

## Carpal tunnel syndrome

### Definition

Carpal tunnel syndrome is a condition in which there is excessive pressure on the median nerve. This is the nerve in the wrist that allows feeling and movement to parts of the hand. Carpal tunnel syndrome can lead to numbness, tingling, weakness, or muscle damage in the hand and fingers.

### Alternative Names

Median nerve dysfunction; Median nerve entrapment

### Causes

The median nerve provides feeling and movement to the thumb side of the hand, including the palm, thumb, index finger, middle finger, and thumb side of the ring finger.

The area in your wrist where the nerve enters the hand is called the carpal tunnel. This tunnel is normally narrow. Any swelling can pinch the nerve and cause pain, numbness, tingling or weakness. This is called carpal tunnel syndrome.

Some people who develop this problem were born with a carpal tunnel that is small.

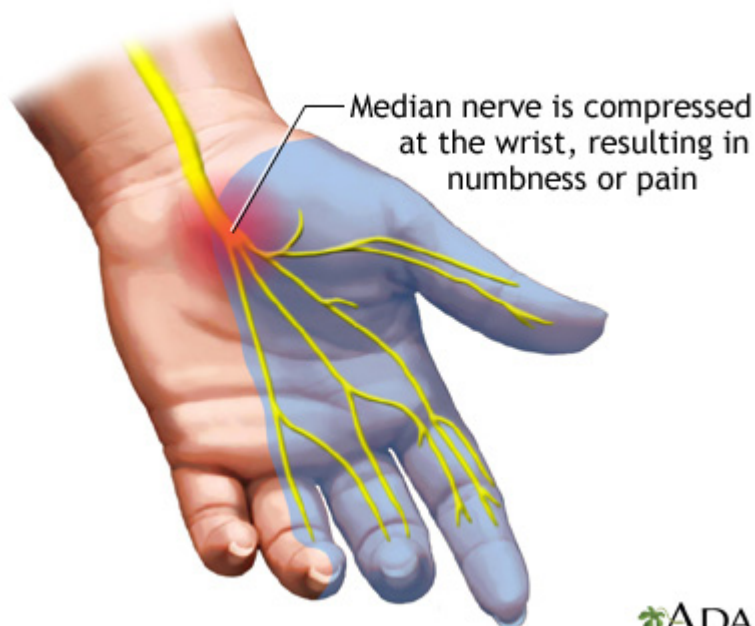
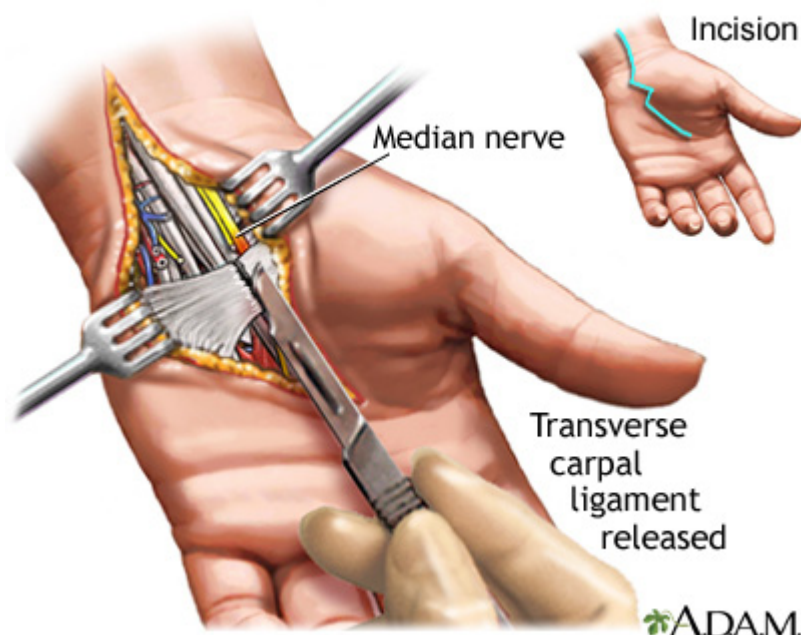
Carpal tunnel syndrome may be caused by making the same hand and wrist motion over and over. Using hand tools that vibrate may also lead to carpal tunnel.

