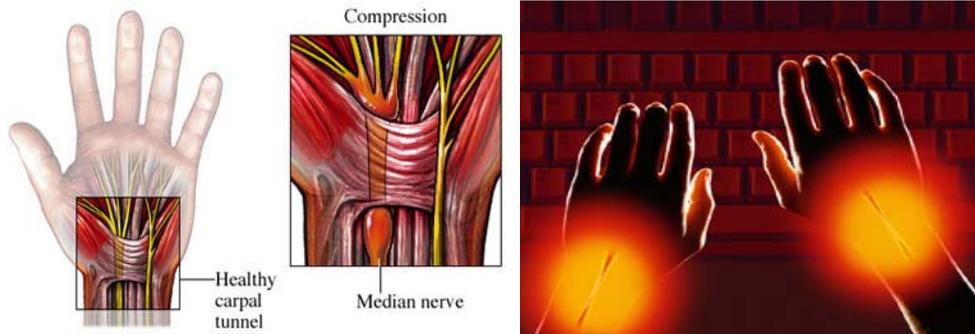


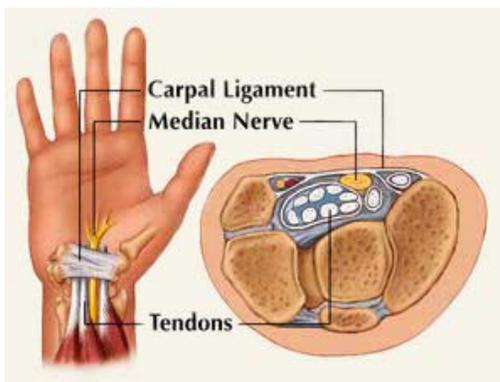
## Carpal Tunnel Syndrome



**Carpal Tunnel Syndrome** falls in to the category of neurological conditions called nerve entrapment disorders and by far is the most common of these disorders. As the name suggests, these conditions occur when a nerve is trapped or constricted between other tissues of the body causing irritation and dysfunction of the nerve. Nerves and blood vessels are very sensitive to pressure, and when fascial restrictions clamp down on them, symptoms result.

### Anatomy

The Carpal Tunnel is located in the underside of the wrist and is a passageway in which the Median nerve travels through on its way to innervate the hand and fingers. Along with the Median nerve, the Carpal Tunnel contains the nine tendons of the forearm muscles that are responsible for bending and flexing of the fingers and thumb. There are also arteries and lymphatic vessels that supply circulation to the hand located within the tunnel. The bottom and sides of this tunnel are formed by wrist bones and the top of the tunnel is covered by a strong band of connective tissue called the transverse carpal ligament. The diameter of the carpal tunnel is about the same as the index finger making the carpal tunnel a densely packed space. The flexor tendons, arteries and Median nerve are expected to glide smoothly past each other during wrist and finger movement.



If the tendon size increases from inflammation or hypertrophy (growth), or if the carpal tunnel size decreases because of a mechanical dysfunction of the carpal bones, the Median nerve can become constricted or entrapped with the carpal tunnel. The initial symptoms of carpal tunnel syndrome usually include pain, numbness, paresthesia (pins and needles) and tingling in the fingers and hands especially the thumb and adjacent two fingers. These symptoms are especially noticeable in the night and often wake people from their sleep as the individual has to sit up in bed and shake-out and/or rub the hands in order decrease the these

unpleasant feelings. The hands can also feel clumsy, weak and fatigue easily with activity. Over time, the ability to grasp small objects using the thumb and fingers can be affected dramatically and if left untreated, can lead to total dysfunction of the hand.



#### Some common causes and associated conditions are:

- repetitive and forceful grasping with the hands
- prolonged computer usage especially with poor wrist position
- activities that require repetitive bending of the wrist
- broken or dislocated bones in the wrist which produce swelling
- arthritis, especially the rheumatoid type
- thyroid gland imbalance
- sugar diabetes
- hormonal changes associated with menopause or pregnancy

Although any of the above can predispose one to carpal tunnel syndrome, in many cases the cause is unknown. However people who perform jobs that use vibration tools and machinery, and/or work in extreme temperatures are often subjected to this condition. Even household activities as simple as repetitive wringing clothes by hand can help cause this syndrome. By far the most significant reason for the increase of people suffering with CTS is the continuous rise in the use of computers. This is becoming a major concern in the developed world where people of all ages are spending much of their time typing on a keyboard & clicking on a mouse.

#### Treatment

Proper diagnosis and management of this condition is essential in order to curtail the disabling symptoms associated with the advancement of CTS. Physical Therapists are equipped to deal with this problem and can offer many sufferers relief. Treatment can include ultrasound to help reduce inflammation, electro therapy to strengthen weak muscles of the forearm, soft tissue massage to stretch contracted tissues and of course **Myofascial Release** of the wrist, hand and arm. The entire upper quarter may be involved with fascial restrictions reaching up into the shoulder, head, neck and ribcage. You might be advised to wear a splint or support, especially at night, to help hold the wrist in a neutral position to decompress the carpal tunnel. Your treatment should also include specific exercises to stretch and/or strengthen muscles of the forearm and hand. For severe cases that do not respond to conservative care, steroid injections or surgery by a Doctor is a possible alternative.