



**The Complete Guide To**

**CARPAL  
TUNNEL  
SYNDROME**

**Prevention ♦ Causes ♦ Symptoms ♦ Risk Factors  
Treatment Options & Home Remedies**

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Carpal tunnel syndrome is a common occupationally related syndrome, affecting approximately 3.1 percent of employees. The incidence increases as a person ages and is more common in women when compared to men.

## What Is Carpal Tunnel Syndrome?

Carpal tunnel syndrome is a disease affecting the wrist and hands. It is more common in people who do repetitive motion maneuvers with the hands, most commonly on the job. The syndrome itself is caused by a compression of the median nerve on the inside of the wrist by tendons and soft tissue.

The median nerve runs through a tunnel, known as the “carpal tunnel” that is made up of tendons that normally are attached to the fingers. When the tendons swell from overuse, the median nerve is pinched off, resulting in pain and numbness to the hand.

The entire hand is not affected when the median nerve is pinched. Instead, the parts of the hand that are innervated by the median nerve are the palm of the hand, the thumb, the index, and middle finger, and half of the fourth finger. These areas become numb and can often become painful as the condition progresses.

## Causes

The pain and numbness of the above-mentioned areas of the hand are secondary to compression of the median nerve in the inner aspect of the wrist. The nerve becomes pinched off because of excessive inflammation of the tendons of the wrist that swell and compress the nerve.

While it can occur in individuals with no other medical problem, it can be due to any of the following medical conditions:

- Any condition that blocks the blood flow to the wrist
- Any type of trauma to the wrist, such as a fracture
- Rheumatoid arthritis or other autoimmune disorder
- Hypertension (“high blood pressure”)
- Pregnancy or other condition that results in retention of fluid
- Menopause
- Hypothyroidism
- Diabetes

Carpal tunnel syndrome or CTS can be worsened any time a person has to perform hand and wrist motions that result in hyperextension of the wrist on a repetitive basis. Constantly flexing and extending the wrist will lead to swelling of the tendons of the wrist and will result in pinching off the median nerve.

This can be related to any of the following:

- Things that require repeated movements of the wrist and that hyper extend the wrist, such as typing on a keyboard repetitively or playing a piano.
- Continual exposure to power tools or hand tools that vibrate, resulting in swelling of the tendons of the wrist and pinching off of the median nerve.
- Improper positioning of the hand and wrist while manipulating a computer mouse or typing on the keyboard.
- Normal use of the hand when you have medical conditions, such as low thyroid syndrome or pregnancy, which naturally have swelling of the wrist as a side effect.

## Prevention Methods

If you are otherwise prone to developing carpal tunnel syndrome, there are things you can do to prevent the symptoms from occurring. These include the following:

- Always maintain proper posture when working with your hands so there isn't any hyperextension of the wrist.
- Decrease the intake of salt, which can lead to fluid retention and swelling of the wrist tendons.
- If you do repetitive movements of the wrist, try to change your positions and don't do something with the same hand all the times. Instead, switch off between hands.
- Use movements of the hand and wrist that allow the motion to be spread evenly across the wrist and hands.

- Stay away from any activity that allows the wrists to twist or bend over a long period of time.
- If you develop numbness in the areas described above that are innervated by the median nerve, you need to stop that activity and allow the wrist to rest.
- Wear a carpal tunnel brace that prevents repetitive motion of the wrist. Carpal tunnel braces can be gotten from your doctor by prescription and can be purchased at a medical supply store. The brace can be worn while working or only at night during sleep, when you can't naturally keep your wrist in a neutral position.
- Maintain strength and flexibility of the arms, finger, and hand muscles.
- Maintain a healthy weight, which will decrease the amount of fat that could compress the median nerve.
- Quit smoking, which interferes with the circulation to the wrist and hands.
- Eat and drink fluids in moderation so that your health is generally good.

Any time you think that your work responsibilities are resulting in numbness or pain to the wrist, fingers, or hand, you need to talk to your supervisor or to someone in human resources. Together, you can find ways to do your job that don't require repetitive motion of the wrist. If you can't change the way you do your job, ask about doing some other type of job or switch tasks frequently so you aren't doing the same thing throughout the day.

