

# Physician Link

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## Carpal Tunnel Syndrome

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Carpal tunnel syndrome is the term used to describe compression of the median nerve at the wrist within the carpal tunnel. It is the most commonly diagnosed site of nerve compression in the upper extremity and is commonly caused by repetitive use of the wrist and fingers or by blunt trauma. Swelling of the flexor tendons in the carpal tunnel or thickening of the covering transverse carpal ligament can lead to compression of the median nerve.

### Diagnosis

- Symptoms include tingling or numbness to the median nerve distribution of the hand including the thumb, index, middle finger and the radial aspect of the ring finger.
- Patients may also describe pain or aching in the wrist and radiation of pain into the hand and proximally up into the forearm. Advanced cases may display weakness, thenar muscle atrophy and loss of thumb opposition.
- Carpal tunnel syndrome is usually simple to diagnose by history and physical diagnosis.
- Electrodiagnostic studies are useful to confirm the diagnosis.

### Anatomy

- The carpal tunnel is located on the palmar aspect of the wrist just distal to the wrist flexion crease.
- The median nerve and the 8 finger flexor tendons and the thumb flexor tendon pass through the tunnel.
- The transverse carpal ligament forms the roof of the carpal tunnel; it tends to thicken with age and is the structure that is divided with a surgical carpal tunnel release.

### Treatment

- Many patients with carpal tunnel syndrome will improve with non-operative treatment.
- Wrist splints help by holding the wrist in a neutral position and are commonly worn at night while sleeping.
- NSAIDS and steroid injections can give some relief to mild to moderate cases but the relief is frequently temporary.
- Activity modification and taking breaks from repetitive activities can be helpful.

### Surgery

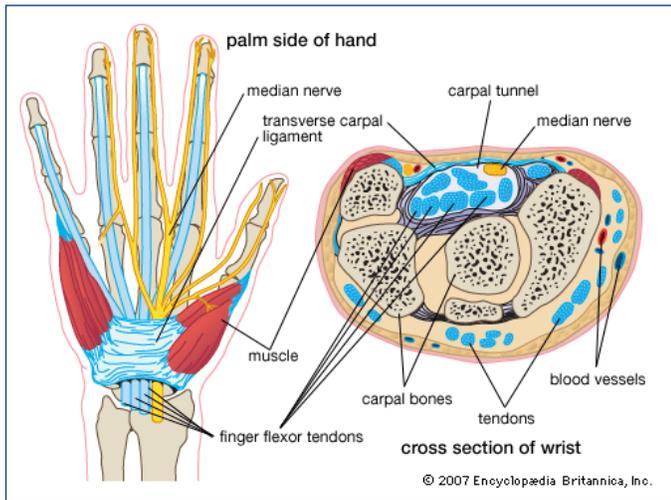
When conservative treatments fail to improve the patient's symptoms, surgical decompression of the median nerve is usually indicated. Surgery is performed as an outpatient with general, regional or local anesthetic depending on patient and surgeon preference.

In the past, carpal tunnel incisions have been up to 7cm in length extending from proximal to the wrist crease to the mid palmar area. Endoscopic and minimally invasive techniques have been introduced to decrease the length of the incision and decrease post operative comfort.

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## Surgical Options

- The current gold standard for surgical treatment is a minimally invasive technique with a small incision measuring about 1.5-2.0cm. This approach allows excellent visualization of the nerve minimizing iatrogenic risks.
- Success rates with open carpal tunnel release are 95% or better.
- There are also many different endoscopic techniques which have been described. There is currently ongoing debate over the merits of the endoscopic technique vs. open technique with some reports showing similar success rates and some reports showing increased risk of iatrogenic nerve injury.

## Post operative recovery

- A splint is worn at night only for 2-3 weeks; no daytime splinting or casting is needed.
- The patient is started on range of motion exercises soon after surgery to prevent stiffness.
- The original post op dressing is changed to a band-aid on post op day #3, and range of motion and strengthening exercises are continued.
- Physical therapy is beneficial for some patients.
- Return to work varies depending on work demand with those with low demand jobs returning as soon as a few days post-op.

In summary, carpal tunnel syndrome is a common compressive neuropathy of the hand and wrist. While some improve with conservative care, surgical treatment is an excellent option for those who do not. Newer, minimally invasive open techniques are safe, provide excellent visualization of the median nerve, and have very high success and patient satisfaction rates.

### For more information about Mission Hospital's Medical Surgical Services, contact:

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## ABOUT THE AUTHOR

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Dr. Morris earned his bachelor's degree summa cum laude from the University of San Diego and received his Doctor of Medicine degree from UCLA School of Medicine in 1990. After medical school, Dr. Morris completed his surgical internship and orthopedic surgery residency training at the University of Southern California (LAC/USC Medical Center). While at LAC/USC Medical Center, Dr. Morris received training in sports medicine and arthroscopic surgery from the Kerlan-Jobe Orthopedic Clinic.

Dr. Morris completed a one-year specialty fellowship in Hand and Upper Extremity Surgery at USC. He also served on the faculty at the USC School of Medicine, teaching orthopedic trauma surgery. He has expertise in treating all orthopedic disorders and specializes in surgery of the hand and upper extremity. Dr. Morris is currently the team physician for Junipero Serra High School in San Juan Capistrano.

In his spare time, Dr. Morris enjoys spending time with his wife and three daughters.

*For feedback or questions related to the content of this article, contact Susan Fox, Mission Hospital's Physician Relations Specialist, at (949) 364-4269 or [susan.fox@stjoe.org](mailto:susan.fox@stjoe.org).*

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