

What is Carpal Tunnel Syndrome (CTS)?

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This paper discusses what carpal tunnel syndrome is, how it is diagnosed and common treatment methods.

The carpal tunnel is a narrow opening between your hand and arm created by the bones in your wrist (carpal) through which, pass nine tendons and one nerve—the median nerve. Carpal Tunnel Syndrome (CTS) occurs when the median nerve is pinched, pressured, or damaged usually due to internal swelling in the wrist. According to NIOSH (National Institute of Occupational Safety and Health), CTS occurs in a number of ways. Repetition, force, vibration, and perhaps, to some degree, posture or a combination of all of these may damage or infringe upon the median nerve causing the symptoms of CTS. Friction, injury, fractures, fluid retention, and infection are other common causes of median nerve damage. Most of your body parts are able to adapt to the aforementioned swelling, but in the wrist, there is no place for the swelling to go causing a build up of pressure in the tunnel. The pressure not only causes the median nerve to malfunction, it also obstructs bloodflow, which slows healing and causes further cell degeneration.

The most common treatment for CTS is anti-inflammatory medication. By reducing the swelling/pressure in the tunnel, the median nerve is allowed to return to its normal function. In some instances, braces are used to wear on the wrist(s). The brace is intended to keep the wrist straight and avoid nerve impingement. Braces are often used in conjunction with medication. Generally, it should only be worn at night to prevent awkward posturing while you sleep. Wearing the brace during the day may cause the muscles to atrophy, compounding the problem. In rare cases, you may require surgery called carpal tunnel release. A ligament called the transverse carpal ligament is severed thereby creating more room in the carpal tunnel (to lower pressure). The surgery is expensive, requires many weeks for recovery, and is not guaranteed to have lasting positive results.

Early recognition and proper diagnosis are key factors in the successful treatment of CTS. A case left ignored and/or untreated may lead to surgery or permanent disability. If you familiarize yourself and others with the early warning signs of CTS, you may prevent months or even years of unnecessary pain, lost wages, and medical costs. CTS is extremely responsive to intervention if caught in its early stages.

There are two common tests used by physicians to diagnose CTS. The first is called Phalen's Test. The test is performed by having the patient place the backs of the hands firmly together with the arms parallel to the floor and the fingers pointed towards the floor for one minute. If symptoms appear (tingling, numbness, etc.), this is an indication of CTS. The second test is Tinel's test. Tapping the wrist on the palm side of the hand performs this test. If the symptoms appear, this is an indication of carpal tunnel problems. If either of these tests yield positive results, the physician is likely to order an EMG (electromyography) which can detect an unusual delay in nerve impulses to the hand in 85% of patients with CTS.

Without these physician directed tests, you may be concerned by symptoms you have experienced:

Classic CTS: Tingling, numbness, or decreased sensation in at least two of the first three fingers of either hand with possibly some pain in or near the wrist area. Consult a physician.

Probable CTS: Any of the above symptoms and possibly tingling, numbness, decreased sensation, or pain in the palm. If you are experiencing only symptoms in the palm you probably do not have Carpal Tunnel Syndrome. However, if the pain is persistent, disturbs your sleep, or decreases your normal activity level, consult a physician.

Not CTS: If you have no symptoms in any of the first three fingers, you probably do not have Carpal Tunnel Syndrome. However, if you are experiencing symptoms in the last two fingers, it is possible you have a related condition known as Ulnar Nerve Entrapment. Consult a physician.

Not only can CTS manifest its symptoms in one or both hands, but it may also radiate up the arm to the shoulders and neck. Finally, for unknown reasons, most CTS sufferers report that their symptoms appear in the middle of the night forcing them to get up and "shake out" their hands and arms. They also report some hand stiffness upon waking. However, CTS pain may appear at any time of day and is not restricted to early morning or late night episodes.

If you experience any unusual symptoms, of course, see a physician immediately, but also take care of your hands. Whether you are experiencing symptoms of CTS or not, limit activities at home and at work that force you to significantly deviate your wrists up, down, left, or right, use a pinch grip, or activities where you incur significant vibration, cold, or weight on the wrist area. If you are unsure about the correct positioning of your hands in a given task or how much deviation from a neutral posture is safe, consult an ergonomist.

Obviously, the best way to treat CTS is to avoid it in the first place. Make sure you take a mini-break from your tasks at least every hour and use your break to perform various stretches for the neck, back, arms, and fingers and/or to perform tasks requiring utilization of different muscle groups.