

Managing Chronic Pain Conditions...

# Carpal Tunnel Syndrome



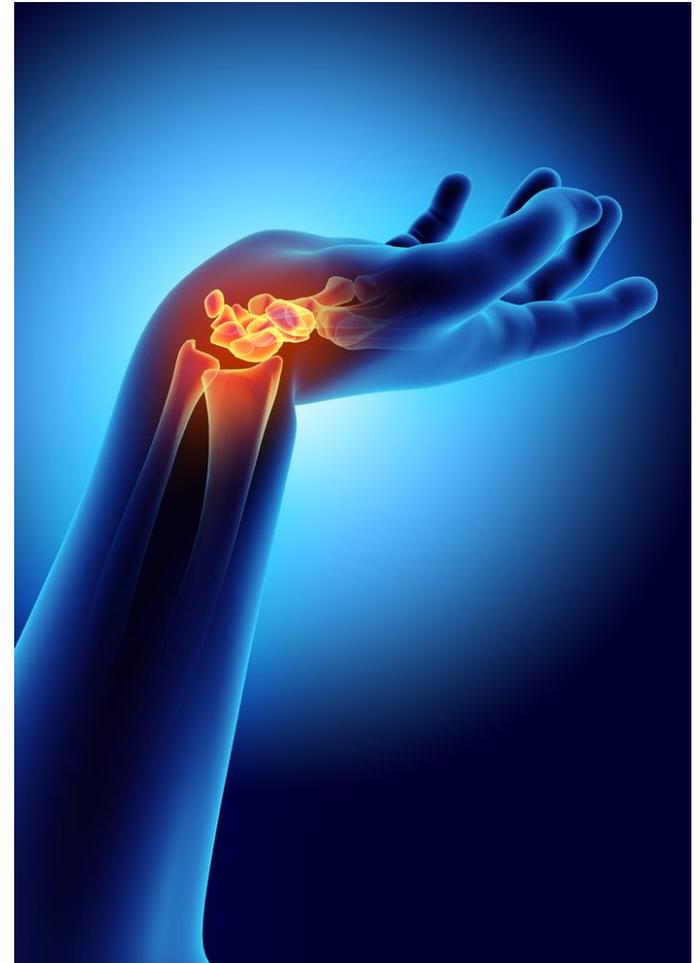
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# What is Carpal Tunnel Syndrome?

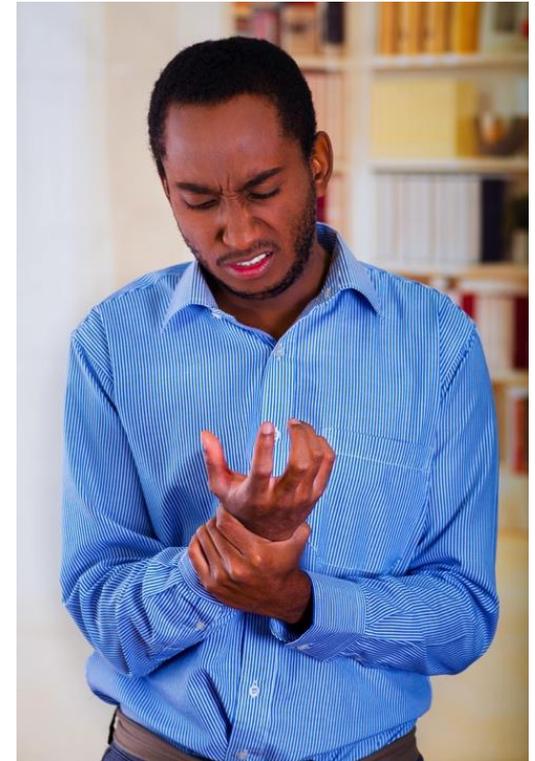
Carpal tunnel syndrome usually starts gradually with numbness or tingling in your thumb, index and middle fingers that comes and goes. This may be associated with discomfort in your wrist and hand.

