

Carpal Tunnel Syndrome: What Does That Mean?

John Soliman, D.O., Central Illinois Neuroscience Foundation

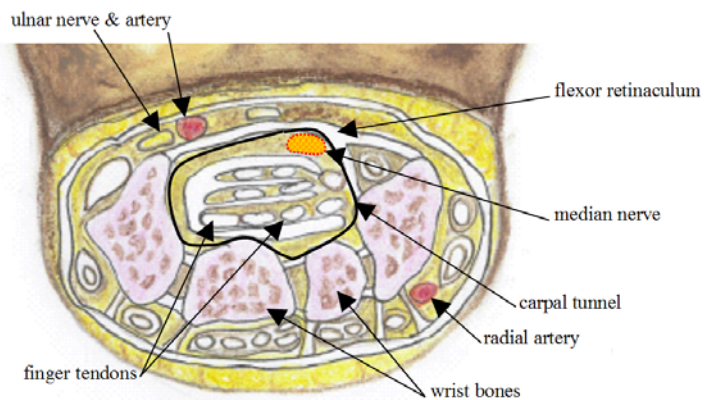
The Central Illinois Neuroscience Foundation (CINF) is a non-profit organization dedicated to enhancing neurological healthcare through education and research

Imagine squeezing through a door that is half your size! Or better yet, being on the receiving end of an immense bear hug that last for hours from big Uncle Joe! Well, that's what your median nerve experiences as it travels through a constricted carpal tunnel. The carpal tunnel, constructed by bones and ligaments, is a passage way in your wrist for the median nerve and is also home to some tendons for finger flexion (see figure 1).

As the median nerve traverses through the tunnel it functions to provide movement to some muscles of the thumb, index and middle finger, as well as touch sensation to the skin of the



Figure 1. Cross-sectional of carpal tunnel at the wrist



Art & Drawing by Artist Judy Soliman, Medical Illustrations by John Soliman, D.O.

thumb, palm, and fingers. The median nerve normally passes through the carpal tunnel smoothly with no road blocks. But in carpal tunnel syndrome the median nerve hits some speed bumps that prevent the effective transmission of nerve signals, causing pain and unpleasant sensations in the hand, fingers and thumb. The syndrome is a disease of nerve compression and is the most common nerve compression seen in clinical practice. The cause of the disease stems from multiple sources, including Diabetes, Obesity, Hypothyroidism, Hereditary Nerve Diseases, Pregnancy and Repetitive damaging motions of the wrist.

The main road block through the carpal tunnel is a ligament that forms the roof of the canal. The ligament is called the transverse carpal ligament or the flexor retinaculum. Now everyone has a transverse carpal ligament, but not everyone's median nerve get compressed. Compression occurs primarily as a result of enlargement or hypertrophy of the ligament. When this happens the median nerve becomes irritated and starts sending out pain and unpleasant signals like tingling or prickling sensations in the hand

and wrist. Symptoms can occur anytime but primarily occur during movement or at night. Particular hand positions during sleep can aggravate the nerve. Sometimes shaking or rubbing the hands can allow for some relief of the symptoms.

Certain occupations can predispose someone to carpal tunnel syndrome including repetitive hand movements, abnormal finger and wrist postures, pinch-grasping, use of vibrating tools or manipulating a computer mouse for more than 20 hours per week. On the contrary, some studies show that when obesity, age, and menopause were taken into account that the data showed no correlation to the type of occupation. Carpal Tunnel Syndrome affects females more than males and is seen more predominantly in the age group between 40-60 years of age.

Your doctor may diagnose carpal tunnel by performing a few tests or just by tapping on your wrist, which may reproduce unpleasant symptoms called Tinel's sign. A special test called an electromyography (EMG) may be performed to determine if there is a problem in median nerve conduction. Sometimes a magnetic resonance image (MRI) of your wrist can be obtained to determine if there is median nerve compression.

Treatment usually involves splinting the wrist in extension, which by itself can provide significant relief of symptoms and prolonged splinting may allow some symptoms to resolve. Non-steroidal anti-inflammatory drugs (NSAIDS) such as ibuprofen or naproxen taken as directed can provide some relief of symptoms. Injection of the carpal tunnel with a steroid and an anesthetic temporarily relieves pain but long-term pain control may be an issue. Data currently shows that people who have failed conservative treatment with splinting and NSAIDS can have complete relief of symptoms through surgery. Surgery, commonly performed by Neurosurgeons, involves dividing the transverse carpal ligament to decompress the median nerve, which results in complete relief in over 95% of patients. Surgery is usually done as an outpatient under local anesthesia and healing generally takes anywhere from 2 to 4 weeks.

If you are living with carpal tunnel syndrome or you think you may have carpal tunnel syndrome make an appointment with your doctor to discuss treatment options.

For more information, contact Dr. John Soliman, Central Illinois Neuroscience Foundation, 1015 S. Mercer Avenue, Bloomington, IL 61701, (309) 663-1522, (309) 663-7500.



The Central Illinois Neuroscience Foundation (CINF) is a non-profit organization dedicated to enhancing neurological healthcare through education and research.