Sometimes it takes a consultation with an expert in office ergonomics, who will teach you and your employer the proper ways to do your job that doesn't involve

repetitive movement of the wrist. Ergonomics experts understand the best way to do specific jobs that don't require injury to the wrist or hands.

You can also train yourself to do your job using different positioning techniques so the same movements aren't being done over and over again. This applies to work activities, home chores, and certain types of hobbies. Switch things up so that you aren't doing the same movement all the time.

There are also exercises you can do that will help prevent the onset of carpal tunnel syndrome. Anyone can do these exercises at any time because they don't require that you use any special equipment to perform. They can be done daily, several times a day, or can be done just prior to doing an activity that might lead to carpal tunnel syndrome.

Here are some excellent exercises for the hands and wrist that will strengthen the affected areas so they are less likely to swell and cause symptoms of carpal tunnel syndrome:

- **The "Spider Maneuver.** This is a hand strengthening and stretching exercise. You start by placing your hands together as if you are praying. Then separate the fingers apart from one another as far as you are able. Form a steeple with your hands by keeping the fingers together while at the same time separating the palms of your hands as far apart as you can. This exercise allows for the stretching of the palmar fascia as well as the median nerve and the tendons in the carpal tunnel. Do this several times per day or just



before using a keyboard or performing any other repetitive hand/wrist movement.

- **The Shaking Maneuver.** This involves simply shaking your hands as though you have just washed your hands and are attempting to air dry them. This maneuver can be done a minute or two at a time each hour you are working. The exercise helps keep the median nerve and the flexor muscles of the hands from becoming cramped as you work. You can also do it every time you wash your hands. Instead of drying the hands, shake them dry using the shaking maneuver.
- **The “Armstrong” Stretching Maneuver.** Begin by placing one of your arms straight out in front of the body. Keep your elbow straightened and extend your wrist with your fingers facing downward. Then, slightly spread the fingers and use the opposite hand to put pressure on the hand that you have outstretched in front of you. Allow your fingers and wrist to stretch as far as they can go. Once you have flexed the wrist to its maximum level, hold for about twenty seconds, and do the same thing for the opposite arm. While working, you should do this stretch about once per hour; if you are not working, still try to do this exercise two to three times a day. This will increase the flexibility of your wrist if you do it daily for several weeks.

Stretching is vital in order to maximize the strength and flexibility of the hand and wrist. You can do these exercises as part of stretching exercises you do on every part of the body before engaging in heavy physical activity. Stretching not only increases flexibility but also it improves the circulation to your hands and wrists, which will draw fluid off the wrist tendons.

## Risk Factors

There are varieties of different risk factors that have been linked to the development of carpal tunnel syndrome. Not everyone with these types of wrist factors will get carpal tunnel syndrome but, by having these risk factors, you can increase your risk of worsening any damage to the median nerve.

**Typical risk factors to developing carpal tunnel syndrome include the following:**

- **Gender.** Carpal tunnel syndrome appears to be more common among women when compared to men. This is likely because the carpal tunnel in women is narrower than the carpal tunnel in men.
- **Anatomy.** If you have suffered a wrist dislocation or wrist fracture, swelling to the affected area can involve swelling of the carpal tunnel structures, which increases the chances that the median nerve will be pinched. In addition, if you were born with a narrow carpal tunnel, you will have an increased chance of developing carpal tunnel syndrome.
- **Inflammatory diseases.** Any disease that results in inflammation of soft tissues, such as swelling from autoimmune diseases like rheumatoid arthritis, can adversely affect the tendons in the wrist so that they swell and pinch off the median nerve, resulting in carpal tunnel syndrome.
- **Illnesses that damage the nerve.** There are some medical conditions, such as diabetes mellitus, that damage the peripheral nerves. The median nerve is a peripheral nerve and can be damaged by chronically elevated glucose levels.

- **Imbalances in bodily fluids.** Any condition that results in fluid retention, such as a menopause or pregnancy, can narrow the carpal tunnel, resulting in irritation of the median nerve. Fortunately, both menopause and pregnancy are temporary conditions so the carpal tunnel syndrome will go away after these conditions resolve themselves.
- **Workplace issues.** It can be possible that working with tools that vibrate or working on an assembly line that involves the repetitive movement of the hands and wrist can cause undue pressure on the median nerve or can worsen pre-existing median nerve damage.
- **Certain types of medical conditions.** There are some medical conditions, such as hypothyroidism, renal failure, obesity, and menopause that have swelling of the tissues as a side effect. This swelling can raise the risk of developing median nerve encroachment and secondary carpal tunnel syndrome.

