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Carpal Tunnel Syndrome

Also called: Median nerve entrapment

What is carpal tunnel syndrome?

Carpal tunnel syndrome is the name for a group of problems that includes numbness, tingling, weakness, or pain in your wrist [<https://medlineplus.gov/wristinjuriesanddisorders.html>] or hand [<https://medlineplus.gov/handinjuriesanddisorders.html>]. It's a very common condition that happens when a nerve in your wrist becomes squeezed.

The carpal tunnel is a narrow opening between the bones in your wrist and the ligament that holds them together. A nerve, called the median nerve, runs from your lower arm through the carpal tunnel and into your hand. This nerve provides feeling to your thumb and first three fingers. It also helps you move your thumb.

Tendons also run from your lower arm, through the carpal tunnel, and into your hand. The tendons connect your finger bones to muscles in your arm, so you can bend your fingers.

If the tendons become swollen [<https://medlineplus.gov/tendinitis.html>] or irritated inside the carpal tunnel, they may press on the nerve. The squeezed nerve may not work well, which can lead to numbness, weakness, and other symptoms of carpal tunnel syndrome.

What causes carpal tunnel syndrome?

In certain cases, the cause of carpal tunnel syndrome is unknown. But it usually happens from a combination of things that affect the structures in your wrist, such as:

- **Injury to your wrist** that causes swelling, such as a sprain [<https://medlineplus.gov/sprainsandstrains.html>] or broken bone [<https://medlineplus.gov/fractures.html>]
- **Health conditions** that can affect your nerves [<https://medlineplus.gov/peripheralnervedisorders.html>], joints [<https://medlineplus.gov/jointdisorders.html>], or other parts of your wrist, for example:
 - Diabetes [<https://medlineplus.gov/diabetes.html>]
 - Rheumatoid arthritis [<https://medlineplus.gov/rheumatoidarthritis.html>]
 - A cyst or tumor [<https://medlineplus.gov/benigntumors.html>] in your wrist.
 - Changes in certain hormones [<https://medlineplus.gov/hormones.html>], which may cause swelling from extra fluid in your body. Examples include an underactive thyroid gland [<https://medlineplus.gov/hypothyroidism.html>] (hypothyroidism), pregnancy [<https://medlineplus.gov/pregnancy.html>] and menopause. [<https://medlineplus.gov/menopause.html>]
 - Problems with the way your wrist is formed.
- **Doing the same wrist and hand movements** over and over, such as:
 - Assembly line work.
 - Carpentry or using tools that vibrate.
 - Knitting, gardening, or sports, such as golf.

Researchers aren't sure whether long-term typing or computer use leads to carpal tunnel syndrome.

Who is more likely to develop carpal tunnel syndrome?

Carpal tunnel syndrome usually happens only in adults. You're more likely to develop it if you:

- **Are a woman.** Women are three times more likely to have carpal tunnel syndrome than men.
- **Have a health condition** that may affect structures in your wrist.
- **Do activities with repeated hand motions.**
- **Have had a wrist injury.**
- **Have a close relative** [<https://medlineplus.gov/genetics/condition/carpal-tunnel-syndrome/>] who has had carpal tunnel syndrome, such as a parent, brother or sister.

What are the symptoms of carpal tunnel syndrome?

You may feel **numbness**, **tingling** or **burning** in your fingers, especially in your thumb, index, and middle fingers. Symptoms often affect both hands.

In the early stages, symptoms usually:

- Start slowly in your dominant hand (the one you write with)
- Happen at night if you sleep with your wrists bent

As symptoms get worse, you may notice:

- Tingling, pain, or weakness with certain activities, such as driving or holding a phone
- Difficulty grasping or holding small things
- Feeling like your fingers are swollen when they're not

Without treatment, you could lose feeling in some fingers and have permanent weakness in your thumb. But early diagnosis and treatment can help prevent lasting damage.

How is carpal tunnel syndrome diagnosed?

