

Arizona Bone and Joint Specialists  
5620 E. Bell Rd, Scottsdale, Arizona 85254 602.493.9361  
13640 N. 7th Street, Phoenix, Arizona 85022 602.863.1962



**Hand**



## Carpal Tunnel Syndrome

### What is carpal tunnel syndrome?

Do you often feel a numbness or tingling in your hand, especially at night? Maybe you experience clumsiness in handling objects and sometimes you feel a pain that goes up the arm to as high as the shoulder. These may be the symptoms of carpal tunnel syndrome.

The median nerve travels from the forearm into your hand through a "tunnel" in your wrist. The bottom and sides of this tunnel are formed by wrist bones and the top of the tunnel is covered by a strong band of connective tissue called a ligament. This tunnel also contains nine tendons that connect muscles to bones and bend your fingers and thumb. These tendons are covered with a lubricating membrane called synovium which may enlarge and swell under some circumstances. If the swelling is sufficient it may cause the median nerve to be pressed up against this strong ligament which may result in numbness, tingling in your hand, clumsiness or pain described above.

### How is it diagnosed?

Your doctor may diagnose this condition by the following symptoms and signs:



- numbness and tingling in the hands, especially when these symptoms occur at night and after use of the hands
- decreased feeling in your thumb, index, and long finger
- the presence in your hand of an electric-like shock or tingling (like hitting your "funny bone") when your doctor taps over the course of the median nerve at the wrist
- the reproduction of your symptoms by holding your wrists in a bent down position for one minute

In some cases your doctor may recommend a special test called a nerve conduction study. This test, done by a specialist, determines the severity of the pressure on the median nerve and may aid your orthopaedic surgeon in making a diagnosis and forming a treatment plan.

### **How is it treated?**

Mild cases may be treated by applying a brace or splint which is usually worn at night and keeps your wrist from bending. Resting your wrist allows the swollen and inflamed synovial membranes to shrink; this relieves the pressure on the nerve. These swollen membranes may also be reduced in size by medications taken by mouth called non-steroidal anti-inflammatories. In more severe cases, your doctor may advise a cortisone injection into the carpal tunnel. This medicine spreads around the swollen synovial membranes surrounding the tendons and shrinks them, and, in turn, relieves the pressure on the median nerve. The dosage of cortisone is small and when used in this manner it usually has no harmful side effects. The effectiveness of non-surgical treatment is often dependent on early diagnosis and treatment.

In those patients who do not gain relief from these non-surgical measures it may be necessary to perform surgery. The site of the operation is made pain-free by local anesthesia injected either into the wrist and hand or higher up in the arm. This may be done by your orthopaedic surgeon or an anesthesia doctor. The surgery itself is called a "release" - cutting the ligament that forms the roof of the carpal tunnel to relieve the pressure on the median nerve. The surgery is usually performed in an outpatient facility and you are generally not required to stay over night.

Your doctor can explain to you the likelihood of non-surgical or surgical treatment based on your own individual circumstances.

## **What causes it?**

Anything that causes swelling, thickening or irritation of the synovial membranes around the tendons in the carpal tunnel can result in pressure on the median nerve.

Some common causes and associated conditions are:

- repetitive and forceful grasping with the hands
- repetitive bending of the wrist
- broken or dislocated bones in the wrist which produce swelling
- arthritis, especially the rheumatoid type
- thyroid gland imbalance
- sugar diabetes
- hormonal changes associated with menopause
- pregnancy

Although any of the above may be present, most cases have no known cause.

## **After surgery**

After surgery, your symptoms may be relieved immediately or in a short period of time. Tenderness at the incision site may persist until healing is complete. Numbness may remain for a period of time, particularly in older persons or in more severe cases. It may be several weeks before you can return to your normal level of physical activities; for some, it will be several months. You will probably be given hand exercises to do to rebuild circulation, muscle strength and joint flexibility in your hand and wrist.

Your orthopaedist is a medical doctor with extensive training in the diagnosis and nonsurgical and surgical treatment of the musculoskeletal system, including bones, joints, ligaments, tendons, muscles and nerves. This brochure has been prepared by the American Academy of Orthopaedic Surgeons and is intended to contain current information on the subject from recognized authorities. However, it does not represent official policy of the Academy and its text should not be construed as excluding other acceptable viewpoints.

Reviewed 2000

For More Information:

[Carpal Tunnel Syndrome](#)  
[American Society for Surgery of the Hand](#)

**Instructions to Patient:**



---

[Main Menu](#) [Hand](#)

---

©2002 AAOS. All rights reserved.