

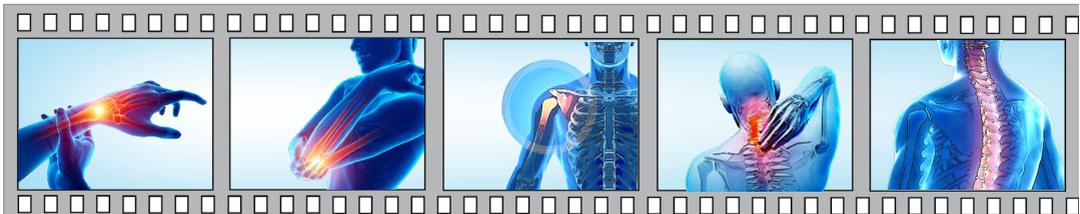


**asia medical specialists**  
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ISO 9001:2015  
FS 550968

## Carpal Tunnel Syndrome FAQ's

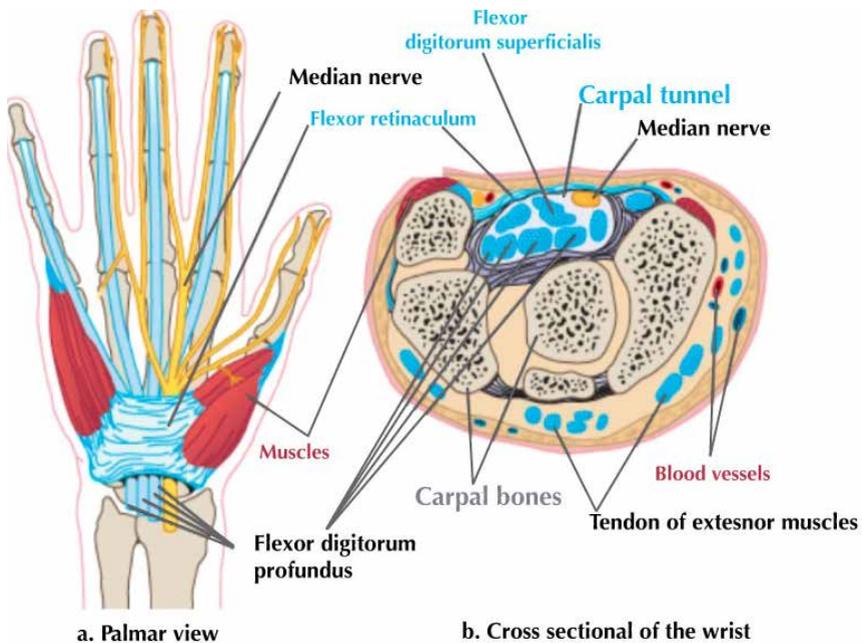


## What is Carpal Tunnel Syndrome?

**Carpal Tunnel Syndrome (CTS)** is a condition due to compression of the median nerve as it travels through the wrist at the carpal tunnel. The main symptoms are **pain, numbness, and tingling, in the thumb, index finger, middle finger, and the thumb side of the ring fingers.** Symptoms typically start gradually and during the night. Pain may extend up the arm. Weak grip strength may occur and after a long period of time the muscles at the base of the thumb may waste away. In more than half of cases both sides are affected.

## Anatomy of Carpal Tunnel

The carpal tunnel is a narrow passageway found on the anterior portion of the wrist covered by the superficial flexor retinaculum. It serves as the entrance to the palm for nine tendons surrounded by the synovial sheaths and the median nerve. The palmar cutaneous branch of the median nerve is given off prior to the carpal tunnel, travelling superficially to the flexor retinaculum.



## What causes CTS?

Pressure on the median nerve causes carpal tunnel syndrome. This pressure can come from **swelling or anything that makes the carpal tunnel narrower.**

There are a few cause for this swelling, including:

- Medical illnesses such as hypothyroidism, rheumatoid arthritis, and diabetes
- Repetitive movement of the wrist, especially if the wrist is bent down (your hands lower than your wrists)
- Pregnancy
- Infective tenosynovitis
- Idiopathic

There are a few causes resulted in narrow carpal tunnel:

- Crystal deposition disease (gout)
- Trauma such as distal radius or wrist fracture
- Space-occupying lesion such as joint ganglion, nerve tumour

## How is CTS diagnosed?

Your doctor will ask if you have any health problems, such as arthritis, hypothyroidism, diabetes, or if you are pregnant. He or she will ask if you recently hurt your wrist, arm, or neck. Your doctor will want to know about your daily routine and any recent activities that could have injured your wrist.