Studies have not proved that carpal tunnel is caused by typing on a computer, using a mouse, or repeating movements while working, playing a musical instrument, or playing sports. But these activities may cause tendinitis or bursitis.

Carpal tunnel syndrome occurs most often in people 30 to 60 years old. It is more common in women than men.

Other factors that may lead to carpal tunnel syndrome include:

- Alcohol abuse
- Bone fractures and arthritis of the wrist
- Cyst or tumor that grows in the wrist



- Infections
- Obesity
- If your body keeps extra fluids during pregnancy or menopause
- Rheumatoid arthritis

## Symptoms

- Clumsiness of the hand when gripping objects
- Numbness or tingling in the thumb and next two or three fingers of one or both hands
- Numbness or tingling of the palm of the hand
- Pain extending to the elbow
- Pain in the wrist or hand in one or both hands
- Problems with fine finger movements (coordination) in one or both hands
- Wasting away of the muscle under the thumb (in advanced or long-term cases)
- Weak grip or difficulty carrying bags (a common complaint)
- Weakness in one or both hands

## Exams and Tests

During a physical exam, the health care provider may find:

- Numbness in the palm, thumb, index finger, middle finger, and thumb side of the ring finger
- Weak hand grip
- Tapping over the median nerve at the wrist may cause pain to shoot from the wrist to the hand (this is called the Tinel sign)
- Bending the wrist forward all the way for 60 seconds will usually result in numbness, tingling, or weakness (this is called the Phalen test)

Tests that may be ordered include:

- Electromyography
- Nerve conduction velocity
- Wrist x-rays should be done to rule out other problems (such as wrist arthritis)

## Treatment

Your health care provider may suggest the following:

- Wearing a splint at night for several weeks. If this does not help, you may need to wear the splint during the day as well.
- Avoid sleeping on your wrists.
- Placing warm and cold compresses on the affected area.

Changes you can make in the workplace to reduce the stress on your wrist include:

- Special devices include keyboards, different types of computer mouse, cushioned mouse pads, and keyboard drawers.
- Someone should review the position you are in when performing your work activities. For example, make sure the keyboard is low enough so that your wrists are not bent upward while typing. Your health care provider may suggest an occupational therapist.
- You may also need to make changes in your work duties or recreational activities. Some of the jobs associated with carpal tunnel syndrome include those that involve typing and vibrating tools.

### MEDICATIONS

Medications used in the treatment of carpal tunnel syndrome include nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or naproxen. Corticosteroid injections, given into the carpal tunnel area, may relieve symptoms for a period of time.

### SURGERY

Carpal tunnel release is a surgical procedure that cuts into the ligament that is pressing on the nerve. Surgery is successful most of the time, but it depends on how long the nerve compression has been occurring and its severity.

## Outlook (Prognosis)

Symptoms often improve without surgery. But more than half of cases eventually require surgery. Surgery is often successful, but full healing can take months.

## Possible Complications

If the condition is treated properly, there are usually no complications. If untreated, the nerve can be damaged, causing permanent weakness, numbness, and tingling.

## When to Contact a Medical Professional

Call for an appointment with your health care provider if:

- You have symptoms of carpal tunnel syndrome
- Your symptoms do not respond to regular treatment, such as rest and anti-inflammatory medications, or if there seems to be a loss of muscle bulk around your fingers

## Prevention

Use tools and equipment that are properly designed to reduce the risk of wrist injury.

Ergonomic aids, such as split keyboards, keyboard trays, typing pads, and wrist braces, may be used to improve wrist posture during typing. Take frequent breaks when typing and always stop if there is tingling or pain.

## References

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## Notes:

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