

# Cubital Tunnel Syndrome

By Katharine Leppard M.D.

## What is Cubital Tunnel Syndrome?

Nerve compression in the arms can cause a variety of symptoms, including numbness, pain and weakness. Most people have heard the words carpal tunnel syndrome, a condition where the median nerve is pinched at the wrist. Carpal tunnel syndrome is the most common pinched nerve in the upper extremity. The Cubital tunnel syndrome is the second most common site of a pinched nerve in the arm, where the ulnar nerve is pinched at the inner elbow.

The cubital tunnel is at the inner elbow region, the “funny bone” area. Hitting the funny bone hard enough can cause a shocking sensation that runs down the arm and tingles in the ring and little finger. This is due to the ulnar nerve being irritated, as this nerve runs through this tunnel, down the forearm to the hand. The ulnar nerve gives sensation to the little finger, and the outer half of the ring finger. The nerve innervates the small muscles in our hand that give us our power grip, and the large muscle that lies between the thumb and index finger.

## What causes Cubital Tunnel Syndrome?

Pressure on the ulnar nerve at the elbow can develop from a number of different causes. The nerve is positioned next to the bone, and has little padding. The tunnel can be tight in some people, connective tissue above the nerve can become thickened, and sometimes there are variations in the muscle structure over the nerve that cause pressure on the nerve. In some patients

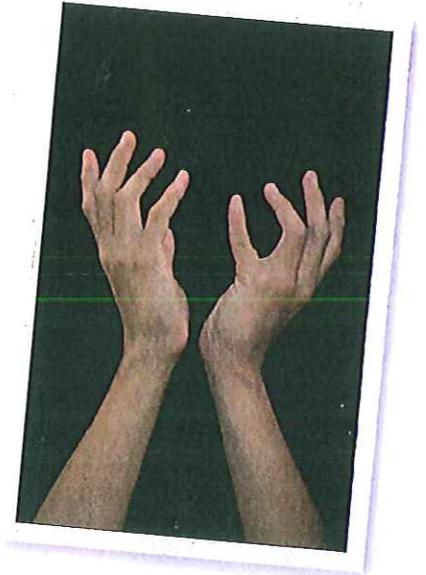
the nerve becomes overly mobile, moves in and out of the groove, and irritates the nerve. An old injury or fracture can lead to arthritis, which can narrow the canal. Leaning on the elbow for prolonged periods can irritate this nerve. For example, if you lean on the inner elbow for a long period and the little finger goes numb, that is pressure on the ulnar nerve. When the elbow is bent, the nerve is drawn taut, sleeping with the elbow bent or with the arm behind the head can irritate the nerve. Repetitive elbow bending and straightening can irritate the nerve.

## Signs and Symptoms of Cubital Tunnel Syndrome

Symptoms include numbness in the little and ring finger; pain at the elbow or radiating down the arm, and weakness in the hand. Severe pressure on the nerve can lead to muscle wasting in the hand, profound weakness with dropping of objects, weakness in pinch and clumsiness. Loss of coordination, especially in the little finger with typing or playing an instrument, may occur; this is often a sign of severe nerve compression. Sometimes pain is absent, or the onset of numbness has been so gradual that people just assume it is due to aging; some people simply notice that their hand has become weak, or that the muscles have atrophied or wasted away.

## How is Cubital Tunnel Diagnosed?

Diagnosis is made by physical examination, which evaluates the distribution of the weakness, numbness and



pain. X-rays may be performed to look for bone spurs or arthritis. An EMG (electromyography) study is usually performed to confirm the diagnosis and stage the severity of the nerve issues. This test consists of two parts. Nerve conduction studies are the first portion of the test, with this part of the test the doctor determines how quickly and how well a nerve carries a small electrical signal. The second part of the test is electromyography, here a small wire with a microphone on the tip is inserted into the muscles, and the electrical activity of the muscle is examined.

The ulnar nerve has a second site where it can be compressed, at another canal in the palm called Guyon's canal; this is a very rare site of nerve compression. It is actually much more common to find a combination of both carpal and cubital tunnel, and accurate diagnosis is critical for accurate treatment.

## Treatment of Cubital Tunnel Syndrome

Treatment depends on the severity of the nerve compression. Mild cases can be treated by ulnar nerve protection and activity modification. Avoid leaning on the elbow, don't rest the elbow on the arm rest in the car or at your desk, do not drive with the arm resting on an open window. Avoid repetitive elbow bending. When lifting weights, stay in a limited range of motion. Don't hold the phone to your ear with this arm. Don't put the hand behind your head when in bed. Keep your arm as straight as possible at night, don't sleep with the arm all curled up. Of course, all this is easier said than done. Elbows were designed to bend, both during the day and at night when most people sleep curled up. Elbow pads or

splints can be worn at night to prevent elbow bending. These work for some patients, for others they are ineffective, and for some people are too annoying. At times, it is better to proceed with surgery and correct the problem.

When symptoms fail to respond to ulnar nerve protection strategies, if the symptoms are severe, or if the EMG shows significant slowing of the ulnar nerve, surgery is indicated. There are different surgical techniques and the best approach for each patient is determined by their surgeon. The goal of surgery is to eliminate the pressure on the nerve. How much the nerve recovers is up to Mother Nature. The longer the time there is pressure on the nerve, the greater the risk of permanent nerve damage with potential permanent numbness and weakness.

Numb hands are not normal. Arm numbness and weakness can be from a number of different sources. Accurate diagnosis is critical for accurate treatment. The most important take home message from this article — do not ignore hand numbness or weakness, doing so risks permanent damage.

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