During the exam, your doctor will check the feeling, strength, and appearance of your neck, shoulders, arms, wrists, and hands. Your doctor may suggest tests, such as blood tests or electrodiagnostic tests.

## How is it treated?

Once the diagnosis confirmed, your doctor will start with nonsurgical treatment if the symptoms are mild.

You can:

- Stop activities that cause numbness and pain. Rest your wrist longer between activities.

- Try taking non-steroidal anti-inflammatory drugs (NSAIDs) to relieve pain and reduce swelling.
- Wear a wrist splint to keep the wrist at a neutral position at night. This takes pressure off your median nerve.
- **Steroid injection** may help to reduce the swelling from the flexor tendon sheath and other soft tissue inside the carpal tunnel to allow more space to the median nerve within days. 32 per cent of patients did not receive subsequent treatment after a single injection <sup>4</sup>.

Surgery is the only option when there are muscle wasting and persistent symptoms not improve with the above treatments. It may take weeks to months to see the improvement. There is no fixed rule governing when the surgery should be performed. It highly depends on the severity of the symptoms, stage of the disease and risk factors. Elderly patients with longstanding disease, neurological deficits, and negative Phalen's test may not respond to surgery <sup>2</sup>. The sooner you start treatment, the better your chances of stopping symptoms and preventing long-term damage to the nerve.

### Surgery procedures - carpal tunnel release

There are 2 approaches to the carpal tunnel surgically to achieve decompression of the median nerve. If there is a mass (a nerve tumour, ganglion) inside the carpal tunnel, a conventional open approach is the best options. It is usually done under general anaesthesia or combined monitor anaesthetic care with the regional block as the surgery will be more complex.

The rest of the patients without any mass inside the carpal tunnel, the more accepted approach right now in my practice is **Endoscopic Carpal Tunnel Release (ECTR)**. It is proven to be as effective as conventional open surgery <sup>5</sup>. This surgery is relative minimal invasive and can be done under regional anaesthesia combined with minor sedation.

### Steps of the anaesthesia

1. You will be lying on your back.
2. A tourniquet (a cuff similar for blood pressure measurement) applied on the arm required surgery to provide a bloodless field
3. An IV access will be set up on the hand

4. A local anaesthetic will be injected into the forearm via the IV access after tourniquet on
5. You will feel numbness and loss of pain feeling starting from 5-10 mins after the injection and last for around 45 minutes
6. Anaesthetist will give you some other sedatives to keep you calm and sleepy during the surgery

### Steps of the surgery

1. After cleaning the hand and arm with anti-septics
2. Sterile drapes applied to cover you from elbow down to fingers
3. You will feel the doctor touching you but without pain
4. A 0.5-0.8cm transverse incision made on the wrist
5. Canula will then be inserted into the carpal tunnel gently, and another 0.5-0.8cm incision will be made at the mid-palm for the cannula to exit
6. An endoscopy will be inserted through the cannula to examine the tunnel
7. After confirming the median nerve and flexor tendons, a small special knife passes into the tunnel to release the flexor retinaculum
8. The wrist incision will be closed with sutures

### Post operative care

Most of the patients with carpal tunnel release will be discharged on the same day. The surgical site is well covered with bulky outer dressing which should stay with you for the first few days. Splintage is usually not required. You will feel pain from the incision before you discharged because the local anaesthetic wears off. You should exercise your fingers within the bulky dressing. After the first few days, the outer dressing can then be removed. The wound is still covered with the thin layer of dressing till off stitches at day 12-14. You need to keep the dressing dry until you see your doctor. You will be provided with an oral painkiller to manage the surgical wound pain. Follow up in the office for wound check will be done in 1-2 weeks.

### Expected discomfort during the recovery phase

Carpal tunnel release has split the transverse carpal ligament which will **heal in 3-months** time. Before the ligament healed, you will feel pillar pain (pain at the palm when you press on a hard surface), and weakness of hand grip. These problems will resolve by 3 months after the surgery.

### Risk of surgery

Endoscopic or open carpal tunnel release carry a low risk of surgery. The overall complications rate is less than 1%. The wound infection rate is 0.32% <sup>1</sup>. The remaining potential complications are rare, include an incomplete release of the transverse carpal ligament, palmar cutaneous branch of the median nerve, reflex sympathetic dystrophy, unsightly hypertrophic scar, superficial palmar arch, bowstringing of the flexor tendons and adherence of the flexor tendons <sup>6</sup>.

