

Carpal tunnel syndrome

This booklet provides information
and answers to your questions
about this condition.



What is carpal tunnel syndrome?



Carpal tunnel syndrome is a condition that causes pain or aching, tingling or numbness in the affected hand. In this booklet we'll explain more about the condition, the possible causes and what treatments are available.

At the back of this booklet you'll find a brief glossary of medical words – we've underlined these when they're first used.

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At a glance

Carpal tunnel syndrome

What is carpal tunnel syndrome?

Carpal tunnel syndrome is a common condition in which a nerve is squeezed where it passes through the wrist. This nerve, called the median nerve, controls muscles that move your thumb; it also carries information back to the brain about sensations in your thumb and fingers. Treatment is usually successful and, if it's treated early, very few people are left with long-term hand problems.

What are the symptoms?

Symptoms tend to be worse at night and may disturb your sleep. They can include:

- pain, aching, tingling or numbness in the affected hand
- more symptoms in the thumb, index and middle fingers, though sometimes it can feel like your whole hand is affected
- an ache in your forearm, arm or shoulder.

Women are more likely to develop carpal tunnel syndrome, but it can affect anyone.

What causes it?

In most cases there isn't an obvious cause. However, possible causes include:

- any form of arthritis affecting the wrist
- hormonal changes
- an underactive thyroid gland
- diabetes.

There's more chance of you developing carpal tunnel syndrome if your job places heavy demands on your wrist or if you use vibrating tools.

How is it diagnosed?

There are a number of ways in which carpal tunnel syndrome can be diagnosed:

- examination of the hand and wrist
 - the thumb, index and middle finger may be insensitive to a gentle touch or pin prick
 - weakness or signs of muscle wasting at the base of the thumb
 - tapping over the nerve at the wrist
 - holding the wrist in a bent position
- nerve conduction tests
- imaging of the wrist using ultrasound.

What treatments are there?

Treatments can often help, including:

- a resting splint for your wrist – if symptoms are worse at night
- a working splint – if symptoms are brought on by particular activities
- steroid injections
- carpal tunnel release surgery if your symptoms persist despite treatment, or if your hands are weak.



What is carpal tunnel syndrome?

Carpal tunnel syndrome is a condition in which the median nerve is squeezed where it passes through the wrist (see Figure 1). This nerve controls some of the muscles that move the thumb; it also carries information back to the brain about sensations in your thumb and fingers.

When the nerve is squeezed it can cause pain or aching, tingling or numbness in the affected hand. Women are more likely than men to develop carpal tunnel syndrome, and although the condition affects people of all ages, it's more common in the middle aged and elderly.

