

### Carpal Tunnel Syndrome

Carpal tunnel syndrome is a compression neuropathy of the upper extremity. Compression neuropathy means that a nerve is getting compressed by another structure somewhere in the arm or leg. In the case of carpal tunnel syndrome, the median nerve is compressed or pinched as it passes through the carpal tunnel just below the wrist in the palm of the hand.

The median nerve supplies sensation to the tips of the thumb, index finger, middle finger, and part of the ring finger. Compression of the median nerve at the carpal tunnel, therefore, causes numbness in most, if not all, of those fingers.

The symptoms may start gradually and increase over time to constant numbness. One of the most frequent complaints of patients with carpal tunnel syndrome is nighttime awakening from sleep. Often patients have the feeling that their hand is “asleep” and they have to shake it to wake it up, restore normal feeling in the hand and get rid of the pain.

Patients who have continued numbness may feel as if they have lost the ability to hold things in their hands, especially between the thumb and index finger. This especially causes problems with fine motor movements such as handling buttons or other small objects.

Sensation in the tips of the fingers supplied by the median nerve is compared to sensation elsewhere in the hand or the body (either the small finger or unaffected opposite hand). Muscle strength in the hand is also tested.

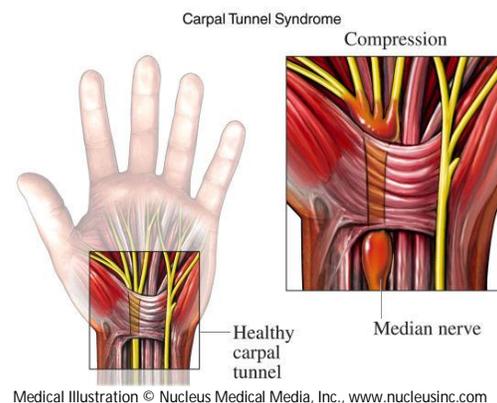
When your physician suspects carpal tunnel syndrome, he/she may recommend a test to help confirm the diagnosis and is called a nerve conduction study and electromyography (NCS/EMG) test usually performed by a neurologist or physiatrist. The NCS/EMG test records impulses the nerves are sending along their path from the spinal cord. When this is complete you will likely follow-up with your surgeon to discuss treatment options.

### Treatment Options

Patients with mild to moderate carpal tunnel syndrome (occasional numbness, no muscle wasting) may benefit from non-operative treatment. Non-operative treatment consists of wearing a brace or splint at night and during periods of heavy activity. Wearing a splint at night on the wrist prevents it from going into extreme flexion or extension and compressing the nerve. With relief on the nerve just at night, the symptoms may go away or become more tolerable. Cortisone injections are another alternative to relieve pressure on the median nerve and provide immediate, temporary relief of mild or intermittent symptoms. Generally speaking, however, carpal tunnel syndrome rarely resolves on its own. Most often it progresses and can worsen to the point where irreversible symptoms occur.

### Explanation of Procedure

Surgical treatment for carpal tunnel syndrome is called “carpal tunnel release”. This is done through an incision about one inch long in the palm of your hand near the wrist. If you are having an endoscopic carpal tunnel release, you may have a 0.5 inch incision near the wrist crease. It should be noted that if you’re having an endoscopic carpal tunnel release, your surgeon would always reserve the right to convert this to an open procedure if he/she feels that this needs to be done for safety issues based upon you’re anatomy. The advantages and disadvantages to open versus endoscopic carpal tunnel release will be discussed by your surgeon.



The transverse carpal ligament that is the roof of the carpal tunnel is then cut. Once this ligament is cut, the space in the carpal tunnel is increased and the nerve is less likely to be constricted by surrounding structures. After surgery, the pain associated with the numbness and nighttime awakenings go away rather quickly. The numbness takes longer to resolve, and depending on its severity, may not resolve completely.

The operation is performed on an outpatient basis in the hospital or at an ambulatory surgical center. Various types of sedative and local anesthetics are used according to your surgeon's and anesthesiologist's preference to make you relaxed and comfortable during the operation. Skin sutures are used to close the wound and a soft dressing is applied to the hand. The procedure generally takes no more than 20 minutes. After surgery, the patient is permitted to move the fingers and thumb freely. The only important restriction is not getting the incision wet for the first seven to 10 days. While patients should avoid heaving lifting for 4 weeks following the surgery, most patients are free to return to work as early as a few days after the operation if they have a job that permits it.

### Preparing for Surgery

Once you decide to have surgery, the physician and his staff will schedule the procedure at the local hospital or surgery center. Blood tests and other diagnostic exams are occasionally obtained to make sure the patient is safe for surgery. If you have multiple or severe medical conditions, you may see your primary care doctor prior to surgery. You are instructed to have nothing to eat after midnight the day before their surgery. Anti-inflammatory medication, such as ibuprofen and aspirin, should be stopped 7 days prior to surgery. It would be preferable to temporarily discontinue blood thinning medication, such as Coumadin or Plavix, but this should only be done under the strict direction of your physician. In addition, certain medications for rheumatoid arthritis may need to be stopped as well. Your surgeon will go over your medication list and let you know which medications will need to be stopped.

### What to Expect at Surgery

Expect to arrive at the hospital or surgery center at least 1-2 hours prior to your actual surgery time. This gives the staff time to meet you, get all your paperwork in order, and make sure you are safe and ready for surgery. You will meet many different people on the day of surgery. A preoperative nurse will get you dressed and ready for surgery. The anesthesiologist will discuss the different options available to help you sleep comfortably and pain-free during the actual surgery. The circulating nurse and scrub technician assist the surgeon during the procedure. Finally, the postoperative nurse will help you recover from the anesthesia after the surgery. Depending on the type of anesthesia you receive, you may be in the postoperative care area from anywhere from a half hour to three hours after your procedure. A friend or relative will need to drive you home after you are released from the postoperative care unit. Friends or relatives waiting for you should be aware that your discharge time may be unpredictable and a longer stay in the postoperative recovery area does not necessarily mean there is a problem.

### Care After Surgery

You are encouraged to move your fingers postoperatively as fully as possible beginning immediately after surgery. You will be instructed to keep the dressing clean and dry. The surgical dressing will remain in place until you see your surgeon back in the office, generally within 7-14 days after surgery. You are able to shower by placing a plastic bag over the dressing with tape or a rubber band. If you have had an endoscopic release, you may have a very small plastic dressing over the wrist only. If this is the case you can shower directly over the top of this. At your first postoperative appointment the sutures are usually removed. Formal therapy is not usually necessary.

### Possible Complications and Instructions

1. Infection is usually rare for this procedure but can occur. Common signs of infection include increasing pain after surgery, increased redness around the incision, swelling, and drainage. Patients may have fever or chills as well. If you experience any of these symptoms, contact your surgeon immediately. If you are unable to see your doctor, go to the emergency room.
2. Numbness or stinging or burning pain can still be present after the procedure especially if you had severe symptoms preoperatively. Occasionally the numbness and tingling does not resolve.
3. Despite this procedure being touted as a uniformly satisfying procedure, complete pain relief may not be achieved. Each patient is different and your surgeon will explain the nuances of your particular situation.
4. Tenderness and hypersensitivity over the scars are possible. This may be temporary or, less likely, permanent.
5. The length of time for full recovery can vary. Patient should expect at least 4 weeks for recovery. However, it is not uncommon for patients to continue to improve up to 12 months postoperatively.

### Questions

The CORE Institute is dedicated to your outcome. If any questions or concerns arise, please call The CORE Institute at 1.866.974.2673.