### The outcome of the surgery

One of the long-term follow-up studies showed that complete resolution of numbness was reported by 93.8% of patients, persistent numbness by 3.8%, and recurrent numbness by 2.5% <sup>3</sup>.

### How can you keep carpal tunnel syndrome from coming back?

To keep carpal tunnel syndrome from coming back, take care of your basic health. Stay at a healthy weight. Don't smoke. Exercise to stay strong and flexible. If you have a long-term health problem, such as arthritis or diabetes, follow your doctor's advice for keeping your condition under control.

You can also try to take good care of your wrists and hands:

- Try to avoid those activities in which your wrist has to be in an awful and prolonged flexion or extended position.
- Use your whole hand-not just your fingers-to hold objects.
- When you type, keep your wrists straight, with your hands a little higher than your wrists. Relax your shoulders when your arms are at your sides.
- If you can switch hands often when you repeat movements.

### References

1. Werner BC, Teran VA, Deal DN. Patient-Related Risk Factors for Infection Following Open Carpal Tunnel Release: An Analysis of Over 450,000 Medicare Patients. *Hand Surg Am.* 2017 Oct 18. pii: S0363-5023(16)30628-1. doi: 10.1016/j.jhsa.2017.09.017.
2. Fakhouri F, Alsukhni RA, Altunbi B, Hawoot Z, Dabbagh R. Factors Correlated with Unfavorable Outcome after Carpal Tunnel Release Surgery. *Asian J Neurosurg.* 2017 Oct-Dec;12(4):670-673. doi: 10.4103/ajns.AJNS\_3\_15.
3. Tang CQY, Lai SWH, Tay SC. Long-term outcome of carpal tunnel release surgery in patients with severe carpal tunnel syndrome. *Bone Joint J.* 2017 Oct;99-B(10):1348-1353. doi: 10.1302/0301-620X.99B10.BJJ-2016-0587.R2
4. Evers S, Bryan AJ, Sanders TL, Gunderson T, Gelfman R, Amadio PC. Corticosteroid Injections for Carpal Tunnel Syndrome: Long-Term Follow-Up in a Population-Based Cohort. *Plast Reconstr Surg.* 2017 Aug;140(2):338-347. doi: 10.1097/PRS.00000000000003511.
5. Gümüta SA, Ekmekçi B, Tosun HB, Bekler H. Similar effectiveness of the open versus endoscopic technique for carpal tunnel syndrome: a prospective randomized trial. *Eur J Orthop Surg Traumatol.* 2015 Dec;25(8):1253-60. doi: 10.1007/s00590-015-1696-0. Epub 2015 Aug 30.
6. MacDonald RI, Lichtman DM, Hanlon JJ, Wilson JN. Complications of surgical release for carpal tunnel syndrome. *J Hand Surg Am.* 1978 Jan;3(1):70-6.

## Hand, Wrist and Elbow

- Common Hand Disorder

## Spine

- 'Slipped Disc' FAQs
- Diagnosis of Low Back Pain FAQs
- Lumbar Disc Replacement FAQs
- Lumbar Spinal Stenosis FAQs
- Sacroiliac Joint Pain FAQs
- Treatment of Cervical Disc Hernia or Degeneration

## Shoulder

- Clavicle Fracture FAQs
- Is It Really Frozen Shoulder?
- Rotator Cuff Tear FAQs

## Hip

- Acetabular Dysplasia FAQs
- Choosing among different types of hip replacement FAQs
- Femoro-Acetabular Impingement (FAI) FAQs
- Hamstring Tendon Tears FAQs

## Knee

- ACL FAQs
- Articular Cartilage Injuries in the Knee FAQs
- Biological Knee Replacement (BKR) FAQs
- Meniscal Regeneration by Meniscal Scaffold Implant Actifit Polyurethane Scaffold
- Meniscus FAQs: Tears, Repairs & Transplants
- OA Knee FAQs
- Patellofemoral Pain

## Foot and Ankle

- Achilles Tendinopathy FAQs
- Ankle Sprain FAQs
- Bunions FAQs
- Chronic Pain after Ankle Injury
- Hallux Rigidus FAQs
- Minimally Invasive Surgery in the Foot & Ankle

## Children

- Scoliosis: A Common Condition Which is Frequently Misunderstood

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