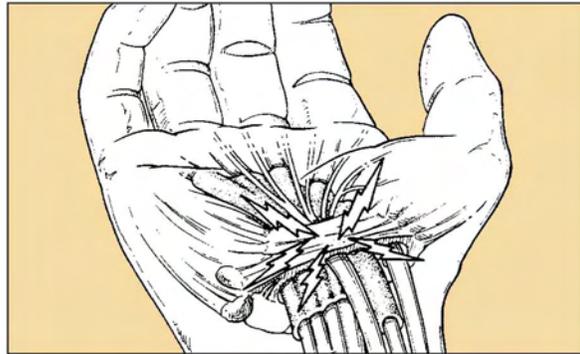


Carpal Tunnel Syndrome (CTS), while becoming increasingly well known, is often not well understood. This brochure has been prepared to help you learn more about this condition and how it is treated. If you're feeling discomfort and think you may have carpal tunnel syndrome, be sure to see your doctor at once. Treatments for carpal tunnel syndrome are highly successful, but early diagnosis is very important to achieve the best results and avoid permanent damage.

## What is Carpal Tunnel Syndrome?

In the center of the wrist, there is a space called the carpal tunnel where a major nerve (the median nerve) and nine tendons pass from the forearm into the hand. A very strong ligament forms a roof over the tunnel. When there is swelling in the carpal tunnel, pressure is put on the median nerve, which supplies most of the fingers and thumb with feeling and movement. When pressure becomes great enough to compress the nerve, Carpal Tunnel Syndrome may occur. It is a condition which afflicts over 2.5 million Americans every year.



The transverse carpal ligament is the roof over the bony carpal tunnel which houses nine tendons and the median nerve. When there is swelling within the tunnel, pressure is put on the nerve. Pain, numbness and tingling may result.

## What are the Most Common Symptoms of Carpal Tunnel Syndrome?

- Numbness
- Tingling
- Burning
- Pain in the fingers, hand and wrist that may extend up to the shoulder

These symptoms may occur alone or in combination in either or both hands. Numbness or tingling is felt most often in the thumb, index, middle and ring fingers. The symptoms frequently occur at night. They may also be noticeable while performing daily activities like reading, driving, and doing household chores. A weakening of the grip may become apparent, along with a tendency to drop objects.

## What Causes Carpal Tunnel Syndrome?

Swelling of the lining of a tendon commonly causes pressure build-up in the carpal tunnel.

Repetitive use of the hands can cause this type of swelling. Activities that involve grasping, squeezing, or clipping may also be associated with the problem.

Fluid retention during pregnancy can sometimes cause swelling in the tunnel but symptoms typically go away after delivery.

Some medical conditions such as rheumatoid arthritis have been found to be an actual cause of CTS while other conditions like hypothyroidism and diabetes may cause only symptoms of CTS.

Arthritis and bone dislocations or fractures that narrow the tunnel are less common causes.

## What are the Treatment Options?

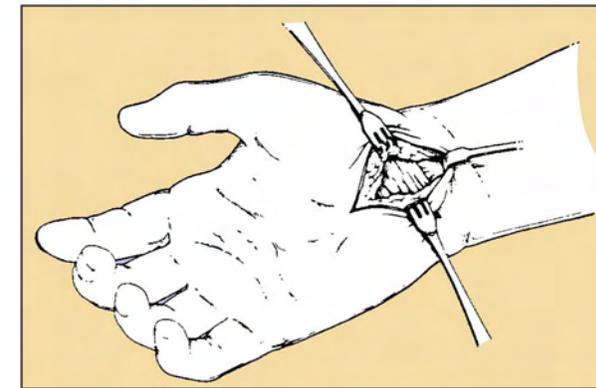
**Conservative Treatment (without surgery):** Reducing activities that cause continuous exertion or repetitive use of your hands, or keeping the wrist in a neutral position may help reduce the swelling within the carpal tunnel and relieve pressure from the nerve area.

Wearing wrist splints at night may relieve the symptoms and accommodate a better night's rest.

Anti-inflammatory medication taken orally or injected into the carpal tunnel may help reduce the swelling and relieve symptoms.

**Surgical Treatments:** When symptoms are severe or do not improve with non-surgical treatments, surgery may be elected to enlarge the carpal tunnel by cutting (releasing) the ligament to allow more room for the median nerve.

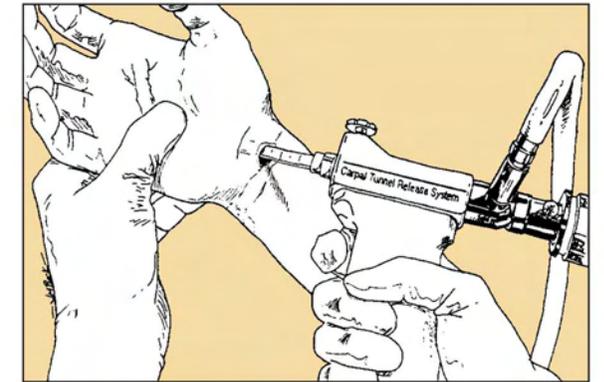
**Traditional Open Surgery**  
In this procedure, an incision made through layers of skin, fat, fascia, and muscle, to identify and divide the transverse carpal ligament.



