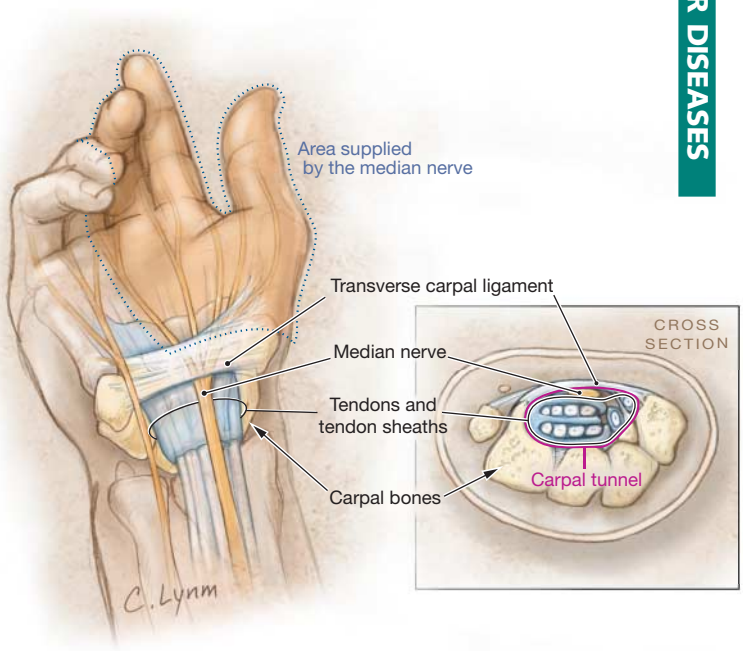
Carpal Tunnel Syndrome

Carpal tunnel syndrome, a painful condition of the hands, affects millions of individuals around the world. Numbness, tingling, weakness, and pain are caused by compression and trapping of the median nerve. The **median nerve** passes from the forearm into the hand underneath a band of **connective tissue** (tough, fibrous material that connects the bones of the hand) that runs across the end of the forearm where the arm meets the hand. That triangular space, formed by bones and connective tissue, is called the **carpal tunnel**. The carpal tunnel contains not only the median nerve but also several tendons. Performing repeated tasks, such as with typing, computer work, or mechanical activity, puts individuals at risk of developing carpal tunnel syndrome. Weight gain, water retention, pregnancy, and overuse of the hands all can cause or worsen carpal tunnel syndrome.



SIGNS AND SYMPTOMS

- Pain in the palm of the hand, especially near the thumb and first 2 fingers
- Numbness and tingling often occur near the thumb and first 2 fingers.
- Weakness, usually of the **thenar eminence** (muscles at the base of the thumb), may happen when carpal tunnel syndrome is severe.

DIAGNOSIS AND TESTING

A physician looks for risk factors, including repetitive tasks or behaviors, diabetes, hypothyroidism, arthritis, or previous injury, as well as a pattern of pain or weakness. **Tinel sign**, tingling or a shock-like sensation when tapping on top of the median nerve, indicates that carpal tunnel syndrome is likely. **Nerve conduction studies** may be performed to evaluate median nerve function. **Electromyography** examines the function of hand muscles, especially those supplied by the median nerve.

TREATMENT

- Anti-inflammatory medications, including some that are available over the counter, help ease the pain and swelling of carpal tunnel syndrome.
- Braces or splints may be prescribed by your doctor, including for wear at night.
- Occupational therapy can be useful.
- Changing repetitive tasks or behavior patterns may be necessary to improve symptoms of carpal tunnel syndrome. **Carpal tunnel release** (CTR) is a simple operation to open up the band of connective tissue that traps the median nerve. Carpal tunnel release can be done using local anesthesia with or without sedation, but some individuals may require general anesthesia. Many persons with carpal tunnel syndrome are helped by CTR, but recovery may take several weeks. Occupational therapy after CTR helps to improve function.

Sources: American Society for Surgery of the Hand, National Institute of Neurological Disorders and Stroke, American Academy of Orthopaedic Surgeons, American Academy of Neurology, American Association of Neurological Surgeons

FOR MORE INFORMATION

- National Institute of Neurological Disorders and Stroke
  www.ninds.nih.gov
- American Society for Surgery of the Hand
  www.assh.org
- American Academy of Orthopaedic Surgeons
  www.aaos.org

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