

# Carpal Tunnel Syndrome

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The carpal tunnel syndrome, a common disorder, was first described during the last century, but only since 1950 have patients with this problem been recognized regularly and given treatment. The carpal tunnel is an area in the hand at the junction with the wrist in which a band of dense fibrous tissue stretches over the palm to stabilize the structures that pass to the hand. The back wall of the carpal tunnel is bounded by the carpal bones of the base of the hand. Thus the transverse carpal ligament on the palm surface and the carpal bones on the dorsal surface comprise the boundaries of the carpal tunnel. Passing through the carpal tunnel are the various tendons to the fingers, the median nerve, and branches of nutrient arteries that supply these structures.

The symptoms are caused by compression of the median nerve by these more or less rigid structures. The median nerve becomes flattened just after it passes across the crease of the wrist. The syndrome is seen more often in women than in men and occurs more frequently between the ages of 40 and 70. While symptoms involve both hands, the dominant hand is usually most severely affected.

The cause of carpal tunnel syndrome has not been specifically identified, but certain associations are recognized with a number of conditions and disorders. Pregnancy is one of the common associations and appears to be related to increased fluid retention. Women taking oral contraceptives may also have the syndrome. Within three months after termination of pregnancy or oral contraceptive use many of these cases will clear by themselves.

Diabetes may be found in patients who have the carpal tunnel syndrome, as can hypothyroidism, acromegaly, amyloidosis, scleroderma, measles immunization, rheumatoid arthritis, systemic lupus erythematosus, various drug ingestions (hormones having a weakly androgenic activity, postmenopausal estrogen use, and others), hypertension, hysterectomy, oophorectomy, or tubal ligation. The use of vibratory hand tools and the performance of repetitive motion tasks such as knitting are especially prone to cause carpal tunnel symptoms.

How can you know you have carpal tunnel syndrome? First, the symptoms are specific. There is tingling and numbness of the hand from the wrist out, often more commonly involving the index finger, but the entire hand may be involved. There may be some weakness of the muscles of the hand and inability to operate the thumb perfectly. When the symptoms occur at night, shaking or rubbing the hands or holding them down off the bed may cause relief of symptoms. If one taps gently over the palm surface of the wrist at the crease, there is an increase in pain with the carpal tunnel syndrome. If the wrist is bent forward on itself and held tightly in that position for 60 seconds, the pain increases in carpal tunnel syndrome. These two tests are called Tinel's sign and Phalen's sign respectively.

There is sometimes a bit of fullness or swelling at the wrist and some emptiness or shrinkage (atrophy) of the large fleshy muscle at the base of the thumb. An aching discomfort may extend up the arm. In an occasional person there are bursts of pain when the hand, wrist, or forearm is used.

One of the most important things to remember about treatment is to start early, as soon as symptoms are first noted. If the symptoms are allowed to progress for two or three years without treatment there may be permanent loss of sensation or muscle ability in the hand or wrist. One should promptly cease an excess of gardening, ironing, sewing, crocheting, and the use of vibratory equipment. Often relief follows the discontinuation of these activities. Secondly, immobilize the wrist during the hours of sleep with a splint on the back surface of the hand and forearm. This simple treatment can be achieved by a surgical device or can be rigged from any rigid support strapped to the hand and forearm by tape or with an ace bandage.

Since fluid retention is seen in a significant number of patients, particularly those who are pregnant, the diuretic teas should be used, and will sometimes improve symptoms. These include buchu, burdock, corn silk tea, and watermelon seed tea. One cup of the diuretic tea taken daily is the usual dosage. Since drinking water is itself a natural diuretic, one should drink 8-10 glasses of water daily.

There is some biochemical evidence for a deficiency of vitamin B<sub>6</sub> in the carpal tunnel syndrome. Therefore, foods high in vitamin B<sub>6</sub> should be taken. These include whole grain cereals, legumes, bananas, and oatmeal.

Rest, weight reduction, and the correction of any systemic disease should be an initial part of the treatment. This includes correction of anemia, thyroid conditions, diabetes, etc. All drugs suspected of being a cause should be stopped at once (oral contraceptives, female and male hormones).

We do not recommend the injection of corticosteroids into the carpal space or the systemic use of corticosteroids, as relief is only temporary; lasting at best a few days or months, and sometimes the injection of medication may aggravate the compression or injure the nerve. Of course, the final treatment considered would be that of surgical section of the carpal ligament which may bring relief immediately after surgery in 70 to 80% of cases.

The prognosis is best for patients who have had the least severe symptoms for the shortest duration, indicating the desirability of beginning treatment early.

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