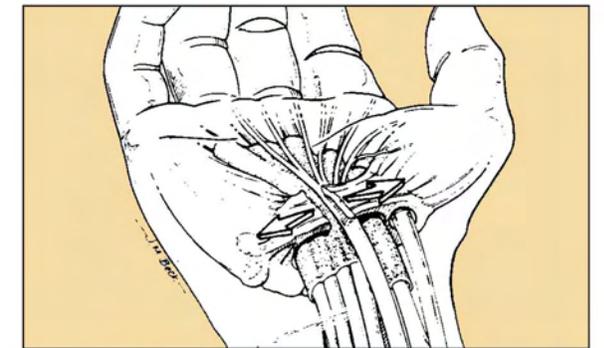
During traditional open carpal tunnel surgery, the ligament is exposed through the palm and then cut by the surgeon.

## Endoscopic Surgery

A new endoscopic procedure is now available as an alternative to traditional open carpal tunnel surgery. The procedure is performed using a device called the Carpal Tunnel Release System. It allows the release of the carpal ligament through a small incision at the base of the wrist. A small endoscope and camera project an "inside view" of the carpal tunnel onto a video monitor. The surgeon watches the screen and is able to precisely cut the ligament with a blade, simply by pulling a trigger.



During small-incision endoscopic carpal tunnel surgery, the ligament is released without having to cut through the skin and muscles of the palm.



Both open and endoscopic carpal tunnel surgery have the same goal—to ease pressure on the median nerve by dividing the ligament and enlarging the carpal tunnel.

## What are the Benefits of Endoscopic Surgery vs. Traditional Open Surgery?

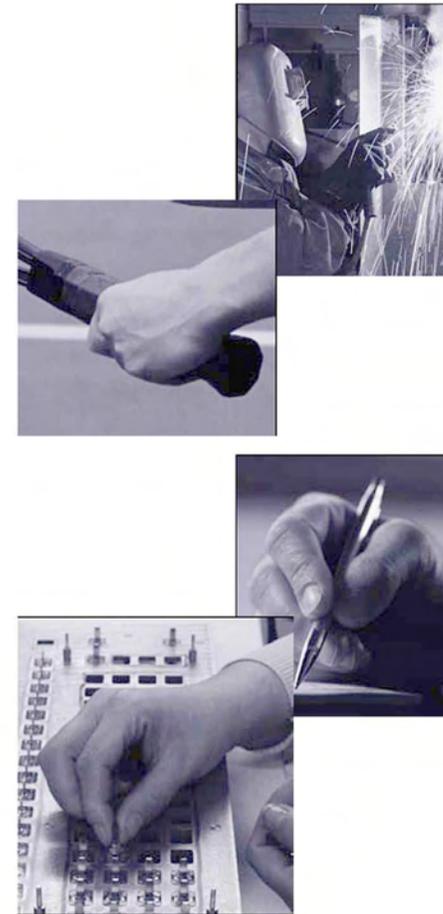
“Open” carpal tunnel release has been performed for many years and has proven to be very effective in the treatment of CTS. The MicroAire endoscopic method, has been performed successfully in thousands of cases and is also effective in treating CTS. The primary benefit of endoscopic surgery vs. open surgery is a significantly shortened recovery period. While individual results vary, most patients return to normal daily activities within days after endoscopic surgery and return to work earlier than those who undergo the open method. Recovery of hand strength following open surgery can take weeks or even months while the palm heals. There is also less pain and scarring with the MicroAire endoscopic procedure. Only a very small scar, concealed in a wrist crease, remains after healing.

## What Can I Expect After Surgery?

With either open or endoscopic surgery, the incision will be sutured. Your wrist and hand will be dressed, and gentle hand exercises will begin soon after surgery. The time it takes before you can resume normal activities and return to work will vary with each individual. This is a decision that should be made in consultation with your doctor.

## Discuss the Options With Your Doctor

If you need carpal tunnel surgery, your doctor will help you make an informed decision by explaining your surgical options and the risks associated with both the open and endoscopic procedures. If you choose the endoscopic procedure, your doctor will also explain that there is a very small chance the procedure would have to be converted to the open method. Carpal tunnel release has been proven to be a highly successful surgery with excellent results for most patients. Your doctor will be happy to answer any questions you may have about CTS and its treatment.



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# Carpal Tunnel Syndrome and Advances in Treatment

