

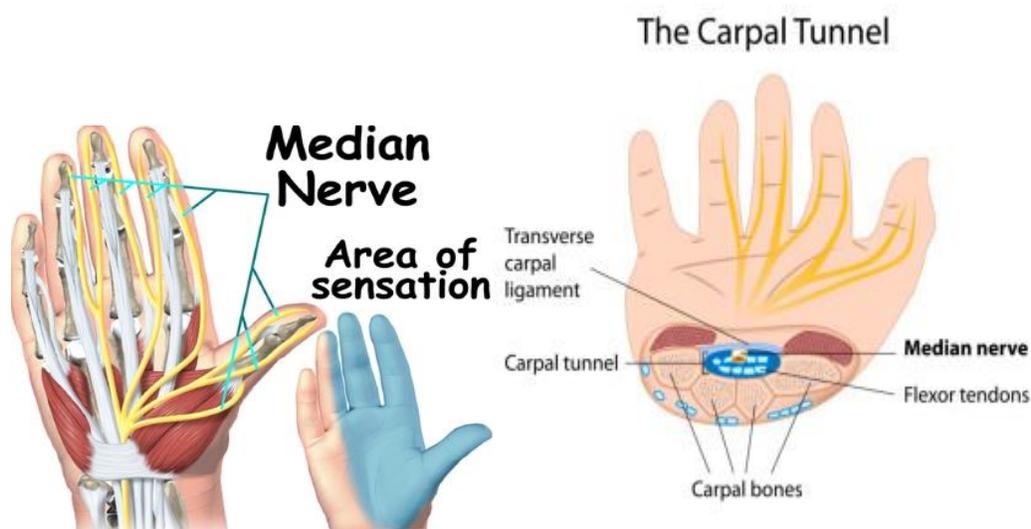
Carpal Tunnel Syndrome

Carpal tunnel syndrome impacts the median nerve. This is the nerve that extends from deep into the forearm down into the hand, on the palm-side. When the nerve becomes pressed and squeezed it causes pain, numbness and tingling in the affected areas.

What is the Carpal Tunnel?

The carpal tunnel is the canal or passage that acts as a hollow cavity. It is this passageway that holds the median nerve and tendons. Some people are born with a smaller carpal tunnel, giving rise to the likelihood of developing carpal tunnel syndrome.

There are 9 tendons that share the carpal tunnel with the median nerve. Several conditions may result in decreased space for the nerve and compression.



What are the symptoms associated with carpal tunnel problems?

Carpal tunnel syndrome presents a set of unique symptoms that may begin gradually and worsen over time. Symptoms may include frequent burning, accompanied by tingling, numbness and pain in the palm-side of the hand that extends into the fingers and thumb.

Some patients report a visible swelling in their fingers, thumb and hand making it difficult to grip or hold items tightly in the hand. As the median nerve becomes compressed, hand and finger weakness is common. The weakness can even extend into the forearm and cause debilitating problems that prevent a person from lifting and carrying items.

As numbness becomes greater in the hand and fingers, some patients report desensitization to cold and heat. When a person touches something hot they may not be able to feel the heat, consequently resulting in a burn if the individual is not careful.

What are the causes of carpal tunnel and what are its risk factors?

According to the *Bureau of Labor Statistics*, nearly three out of every 10,000 employees lose time due to carpal tunnel problems. Nearly 50% of these workers missed more than ten days due to the condition and symptoms associated with the problem.

Pressure on the median nerve and tendons in the carpal tunnel are what leads to the development of carpal tunnel syndrome. While some patients develop carpal tunnel issues due to congenital factors, others may be the result of trauma or injury to the afflicted area. Contributing factors may include:

- Rheumatoid arthritis, diabetes, hypothyroidism.
- Those with diabetes are at higher risk of carpal tunnel syndrome.
- Recurrent sprains or fractures of the wrist producing bone spurs.
- Fluid retention due to pregnancy or menopause.
- Development of a cyst in the affected site area.
- Obesity and Smoking.
- Repetitive movements.

Clinical data is limited in showing that repetitive motions or movements cause carpal tunnel syndrome, although the condition may be exacerbated or aggravated from these kinds of movements.

How is Carpal Tunnel Syndrome diagnosed?

The patient history is usually suggestive of the problem. Physical exam using the Tinel's and Phalen's sign will also be helpful in making the diagnosis.

A nerve conduction study and electromyogram are often ordered for confirmation. It is possible that a false negative occurs, where carpal tunnel does exist and the study is negative. If the symptoms are present and the study is negative, treatment is usually the same. An MRI and x-rays may be necessary to check for any cyst or bone spurs along with the rare instance of a tumor.



Can carpal tunnel syndrome be treated?

Pain management is necessary in order for a person affected by carpal tunnel syndrome to carry out daily activities. The pain can be severe in some cases and the symptoms extremely frustrating. Both nonsurgical and surgical treatments are available.

Nonsurgical treatment may include medication, exercise, therapy, bracing and injections. Stretching and strengthening exercises can help alleviate pressure that is being placed by the tendons on the median nerve. Physical therapy may include ultrasound, electrical stimulation and other therapies.

Effective nonsurgical treatment may also include the use of medications that reduce swelling and eliminate pain. Nonsteroidal anti-inflammatories help reduce inflammation and provide relief from the painful syndrome.

Wrist bracing places the carpal tunnel in a neutral position. Unfortunately, studies have shown that flexing or extending the wrist increases the pressure in the carpal tunnel. So the neutral position is best.

Injections of cortisone in the carpal tunnel may benefit the problem by decreasing inflammation, swelling and reduce symptoms. These may be repeated every few months.

When the symptoms are extremely severe surgery to release the overlying transverse carpal ligament may be required. Generally if the symptoms associated with carpal tunnel syndrome have lasted more than six months, a patient may be a likely candidate for surgery. Surgery is typically very effective.

Pain may occur following surgery or other forms of treatment and in some cases, a small percentage of individuals may continue to have chronic pain or develop a condition called Reflex Sympathetic Dystrophy. Pain management is recommended for these patients to reduce the symptoms and allow daily life to be carried out with minimal disruption.

Treatment for failed carpal tunnel release may include physical therapy for desensitization, injections such as carpal tunnel or stellate ganglion blocks, and medication management.

How can I prevent carpal tunnel syndrome from occurring?

Keeping the hands placed in a proper position while working on the computer or keyboard, wearing fingerless gloves for warmth and performing routine stretching exercises can help prevent the onset of carpal tunnel syndrome. While there is no cure for the condition, prevention is critical, especially those who have a congenitally smaller carpal tunnel.

For those with diabetes, maintaining proper blood sugar control is paramount. Weight loss may be indicated in obese individuals, and quitting smoking is a great idea.