial Epicondylitis (Golfer's Elbow) with pain occurring at the funny bone area of the elbow. Tapping on the nerve as it passes through the cubital tunnel will cause an electric shock sensation down to the little finger. This is commonly referred to as a Tinel's Sign.

**Diagnosis** The diagnosis begins with a careful history and physical examination. Your doctor will need to know which fingers are affected by numbness, whether you have any weakness in your hand, and what type of activities you do.

There are several places along the arm where the ulnar nerve may be pinched. The physical examination will try to locate the point of compression that is causing your symptoms. Special tests may be required to study the nerve. One common test is the nerve conduction test (NCV). It is used to measure the speed of information traveling down the nerve. Impulses are slowed when the nerve is compressed or constricted. The NCV is sometimes combined with an electromyogram (EMG). The EMG is done by testing the muscles of the forearm that the ulnar nerve controls. Special instruments can be used to determine if the muscles are working properly or not. If the muscles are not working properly, then the nerve may not be working well. (This is similar to checking to see if the wiring on a lamp is faulty by plugging in a new light bulb. If you know that the bulb is good and it doesn't work, then something must be wrong with the wiring!)

**Treatment** The early symptoms of cubital tunnel syndrome will usually respond to stopping the activity that is causing the symptoms.

Patient: Doc, it hurts when I do this!

Doctor: Then don't do it!

Take frequent breaks or limit the amount of time you are performing tasks that require repeated bending and straightening of the elbow. If the symptoms are worse at night a light weight plastic arm splint may be worn at night to limit movement and reduce further irritation. In some cases a foam elbow pad, like those worn by athletes can be worn with the pad in the bend of the elbow to prevent the elbow from being bent and held in that position while you sleep. If the cause is direct pressure, an elbow pad may protect the nerve from chronic irritation from elbow rests, table tops, etc.

Anti-inflammatory medications will help the symptoms, but every effort should be made to eliminate the offending activity. The physical therapist may be able to help evaluate your work situation and suggest modifications.

If the symptoms fail to respond to activity modifications and conservative medical treatment, surgery may be required to stop progression of damage to the ulnar nerve. If all other methods fail to reduce your symptoms, surgery may be required to reduce the pressure on the ulnar nerve.

Surgery begins by releasing the ulnar nerve as it passes through the cubital tunnel. The flexor muscles are then released to make a small pouch to move the nerve into. The nerve is then moved into this pouch and the pouch is closed to create a new tunnel for the ulnar nerve.

Another surgical procedure involving the removal of the medial epicondyle, begins by releasing the ulnar nerve as it passes through the cubital tunnel. The flexor muscles are then released from the medial epicondyle. The medial epicondyle is then removed. The flexor muscles are then reattached and the nerve is no longer restricted by the medial condyle.

It is not clear whether one operation is better than the other.

This surgery can usually be done as an outpatient. The surgery can be done using a general anesthetic (where you are put to sleep) or some type of regional anesthetic. A regional anesthetic is a type of anesthesia where the nerves going to only a portion of the body are blocked. Injection of medications similar to novocaine are used to block the nerves for several hours. This type of anesthesia could be an axillary block (where only the arm is

asleep).