

Carpal tunnel syndrome is a condition affecting one of the main arm nerves as it passes across the wrist: the median nerve (Figure 1). The median nerve runs, along with nine tendons, through a tunnel of the wrist bones to provide feeling to the skin of the thumb, index, and middle fingers, as well as half the ring finger. The nerve also provides strength to the muscles at the base of the thumb.

Causes

The most likely cause of carpal tunnel syndrome is extra pressure on the median nerve at the wrist inside the tunnel. This extra pressure can come from swelling of the contents inside the tunnel.

While the exact carpal tunnel syndrome causes are usually unknown, there are many factors that can contribute to the increased pressure or inflammation, such as rheumatoid arthritis, gout, a wrist fracture or dislocation, or repetitive motions performed at work or home. Even making a tight closed fist or holding the wrist in bent or extended positions can put increased pressure on the median nerve. This can happen during sleep, typing, driving, or holding a book.

Carpal tunnel syndrome may be more common in women, is more likely to occur with aging, and can be genetic. It is also more common in people with obesity, diabetes, alcohol addiction, fibromyalgia, and hypothyroidism, as well as during pregnancy.

Signs and Symptoms

Some carpal tunnel syndrome symptoms include:

- Numbness and tingling that is often worse at night
- Fingers feeling swollen or fuzzy
- Dropping objects
- Weak pinch
- Discomfort in thumb, wrist, hand, or fingers

The main symptom of carpal tunnel syndrome is numbness and/or tingling in the fingers. In most cases of carpal tunnel syndrome, the numbness/tingling comes on gradually. If mild, the symptoms may come and go over time and throughout the day. If the condition becomes worse, the numbness may become constant. If you've developed carpal tunnel syndrome from an injury, your symptoms may be more severe, with pain as a noticeable symptom in the hands and sometimes the arm or shoulder.

Diagnosis

The diagnosis of carpal tunnel syndrome is made in many patients based on their history of symptoms and a physical examination. Your hand surgeon will perform sensation testing on the hand and possibly the forearm/arm.

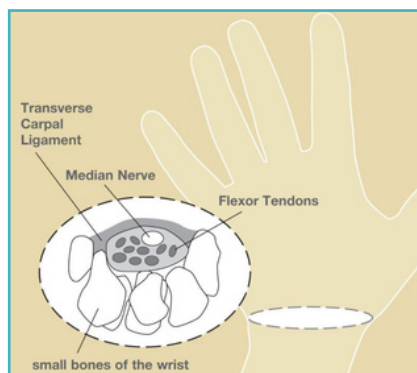


Figure 1 - The median nerve and nine tendons pass from the forearm into the hand, where carpal tunnel syndrome happens.

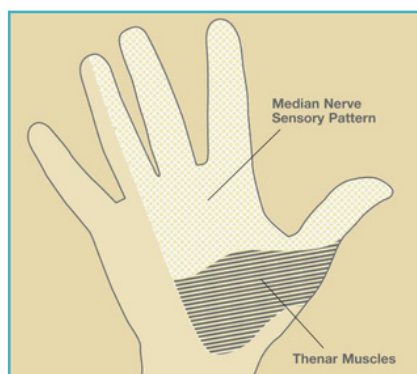


Figure 2 - The ligament that would be cut during surgery for carpal tunnel syndrome

He/she may also get images (x-rays, ultrasound, MRI) or use electrodiagnostic studies (EMG/NCV).

Treatment

The main goal of treatment is to reduce or remove the causes of increased nerve pressure to decrease symptoms. Some non-surgical treatment options may include:

- Oral anti-inflammatory medicine
- Steroid injection
- Wrist splint(s)

These treatment options are more effective when symptoms are present for a short period of time, infrequent, and mild. Surgical release of the carpal tunnel ligament is one of the most effective treatments (Figure 2). It takes the extra pressure off the nerve immediately and reliably. After carpal tunnel release surgery, your surgeon may recommend temporarily avoiding certain activities. You may work with a hand therapist, who will give instructions on exercises and scar massage to get your hand function back to normal.

Returning to work after carpal tunnel surgery is dependent upon each person's symptoms, job demands, and employer policies. In patients with less physically demanding jobs, they will be able to return to work in a few days; whereas other jobs may take weeks to safely return. Your surgeon and therapist will discuss the best recovery plan with you.