Just because you have risk factors for carpal tunnel syndrome doesn't mean you will definitely get the syndrome. Some people just naturally have narrow carpal tunnels that predispose them to developing carpal tunnel syndrome under the conditions described above.

Researchers have looked into the possibility that typing on a keyboard and using a mouse contribute to getting carpal tunnel syndrome. So far, the evidence hasn't supported a link between using a keyboard or mouse contributes to getting carpal tunnel syndrome. Nevertheless, you should still stretch before using a computer and practice good posture while engaging in this type of activity.

## Symptoms

If you have mild carpal tunnel syndrome, usually just the hand is affected; however, some people can have pain and numbness that extends up through the forearm and into the shoulder itself.

**Typical symptoms of mild carpal tunnel syndrome include the following:**

- Episodes of tingling, prickling sensations, pain, or numbness of the hand so that it feels as though the hands have fallen asleep.
- Pain or numbness in the forearm, hand, or wrist that is worse during the night while you are sleeping. You may find yourself shaking the affected hand and wrist, which will temporarily decrease your symptoms. The symptoms can awaken you from sleep.
- The experience of an achy pain in the forearm in the area between the wrist and the elbow.
- Pain or numbness of the hand when using your wrist or hand in a repetitive motion activity. The symptoms get worse when you flex the wrist or when you are holding onto an object.
- Finger stiffness that is worse when waking up in the morning.

If the carpal tunnel syndrome isn't treated and becomes moderate to severe, you may have the typical numbness and pain in the hand and wrist but will also have problems in these areas:

- You may have loss of pinch strength, which is the ability to pinch something between your first finger and your thumb.
- You may have problems undertaking certain hand movements, including holding small objects or brushing your teeth.
- You may have problems accidentally dropping things because the strength of your grip has decreased.
- You may have difficulty with the use of your thumb when performing certain activities, like twisting a screwdriver or opening a small jar. This is because the muscles of the thumb atrophy (shrink) and become weaker from a lack of innervation of the thumb by the median nerve.

Remember that the symptoms of carpal tunnel syndrome only affect those parts of the hand that are innervated by the median nerve. This includes the palm of the hand, the thumb, the pointer finger, the middle finger and the half of the fourth finger that is next to the middle finger.

As the pinkie finger is supplied by the ulnar nerve and not the median nerve, if you have symptoms related to the pinkie finger, this may mean you don't have carpal tunnel syndrome but have some other nerve-related syndrome.

The symptoms are usually bilateral although one hand is often worse than the other is. It is worse in your dominant hand in most cases and may only show up at

night while you are sleeping. The first sign of carpal tunnel syndrome is numbness and pain in the hands and wrist that wake you up at night.

Conditions that mimic carpal tunnel syndrome that need to be considered anytime you have hand and wrist symptoms include the following:

- Osteoarthritis of the wrist or thumb joint
- Nerve damage in the elbow, underarm area, neck, or fingers
- Damage to the bones, tendons, ligaments, or muscles of the forearm and wrist.

## Diagnosis

The doctor can make the diagnosis of carpal tunnel syndrome by doing a detailed history of your symptoms and by performing a physical examination. The doctor may perform a Phalen's test, in which the backs of the hands are put together, flexing the wrist. In a minute or so, the hand will begin to go numb, indicating carpal tunnel syndrome.

The doctor may also try to elicit a positive Tinel's sign. This is when the doctor taps on the median nerve on the inner aspect of the wrist. If you have carpal tunnel syndrome, there will be a sudden pain or sudden numbness of the hand in the areas the median nerve supplies.

Nerve conduction studies can also be performed. In this type of study, the speed at which the nerve impulses pass through the nerve are measured. If there is carpal tunnel syndrome, there will be a slowing of the nerve impulse past the area of the wrist due to damage to the median nerve.

# Treatment Options

There are several treatments that can be undertaken that will decrease the symptoms of carpal tunnel syndrome.

