

Carpal tunnel syndrome

Carpal tunnel syndrome is a painful disorder of the hand caused by pressure on the main nerve that runs through the wrist. Symptoms include numbness, pins and needles, and pain (particularly at night). Anything that causes swelling inside the wrist can cause carpal tunnel syndrome, including repetitive hand movements, pregnancy and arthritis. Treatment options include rest, splinting, cortisone injections and surgery.

The carpal tunnel

The carpal tunnel is a narrow passageway in the wrist that opens into the hand. It is surrounded by the bones of the wrist (underneath) and the transverse carpal ligament (across the top). The median nerve runs through the carpal tunnel and gives sensation to the thumb, forefinger, middle finger and half of the ring finger.

Flexor tendons also run through the carpal tunnel into the hand. These tendons are covered by a smooth membrane called tenosynovium and allow hand movement. Any thickening from inflamed tendons or other causes of swelling can reduce the amount of space inside the carpal tunnel. If left unchecked, the median nerve is squashed against the transverse carpal ligament until the nerve cannot function properly. Numbness and pain are the result. One or both hands can be affected.

The muscles of the thumb, called the thenar muscles, are also serviced by the median nerve. A person with advanced carpal tunnel syndrome may find they cannot properly use or move their thumb anymore, and may experience difficulties when trying to grasp objects.

Symptoms

The symptoms of carpal tunnel syndrome include:

- Numbness
- Pins and needles
- Pain, particularly at night
- Darting pains from the wrist
- Radiated or referred pain into the arm and shoulder
- Weakness of the hand
- The little finger and half of the ring finger are unaffected.

Causes

Carpal tunnel syndrome can be caused by a combination of factors and sometimes a cause cannot be found:

- **Arthritis** – various types of arthritis, especially rheumatoid arthritis, can cause inflammation and swelling.
- **Pregnancy** – the hormones associated with pregnancy cause general fluid retention, which can compress the nerve. Carpal tunnel syndrome triggered by pregnancy usually resolves soon after birth.
- **Wrist fractures** – bone fragments can irritate the tenosynovium or reduce the amount of space in the carpal tunnel.
- **Congenital factors** – some people have a smaller carpal tunnel than others.
- **Overuse injury** – the tendons in the carpal tunnel can become irritated and inflamed by awkward postures or repetitive hand movements. This is sometimes called an overuse injury. People who use their hands repetitively in their day-to-day activities, such as people doing assembly line work, may be more at risk of developing carpal tunnel syndrome.

Untreated symptoms can get worse

It is not possible to 'work through' carpal tunnel syndrome. Initially, the pain and stiffness may be slight. The discomfort may increase until the hand is painful all the time if the cause is not addressed. Permanent damage can result.

Treatment options

Treatment for carpal tunnel syndrome may include:

- Rest from any positions or movements that make the symptoms worse
- Physiotherapy
- Wearing a wrist splint, especially at night
- Cortisone injections or tablets to reduce the inflammation
- Fluid tablets to reduce swelling
- Surgery.

Surgery can relieve the pressure

Surgery is an option. A small incision is made in the palm, and occasionally into the wrist as well, until the transverse carpal ligament is exposed. The ligament is then cut to reduce pressure on the underlying median nerve. Relief from pain and numbness can be immediate or might improve over time. It is generally advisable to rest the hand for a number of weeks after the operation.

Where to get help

- Your doctor
- Physiotherapist
- Australian Physiotherapy Association.

Things to remember

- Carpal tunnel syndrome is a painful disorder of the hand caused by pressure on the main nerve that runs through the wrist.
- Anything that aggravates and inflames the tendons can cause carpal tunnel syndrome, including repetitive hand movements, pregnancy and arthritis.
- Treatment options include rest, splinting, cortisone injections, fluid tablets and surgery.

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