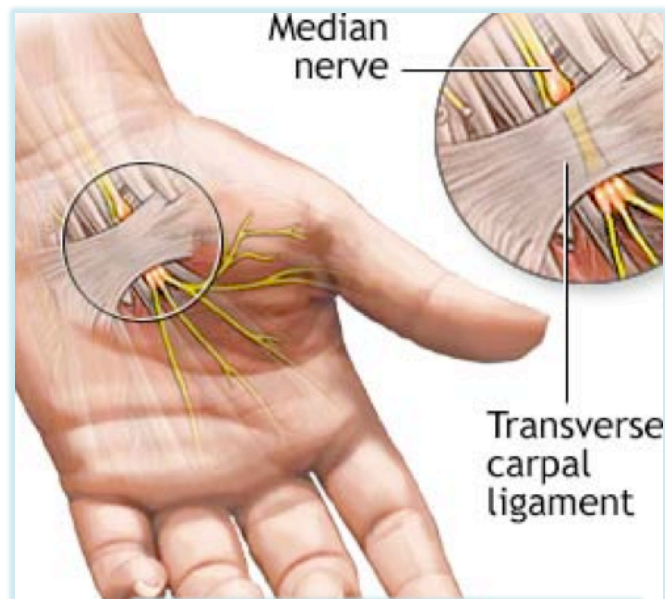


# Carpal Tunnel Syndrome

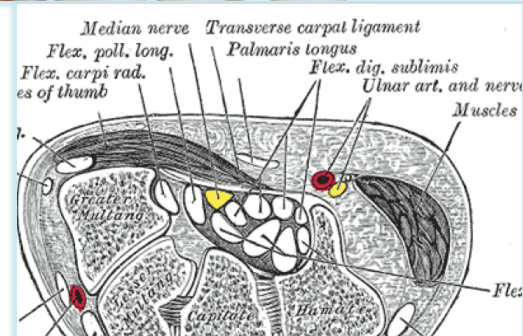
## Anatomy

The carpal tunnel contains tendons to the fingers and thumb plus the median nerve. Since the muscles attached to those tendons are way up on the forearm, the tendons would be like an unruly bunch of computer cables unless they were properly “tied down.” The nine long tendons (4 flexor digitalis sublimis, 1 flexor pollicis longus and 4 flexor digitalis profundus) plus the median nerve are all “tied down” at the level of the wrist with the transverse carpal ligament. When those tendons get overly stressed they become thickened and irritated as well as irritate the transverse carpal ligament. Not only is the sliding of roughened tendons painful, but also the swelling extends to the median nerve that spreads misery down into the hand.



## Diagnosis

Tingling down to the fingers while tapping on wrists bent back is the classic sign for carpal tunnel syndrome, although it is not always present. Sometimes numbness or weakness can exist above or below the wrist. If the diagnosis is uncertain an electromyogram (EMG) can measure the median nerve function by sending tiny shocks down the arm (done by a neurologist).



## Non-invasive Treatments

By wearing a wrist brace you can rest your tendons and sometimes things will be better for a while. Some people just wear the brace at night. But if you go back to aggravating the “tunnel” after your hand has improved, you have a high likelihood of getting the same symptoms back. That’s why we have exercises here and suggestions on improved hand movements. If your workplace has quite a few people with the same problem, the job probably needs some alterations. A physical or occupational therapist can customize exercises and suggest job modifications to address your unique anatomy and work duties. Some chiropractors have success with manipulative therapy (stretching the contents of the carpal tunnel).

Learning to use your fingers less forcefully will be necessary if you use a splint for a while. Switch back and forth between hands when doing long tasks; use less force (don’t throw the bowling ball so hard!). In order that your tendons slide in a more straight line, think of using your hand with your wrist in a more neutral (straight) position. Remember to take rest breaks. Massage your wrist and palm or shake down your hand from time to time. Clinch your fist, holding it for ten seconds. Other exercises on the back of this handout may be helpful.

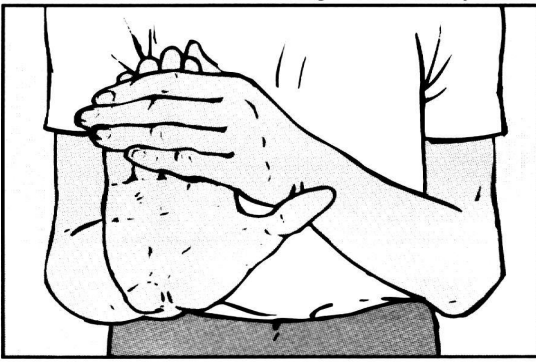
## Invasive treatments

A hand surgeon can reduce swelling with a shot of steroid at the entrance to the carpal tunnel. You are limited to three shots a year or it will weaken your tendons. When non-invasive treatments fail, surgery: cutting the transverse carpal ligament, is relatively straightforward. The drawback to surgery is that you will earn a scar. If done arthroscopically the scar is smaller, but the regular (open) surgery is a little simpler.

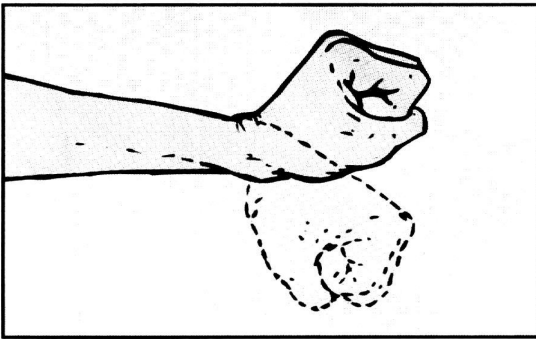
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**Figure 2.** To keep your wrist flexible, loosely grasp your fingers with the opposite hand. Then pull the fingers back toward your body and hold for 10 seconds. Release your hold and rest a few seconds. Do the exercise five times with each hand.



**Figure 3.** To increase wrist flexibility and circulation, bend your wrist up and down slowly as far as is comfortable several times. Do five times with each wrist.



**Figure 4.** To increase thumb flexibility, pull your thumb toward your body using the opposite hand. Hold for 10 seconds, then rest for several seconds. Do five times with each thumb.