If you have persistent signs and symptoms suggestive of carpal tunnel syndrome, especially if they interfere with your normal activities and sleep patterns, see your doctor. If you leave the condition untreated, permanent nerve and muscle damage can occur.

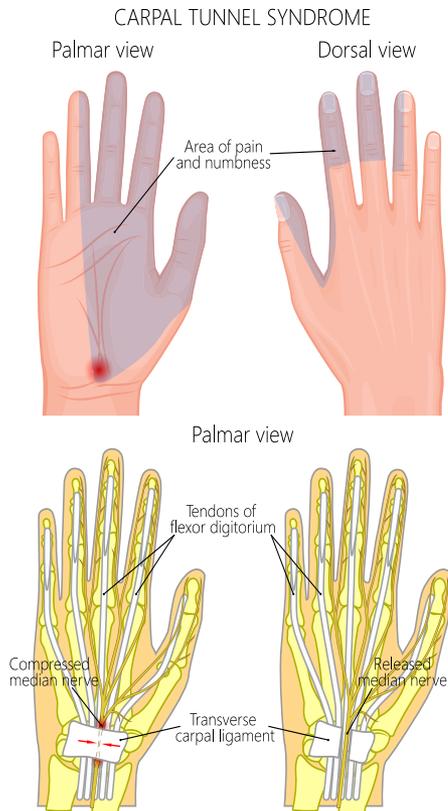


# Signs of Carpal Tunnel Syndrome

- **Tingling or numbness.** You may experience tingling and numbness in your fingers or hand, especially your thumb and index, middle or ring fingers, but not your little finger. This sensation often occurs while holding a steering wheel, phone or newspaper or, commonly, waking you from sleeping. The sensation may extend from your wrist up your arm. Many people "shake out" their hands to try to relieve their symptoms. As the disorder progresses, the numb feeling may become constant.
- **Weakness.** You may experience weakness in your hand and a tendency to drop objects. This may be due to the numbness in your hand or weakness of the thumb's pinching muscles, which are controlled by the median nerve.



# Causes of Carpal Tunnel



Carpal tunnel syndrome occurs as a result of compression of the median nerve.

The median nerve runs from your forearm through a passageway in your wrist (carpal tunnel) to your hand. It provides sensation to the palm side of your thumb and fingers, with the exception of your little finger. It also provides nerve signals to move the muscles around the base of your thumb (motor function).

In general, anything that crowds, irritates or compresses the median nerve in the carpal tunnel space can lead to carpal tunnel syndrome. For example, a wrist fracture can narrow the carpal tunnel and irritate the nerve, as can the swelling and inflammation resulting from rheumatoid arthritis.

In many cases, it may be that a combination of risk factors contributes to the development of the condition.

# Risk Factors (1-3)

A number of factors have been associated with carpal tunnel syndrome. Although by themselves they don't cause carpal tunnel syndrome, they may increase your chances of developing or aggravating median nerve damage. These include:

**Anatomic factors.** A wrist fracture or dislocation that alters the space within the carpal tunnel can create extraneous pressure on the median nerve. People with smaller carpal tunnels may be more likely to have carpal tunnel syndrome.

**Sex.** Carpal tunnel syndrome is generally more common in women. This may be because the carpal tunnel area is relatively smaller than in men, and there may be less room for error. Women who have carpal tunnel syndrome may also have smaller carpal tunnels than women who don't have the condition.