## Conventional Medicine Treatment

If you are treated with conventional medical treatment, the doctor may prescribe diuretic medicine that takes the swelling away from the carpal tunnel as well as nonsteroidal anti-inflammatory medication to decrease inflammation and pain in the wrist.

Injections of corticosteroids to the median nerve area can shrink swelling and relieve the pressure on the nerve. In more severe cases, the doctor will do surgery that opens up the carpal tunnel, cutting bands of ligaments that are trapping the median nerve.

## Alternative Medicine Treatment

Alternative medicine treatment involves doing exercises that increase the flexibility of the wrist, freeing up the pressure on the median nerve. You can participate in yoga that allows for stretching and strengthening the wrist joint. Hand therapy can be performed that will improve carpal tunnel syndrome.

Some doctors will use ultrasound therapy on the carpal tunnel. High intensity ultrasound is directed toward the median nerve that causes a rise in temperature in the area. This increases the circulation to the affected area and promotes



healing of the carpal tunnel. This takes several weeks of treatment before a resolution of symptoms can occur.

## Home Remedies for Carpal Tunnel

There are home remedies that can help carpal tunnel syndrome, including the following:

- **Ice Therapy.** You can wrap your wrists in an ice pack for about ten minutes to decrease the swelling and inflammation to the affected area. Repeat the application of ice once per hour for the best results.
- **Heat therapy.** A heating pad can be used or you can soak the wrists in hot water for about 15 minutes before going to sleep. This relaxes the muscles so they are less likely to spasm and cause carpal tunnel syndrome.

A carpal tunnel splint or wrist brace can be worn during the nighttime hours. People tend to flex their wrists while sleeping and wearing the wrist brace helps prevent this from occurring. Carpal tunnel splints can be purchased at a pharmacy, online, or at a medical supply store.

The splint prevents flexion of the wrist, which is the primary cause of carpal tunnel syndrome. You can also wear it during the day so that when you do repetitive motions of the wrist, the wrist will not flex so much and the symptoms will not occur.

- **Herbal therapies for carpal tunnel syndrome include the following:**
  - **Arnica.** You can use an ointment containing arnica that is rubbed on the wrists twice per day. Arnica is an anti-inflammatory herbal remedy

that reduces the pain of carpal tunnel syndrome. Simply massage the ointment into the inner aspect of the wrists and up toward the thumb using ¼ teaspoon of ointment per wrist.

- **St John's Wort.** This is normally used as an antidepressant but it also has the ability to reduce nerve damage, decreasing the inflammation and pain of the area around the carpal tunnel.
- **Bromelain.** This is an enzyme that comes from pineapples. It digests proteins that ultimately lead to inflammation so that the swelling will go down in the wrists. It can also reduce the pain associated with carpal tunnel syndrome.
- **Flaxseed oil.** One tablespoon of flaxseed oil is taken orally once a day for about two weeks. Flaxseed oil is high in omega 3 fatty acids, which are known for reducing inflammation. Be sure to take it with food as this improves its absorption.
- **Curcumin.** This is an anti-inflammatory herbal remedy that is a part of turmeric. It is used in Ayurvedic medical treatments because it decreases inflammation and pain in the connective tissue of the body.
- **Elemental magnesium.** This is a trace mineral that is important in nerve transmission and in the relaxation of the muscles. You can take a magnesium supplement or eat foods high in elemental magnesium, such as legumes, green vegetables, and whole grain products.  
Diarrhea can be a side effect and, if this occurs, you can cut down on the amount of supplement you are taking.

## Living with CTS

Carpal tunnel syndrome can affect your ability to do fine motor tasks involving the hands and fingers and can interfere with your job duties.

If you develop carpal tunnel syndrome, try any one of the above home remedies and alternative therapies first and, if those don't work, see your doctor about trying one of the conventional treatments for this condition. In the worst-case scenario, you may have to undergo surgery to treat the condition.

## Final Thoughts

Carpal tunnel syndrome is nothing more than compression of the median nerve by swelling of the soft tissue, muscles, tendons, and ligaments of the wrist.

The common symptoms of numbness, pain, and weakness of the hand can be managed in several different ways so that you don't have to suffer from the constant nerve-related symptoms associated with this syndrome.