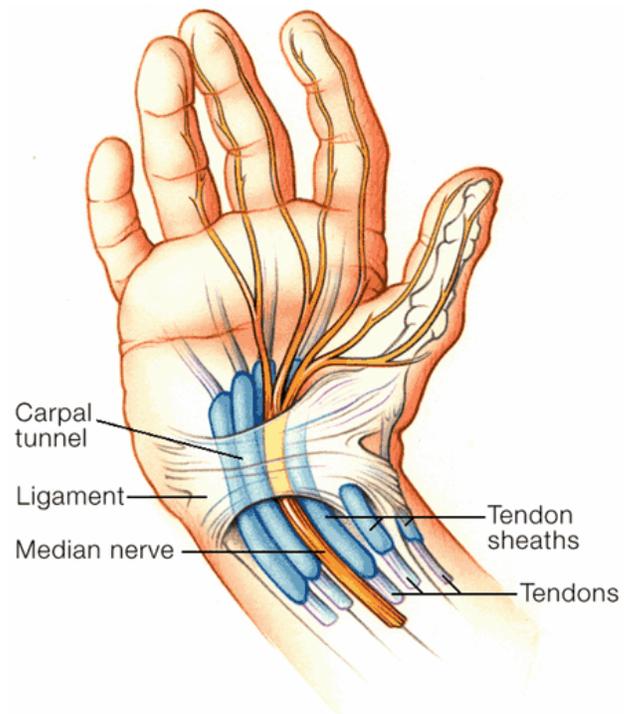


Carpal Tunnel Syndrome

Carpal tunnel syndrome is a common source of hand numbness and pain. The tendons in the wrist swell and put pressure on the median nerve, one of three major nerves responsible for supplying feeling in the hand. It is more common in women than men and affects up to 10 percent of the entire population.

Anatomy: The carpal tunnel is a narrow, tunnel-like structure in the wrist. The bottom and sides of this tunnel are formed by wrist (carpal) bones. The top of the tunnel is covered by a strong band of connective tissue, called a ligament. The median nerve travels from the forearm into the hand through this tunnel in the wrist. The tendons that bend the fingers and thumb also travel in this tunnel.

Cause: Carpal tunnel is caused by increased pressure on a nerve entering the hand through the confined space of the carpal tunnel. There are many causes of carpal tunnel. Heredity is the most important factor. Hand use over time can play a role, along with repetitive motions of the hands or wrist. Hormonal changes related to pregnancy and menopause can cause carpal tunnel, as well as other medical conditions, including diabetes, rheumatoid arthritis, and thyroid gland imbalance. In some cases of carpal tunnel, there is no known cause.



Symptoms: usually begin gradually, without a specific injury. Numbness, tingling, and pain in the hand are common, as well as electric-like shocking feeling in the fingers or hand. The thumb side of the hand is usually most involved.

Symptoms may occur at any time. Symptoms at night are common and may awaken you from sleep. During the day, symptoms frequently occur when holding something, like a phone, or when reading or driving. Moving or shaking the hands often helps decrease symptoms.

Sometimes strange sensations and pain will travel up the arm toward the shoulder. Symptoms initially come and go, but over time they may become constant. A feeling of clumsiness or weakness can make delicate motions, like buttoning buttons, difficult. These feelings may cause you to drop things. If the condition is very severe, muscles in the palm may become visibly diminished.

Diagnosis: Your doctor will make the diagnosis by discussing your symptoms and by performing a number of physical tests, such as the following:

- Ask you to straighten the thumb while it is being held to determine whether there is any weakness in the median nerve (thumb abduction strength test)
- Ask you to extend the arms and relax the wrists to see whether you experience any numbness or tingling in the wrists (Phalen maneuver)

- Press down on the median nerve in the wrist to determine whether there is any sign of numbness or tingling. (Durkan carpal tunnel compression test)
- Tap along the median nerve in the wrist to see whether tingling is produced in any of the fingers
- Tell you to close your eyes and ask you whether you feel the pressure of two light pin-point touch on the fingertip of the affected hand. If you have carpal tunnel syndrome, you may be unable to distinguish two pin-point touches that are closer than 5 mm as separate points

Your doctor may order X-rays of the wrist if you have limited wrist motion. If symptoms continue, electrical testing of the nerve function (electrophysiological tests) is often performed to help confirm the diagnosis and clarify the best treatment option in your case.