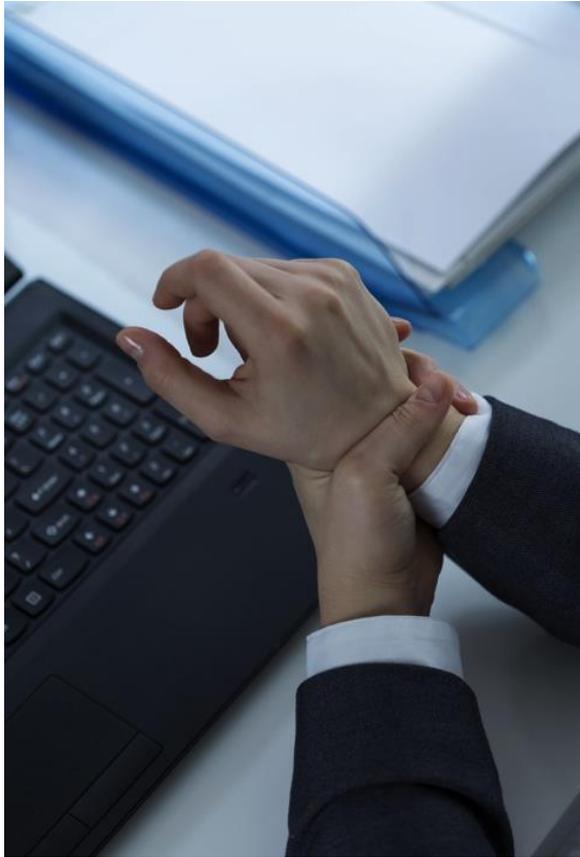
**Nerve-damaging conditions.** Some chronic illnesses, such as diabetes, increase your risk of nerve damage, including damage to your median nerve.

# RISK FACTORS (2-3)



- **Inflammatory conditions.** Illnesses that are characterized by inflammation, such as rheumatoid arthritis, can affect the tendons in your wrist, exerting pressure on your median nerve.
- **Alterations in the balance of body fluids.** Fluid retention, common during pregnancy or menopause, may increase the pressure within your carpal tunnel, irritating the median nerve. Carpal tunnel syndrome associated with pregnancy generally resolves on its own after pregnancy.
- **Other medical conditions.** Certain conditions, such as menopause, obesity, thyroid disorders and kidney failure, may increase your chances of carpal tunnel syndrome.

# RISK FACTORS (3-3)



- **Workplace factors.** It's possible that working with vibrating tools or on an assembly line that requires prolonged or repetitive flexing of the wrist may create harmful pressure on the median nerve or worsen existing nerve damage.

However, the scientific evidence is conflicting and these factors haven't been established as direct causes of carpal tunnel syndrome.

Several studies have evaluated whether there is an association between computer use and carpal tunnel syndrome. However, there has not been enough quality and consistent evidence to support extensive computer use as a risk factor for carpal tunnel syndrome, although it may cause a different form of hand pain.

# DIAGNOSIS AND TESTING (1 OF 2)

Your doctor may conduct one or more of the following tests to determine whether you have carpal tunnel syndrome:

- **History of symptoms.** Your doctor will review your symptoms. The pattern of your signs and symptoms may offer clues to their cause. For example, because the median nerve doesn't provide sensation to your little finger, symptoms in that finger may indicate a problem other than carpal tunnel syndrome.
- **Physical examination.** Your doctor will conduct a physical examination. He or she will test the feeling in your fingers and the strength of the muscles in your hand. Pressure on the median nerve at the wrist, produced by bending the wrist, tapping on the nerve or simply pressing on the nerve, can bring on the symptoms in many people.
- **X-ray.** Some doctors recommend an X-ray of the affected wrist to exclude other causes of wrist pain, such as arthritis or a fracture.

# DIAGNOSIS AND TESTING (2 OF 2)

- **Electromyogram.** Electromyography measures the tiny electrical discharges produced in muscles. During this test, your doctor inserts a thin-needle electrode into specific muscles. The test evaluates the electrical activity of your muscles when they contract and when they're at rest. This test can determine if muscle damage has occurred and also may be used to rule out other conditions.
- **Nerve conduction study.** In a variation of electromyography, two electrodes are taped to your skin. A small shock is passed through the median nerve to see if electrical impulses are slowed in the carpal tunnel. This test may be used to diagnose your condition and rule out other conditions.

Your doctor may recommend that you see a doctor trained in brain and nervous system conditions (neurologist), brain and nervous system surgery (neurosurgeon), hand surgery, rheumatoid arthritis, or other areas if your signs or symptoms indicate other medical disorders or need additional treatment.