To find out if you have carpal tunnel syndrome, your health care provider will:

- **Ask about your medical history**
- **Ask about your family health history** [<https://medlineplus.gov/familyhistory.html>]
- **Do a physical exam**
- **Order tests if needed**, such as:
 - Lab tests [<https://medlineplus.gov/laboratorytests.html>] to look for diseases that may damage nerves
 - X-rays [<https://medlineplus.gov/xrays.html>] to look for broken bones or **arthritis** [<https://medlineplus.gov/arthritis.html>]
 - Tests to measure the electrical activity in your nerves and muscles [<https://medlineplus.gov/lab-tests/electromyography-emg-and-nerve-conduction-studies/>]
 - Ultrasound [<https://medlineplus.gov/lab-tests/sonogram/>] to check the nerve in the carpal tunnel

What are the treatments for carpal tunnel syndrome?

It's easier to treat carpal tunnel syndrome early on, so you should start treatment as soon as possible. Your provider will first treat any health conditions you have that may cause your symptoms. The next step would be treatments for carpal tunnel syndrome. They may include:

- **Wrist splints** (usually worn at night).
- **Rest.**
- **Medicines to reduce swelling and pain:**
 - Over-the-counter pain relievers [<https://medlineplus.gov/painrelievers.html>] , such as aspirin, ibuprofen, and naproxen sodium.
 - **Prescription steroids** [<https://medlineplus.gov/steroids.html>] , either pills or an injection (shot) into your wrist.



- Other therapies (complementary and integrative medicine) [<https://medlineplus.gov/complementaryandintegrativemedicine.html>] . Research shows that yoga may help with pain and weakness. Some people may find acupuncture [<https://medlineplus.gov/acupuncture.html>] and chiropractic [<https://medlineplus.gov/chiropractic.html>] care helpful, but research hasn't shown that these therapies can improve carpal tunnel syndrome. If you want to try other therapies, talk with your provider first.
- Surgery [<https://medlineplus.gov/surgery.html>] **to make more space in the carpal tunnel**. Surgery may be an option if your symptoms are severe and other treatments don't work. It involves cutting the wrist ligament to take pressure off the nerve. Recovery may take months. Carpal tunnel syndrome rarely comes back after surgery, but mild symptoms may last.

Can carpal tunnel syndrome be prevented?



You may help prevent carpal tunnel syndrome if you protect your wrists:

- Use good posture [<https://medlineplus.gov/guidetogoodposture.html>] to keep your wrists in a natural position.
- Keep your hands warm to keep your muscles flexible. Fingerless gloves may help.
- Take work breaks and vary your tasks.
- Stretch and exercise your hands and wrists.
- Organize your workspace and tools to reduce strain [<https://medlineplus.gov/ergonomics.html>] on your hands and wrists.

Start Here

- Carpal Tunnel Syndrome [<https://rheumatology.org/patients/carpal-tunnel-syndrome>] (American College of Rheumatology)
- Carpal Tunnel Syndrome [<https://www.niams.nih.gov/health-topics/carpal-tunnel-syndrome>]  (National Institute of Arthritis and Musculoskeletal and Skin Diseases)
Also in Spanish [<https://www.niams.nih.gov/es/informacion-de-salud/sindrome-del-tunel-carpiano>]
- Finger Numbness: Could It Be Carpal Tunnel Syndrome? [<https://newsinhealth.nih.gov/2020/03/finger-numbness>]  (National Institutes of Health)
Also in Spanish [<https://salud.nih.gov/recursos-de-salud/nih-noticias-de-salud/entumecimiento-de-los-dedos>]

Diagnosis and Tests

- Electromyography (EMG) and Nerve Conduction Studies [<https://medlineplus.gov/lab-tests/electromyography-emg-and-nerve-conduction-studies/>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/electromiografia-y-estudios-de-conduccion-nerviosa/>]
- Wrist Pain [<https://www.mayoclinic.org/diseases-conditions/wrist-pain/symptoms-causes/syc-20366213?p=1>] (Mayo Foundation for Medical Education and Research)
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/wrist-pain/symptoms-causes/syc-20366213?p=1>]
- X-Rays: MedlinePlus Health Topic [<https://medlineplus.gov/xrays.html>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/xrays.html>]

Prevention and Risk Factors

- Computer Workstations: Keyboards [<https://www.osha.gov/etools/computer-workstations/components/keyboards>] (Occupational Safety and Health Administration)
- Computer Workstations: Wrist/Palm Supports [<https://www.osha.gov/etools/computer-workstations/components/wrist-palm-support>] (Occupational Safety and Health Administration)

