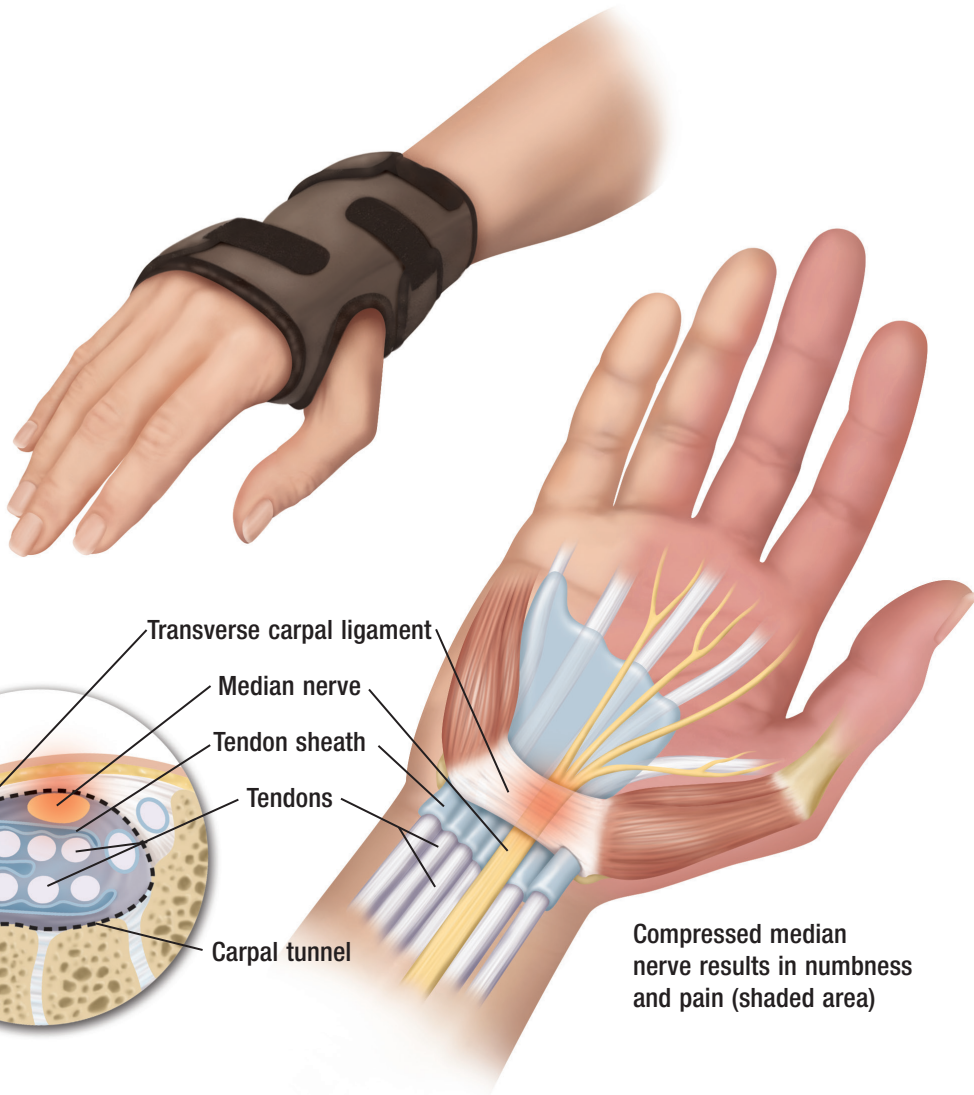


Carpal Tunnel Syndrome



Nerve Condition of the Wrist

Carpal tunnel syndrome is a common nerve condition that occurs when the median nerve in the arm is compressed at the wrist inside the carpal tunnel. Pressure on this nerve can result from many conditions, including a wrist injury, repetitive movements of the wrist and hand, or fluid accumulation. When the median nerve is trapped in the carpal tunnel, it causes symptoms of pain, numbness, or weakness in the thumb and fingers. Treatment includes rest, splints, anti-inflammatory drugs, and surgery (if other treatments fail). If carpal tunnel syndrome is left untreated, pressure on the median nerve can lead to muscle weakness in the affected hand.

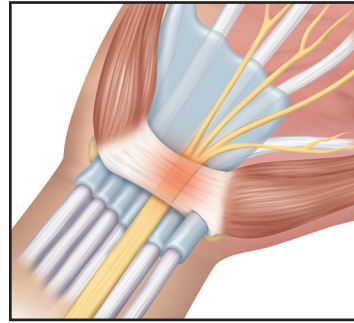
Compressed median nerve results in numbness and pain (shaded area)

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Most People Recover Completely After Treatment, and Recurrence Is Rare

Carpal tunnel syndrome most often affects adults, and it is three times more likely to occur in women than in men. Approximately 3% of working adults in the United States are affected by this painful condition. In the wrist, the median nerve is surrounded by tiny bones and ligaments in a narrow passageway known as the *carpal tunnel*. This important nerve controls sensation and provides muscle strength to the thumb and next three fingers.



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If carpal tunnel syndrome is not treated, symptoms eventually become chronic and muscle weakness can develop, making it hard to grip objects.

Risk Factors for Carpal Tunnel Syndrome

Although there are many occupations that increase a person's risk of developing carpal tunnel syndrome, the condition is more common in people who work on an assembly line or use vibrating hand tools that cause repetitive movements of the hand and arm. Other factors that increase the risk of carpal tunnel syndrome include fluid retention, rheumatoid arthritis, and disorders of the thyroid or pituitary gland.

Symptoms and Diagnosis

Symptoms of carpal tunnel syndrome usually begin slowly in the dominant hand. A tingling, numbness, itching, shocking, or burning sensation is common in the affected fingers and palm, sometimes traveling up the arm. These sensations can cause nighttime awakening if the wrist is bent during sleep. The symptoms may come and go, and eventually they become constant. Without treatment, it can become hard to grip objects because of weakened muscles at the base of the hand.

A doctor can make the diagnosis of carpal tunnel syndrome after taking a history of symptoms, examining the wrist, and using simple tests that can re-create symptoms. Other techniques for helping confirm the diagnosis of carpal tunnel syndrome include nerve-conduction tests and ultrasound.

Types of Treatment

Treatment usually begins by resting the affected wrist and hand for several weeks. A wrist splint may be used to protect the nerve from pressure during movement. If there is inflammation, cold packs can be helpful in reducing swelling. Nonsteroidal anti-inflammatory drugs or oral steroids may reduce swelling and pain. A steroid injection is sometimes useful for relieving swelling and pressure on the median nerve, although this is merely a temporary measure.

If the symptoms of carpal tunnel syndrome are not significantly improved after 6 months of rest and anti-inflammatory treatment, surgery is indicated. Surgery to relieve the pressure on the median nerve is an outpatient procedure conducted under local anesthesia. A small incision is made to release the ligament around the wrist that is causing pressure on the nerve. An endoscopic form of this surgery may result in an even faster recovery.

Carpal tunnel surgery is highly effective, and the condition typically does not recur. Most people experience a complete recovery after several weeks of wearing a splint, followed by physical therapy to strengthen the wrist.

A narrow carpal tunnel is often inherited, but changes in repetitive work tasks or tools may help prevent the development of carpal tunnel syndrome on assembly lines or in similar workplaces.