Nonsurgical Treatment often begins with a brace or splint worn at night to keep the wrist in a natural position. Splints can also be worn during activities that aggravate symptoms. Simple medications can help decrease pain. These medications include anti-inflammatory drugs (NSAIDs), such as ibuprofen. Changing patterns of hand use to avoid positions and activities that aggravate the symptoms may be helpful. A corticosteroid injection will often provide temporary relief, but symptoms may come back.

Surgical Treatment may be considered if carpal tunnel syndrome continues to bother you and you do not gain relief from nonsurgical treatments. The decision whether to have surgery is based mostly on the severity of the symptoms. In very severe cases, surgery may be recommended to prevent irreversible damage.

Generally, carpal tunnel surgery is done on an outpatient basis under local anesthesia. During surgery, a cut (incision) is made in the palm or wrist. The roof of the carpal tunnel is cut. This increases the size of the tunnel and decreases pressure on the nerve. Some surgeons use a smaller incision and use a small camera (endoscope) to carry out the surgery.

Most patients see their symptoms improve after surgery, but recovery may be gradual.

Frequently asked patients' questions about carpal tunnel syndrome:

1) **Are there any exercises I can do to help make my carpal tunnel syndrome feel better?**

Answer: Exercises can decrease symptoms for a lot of people. The goals are to get more blood flowing to the area and to move the nerve so that the part of the nerve that is in the tunnel slips out for a breather.

Try fully curling the fingers into a fist and bending the wrist toward the palm. Then straighten the fingers and stretch the wrist back the other way. Repeat those motions about ten times.

Remember that carpal tunnel syndrome almost always starts gradually, so it has usually been present for a while before you even notice any symptoms. Stretches and exercises have to be performed regularly to be effective. Try to make it part of your daily routine--perhaps each morning and before bedtime.

2) **Are there any activities that I should avoid to prevent my carpal tunnel syndrome from getting worse?**

Answer: Carpal tunnel syndrome is aggravated more by inactivity than by activity. That's why symptoms are common while sleeping, and simple stretching and moving can be helpful. So, there really aren't any specific activities you need to avoid.

Symptoms often occur when your hand is in one position for too long. If you have a job or hobby that keeps you in one position, make it part of your routine to take short breaks to stretch and move your hands and arms. Just a few minutes each hour can be enough to prevent problems.

If you're regularly in one position, try to make sure your wrist is relatively straight, because bending the wrist either way increases the pressure around your nerve. If you wake up at night due to symptoms, try a splint on the wrist to keep it straight while you sleep.

3) **At what point should I see a doctor if I think I might have carpal tunnel syndrome?**

Answer: First, try adjusting your position, stretching, and wearing a splint while sleeping for a couple weeks. If your symptoms start to improve, you're on the right track and you can just continue those things until your symptoms are gone. It's time to see a doctor if you aren't making any progress or if your symptoms are getting worse.

4) **What are the recommended treatments for carpal tunnel syndrome? Is surgery the only answer?**

Answer: Surgery is reserved as a last resort. Even if symptoms don't go away with simple treatments like exercise and splints, they can often be controlled or will stay about the same for years.

If you have a condition like diabetes that makes you more susceptible, see your doctor to make sure the diabetes is well controlled. If you smoke, this is one more reason to consider quitting. If you're pregnant, you shouldn't even consider surgery, because the problem will usually go away after your baby is born.

Your doctor might recommend an injection into the wrist. Injections usually improve the symptoms, but sometimes the effects wear off and the symptoms come back. Injections shouldn't be done repeatedly, because they can weaken the tendons in the area.

5) **Is it possible for symptoms of carpal tunnel syndrome to come back after I have surgery?**

Answer: Fortunately, carpal tunnel syndrome usually doesn't come back after surgery. Surgery opens the tight carpal tunnel space and takes pressure off the nerve. After surgery, it may take a while for the nerve to "wake up" and the symptoms (pain) to go away. In more severe cases, the recovery after surgery is slower and symptoms may not go away completely. In rare instances, carpal tunnel syndrome may recur after a period of years. If this happens, it may require more surgery.