Treatments and Therapies

- Carpal Tunnel Exercises: Can They Relieve Symptoms? [<https://www.mayoclinic.org/diseases-conditions/carpal-tunnel-syndrome/expert-answers/carpal-tunnel-exercises/FAQ-20058125?p=1>] (Mayo Foundation for Medical Education and Research)
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/carpal-tunnel-syndrome/expert-answers/carpal-tunnel-exercises/faq-20058125?p=1>]
- Carpal tunnel repair - series [https://medlineplus.gov/ency/presentations/100078_1.htm] (Medical Encyclopedia)
Also in Spanish [https://medlineplus.gov/spanish/ency/esp_presentations/100078_1.htm]


Joint and Soft Tissue Injections [<https://familydoctor.org/joint-and-soft-tissue-injections/?adfree=true>]


(American Academy of Family Physicians)

Also in Spanish [<https://es.familydoctor.org/inyecciones-en-las-articulaciones-y-en-los-tejidos-blandos/?adfree=true>]


- Wrist Arthroscopy [<https://www.orthoinfo.org/en/treatment/wrist-arthroscopy/>] (American Academy of Orthopaedic Surgeons)

Genetics

- Carpal tunnel syndrome: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/carpal-tunnel-syndrome>]
 (National Library of Medicine)

- Hereditary neuropathy with liability to pressure palsies: MedlinePlus Genetics
[<https://medlineplus.gov/genetics/condition/hereditary-neuropathy-with-liability-to-pressure-palsies>]
 (National Library of Medicine)

Clinical Trials


- ClinicalTrials.gov: Carpal Tunnel Syndrome [<https://clinicaltrials.gov/search?cond=%22Carpal+Tunnel+Syndrome%22&aggFilters=status:not%20rec>]  (National Institutes of Health)

Journal Articles

References and abstracts from MEDLINE/PubMed (National Library of Medicine)

- Article: Effect of anthropometric measurements of the hand on the development of...
[<https://www.ncbi.nlm.nih.gov/pubmed/40725975>]
- Article: Carpal tunnel syndrome symptoms and their associated factors among plastic surgeons...
[<https://www.ncbi.nlm.nih.gov/pubmed/40721789>]
- Article: Hybrid-J shape needle in ultrasound-guided looped thread carpal tunnel release: a...
[<https://www.ncbi.nlm.nih.gov/pubmed/40721769>]
- Carpal Tunnel Syndrome -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Carpal+Tunnel+Syndrome%22%5Bmajr%3Anoexp%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+1+Year%22+%5Bedat%5D+NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29+AND+free+full+text%5Bsb%5D+>]

Find an Expert

- National Institute of Arthritis and Musculoskeletal and Skin Diseases [<https://www.niams.nih.gov/>] 
Also in Spanish [<https://www.niams.nih.gov/es/portal-en-espanol>]

Women

- Carpal Tunnel Syndrome [<https://womenshealth.gov/a-z-topics/carpal-tunnel-syndrome>]
(Department of Health and Human Services, Office on Women's Health)
Also in Spanish [<https://espanol.womenshealth.gov/a-z-topics/carpal-tunnel-syndrome>]

Patient Handouts

- Carpal tunnel biopsy [<https://medlineplus.gov/ency/article/003925.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/003925.htm>]
- Carpal tunnel release [<https://medlineplus.gov/ency/article/002976.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/002976.htm>]
- Carpal tunnel syndrome [<https://medlineplus.gov/ency/article/000433.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/000433.htm>]



MEDICAL ENCYCLOPEDIA

Carpal tunnel biopsy [<https://medlineplus.gov/ency/article/003925.htm>]

Carpal tunnel release [<https://medlineplus.gov/ency/article/002976.htm>]

Carpal tunnel repair - series [https://medlineplus.gov/ency/presentations/100078_1.htm]

Carpal tunnel syndrome [<https://medlineplus.gov/ency/article/000433.htm>]

Related Health Topics

Hand Injuries and Disorders [<https://medlineplus.gov/handinjuriesanddisorders.html>]

Wrist Injuries and Disorders [<https://medlineplus.gov/wristinjuriesanddisorders.html>]

National Institutes of Health

The primary NIH organization for research on *Carpal Tunnel Syndrome* is the National Institute of Arthritis and Musculoskeletal and Skin Diseases [<http://www.niams.nih.gov/>]

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