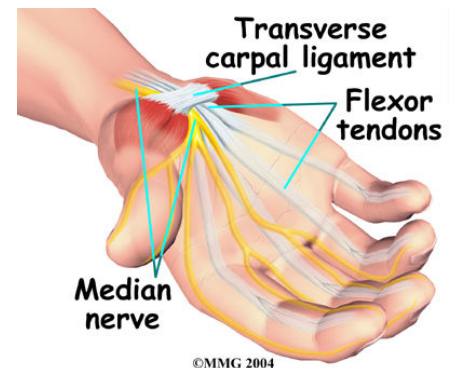


## Carpal Tunnel Syndrome

### What is Carpal tunnel Syndrome (CTS)?

CTS results from compression of the median nerve at the wrist. The carpal tunnel is a narrow tunnel in the wrist formed by ligament and bone. The median nerve, which carries sensory and motor impulses from the central nervous system into the hand, passes through the carpal tunnel, along with the flexor muscle tendons that enable the hand to close. When these tendons become stressed, they swell inside the tunnel and compress the median nerve.

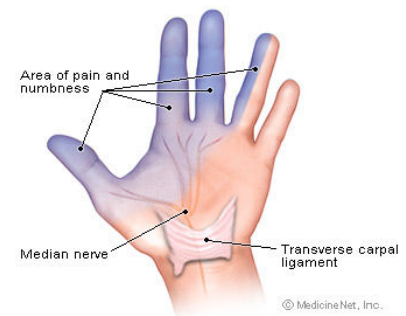
CTS is a condition that may be caused by repeatedly performing stressful motions with your hand or holding your hand in the same position for long periods of time. CTS is approximately three times more common in women than in men. High prevalence rates have been reported in persons who perform certain repetitive wrist motions (e.g. computer or assembly line work) but the significance of this correlation continues to be challenged.



### Common Signs and Symptoms of CTS

*Symptoms are usually worse at night and can awaken patients from sleep*

- Numbness & tingling in the first three fingers of the affected hand
- Aching in the thumb or in the hand, perhaps moving up as far as the neck
- Burning pain from the wrist to the fingers
- Change in touch or temperature sensation in advanced stages of the condition
- Clumsiness in hands or poor dexterity in the fingers
- Loss of muscle bulk in the hand and weakness in grip, ability to pinch and other thumb actions
- Swelling of hand and forearm
- Change in sweat functions of hand



**Carpal Tunnel Syndrome**

### Causes and contributing factors of CTS

Anatomy of the carpal tunnel: congenitally small carpal canal

Infections

Inflammatory Conditions

Metabolic Conditions

Increased volume in carpal canal; most common during pregnancy

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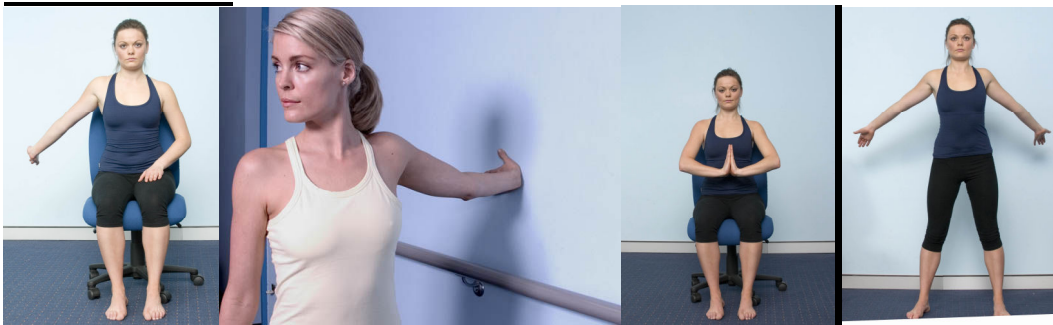
## Physiotherapy Management

- Patients with carpal tunnel syndrome should avoid repetitive wrist and hand or use of vibratory tools that may exacerbate symptoms or make symptom relief difficult to achieve.
- Ergonomic changes to work desk and chair to improve neck, arm and wrist positioning during typing and mouse use.
- Splinting the wrist at a neutral angle helps to decrease repetitive flexion and rotation, thereby relieving mild soft tissue swelling and undue stresses to the flexor tendons.  
The use of a night splint is recommended to prevent prolonged wrist flexion or extension during sleep.
- Ultrasound therapy may be beneficial in the short term management of carpal tunnel syndrome to decrease inflammation
- Myofascial release techniques and deep tissue massage to decrease nerve compression
- Neural mobility and stretching exercises targeted to the median nerve to improve its tracking through the arm, wrist and hand.
- Mobilization of carpal bones in the hand to reduce pressure on the median nerve.
- Acupuncture and dry needling to relieve pressure in the carpal tunnel.

## Long-term Management

- Carpal tunnel release surgery should be considered if symptoms do not respond to conservative measures and in severe cases of motor weakness and muscle wasting. A nerve conduction test is a prerequisite diagnostic method when surgery is considered.
- Orally administered corticosteroids have been shown to be more effective than anti-inflammatory medication in the short-term treatment of CTS
- Combined injection of a corticosteroid and a local anesthetic into the carpal tunnel can be used in patients with mild to moderate carpal tunnel syndrome.

## Neural Stretches



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