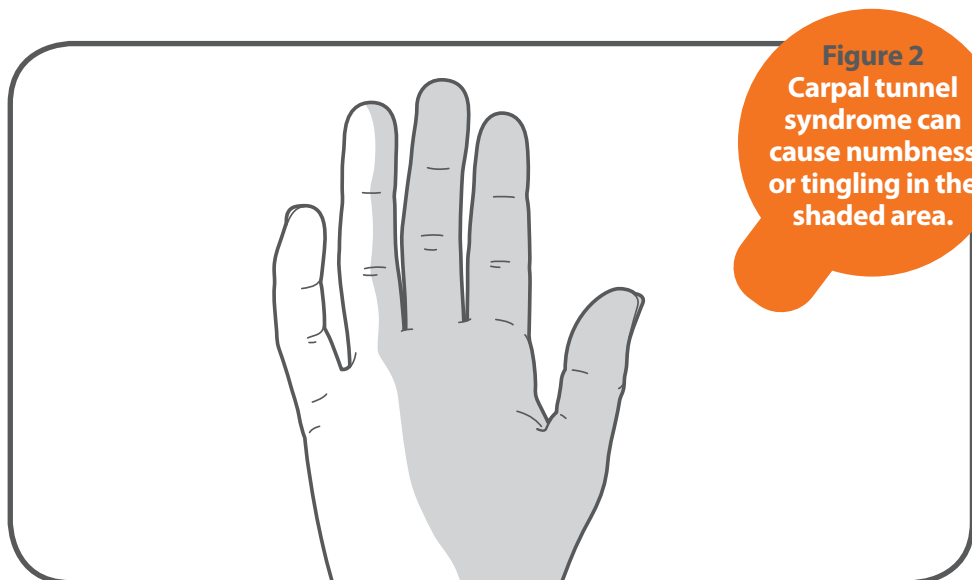
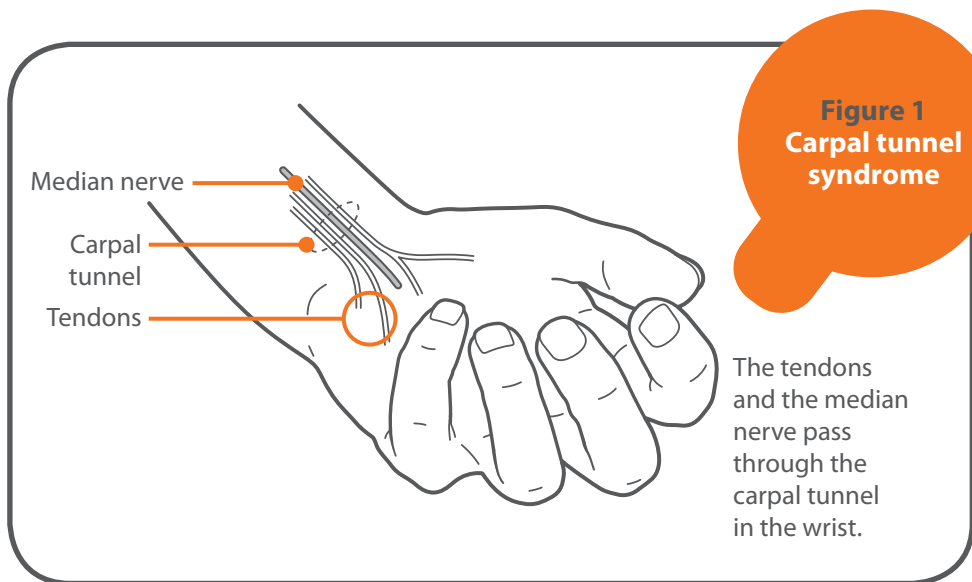
'Carpal' is a medical term that refers to the wrist. A 'syndrome' is a combination of problems which doctors recognise as a particular disease or disorder.

What are the symptoms of carpal tunnel syndrome?

Carpal tunnel syndrome causes pain, aching, tingling or numbness in the hand. It tends to come on gradually, over a period of weeks. The symptoms are usually worse in the thumb, index and middle fingers, but sometimes it may feel like your whole hand is affected (see Figure 2). You may also have an ache extending up the arm to your shoulder or neck. It can affect either one or both hands.

The symptoms tend to be worse at night and may disturb your sleep; you may notice it most when you wake up in the morning. Hanging your hand out of bed or shaking it around will often relieve the pain and tingling.

You may not notice the problem at all during the day, though certain activities – such as writing, typing, DIY or housework – can bring on symptoms. However, if the nerve is badly squeezed you may have symptoms throughout the day. Your hand may feel weak, or the fingers numb, or both. You may have a tendency to drop things and you may find that activities which require fine finger movements, like writing or fastening buttons, become more difficult.



Using vibrating tools can increase your risk of developing carpal tunnel syndrome.

What causes carpal tunnel syndrome?

The median nerve is very sensitive to pressure, and it may not be possible to say what the cause is in your particular case. However, some of the possible causes are:

- any form of arthritis in the wrist if there is swelling of the wrist joint or the tendons that run through the carpal tunnel
- hormonal changes during pregnancy – these can sometimes affect connective tissues and so put pressure on the nerve
- an underactive thyroid gland
- diabetes
- a fracture of the wrist
- occasionally, some medications can cause it, particularly exemestane and anastrozole (treatments for breast cancer).

Your risk of developing carpal tunnel syndrome may be greater if your job places heavy demands on your wrist, or if you use vibrating tools.

i See **Arthritis Research UK booklet** *Work-related joint disorders*.

How is carpal tunnel syndrome diagnosed?

Examination of the wrist

Your doctor will examine your hand and wrist to try to confirm the diagnosis and to assess how severe it is. If the wrist is swollen due to arthritis or tendon swelling, this could be the cause of your symptoms. If you've had the condition for some time there may be signs of muscle wasting at the base of the thumb. If the problem is severe, the thumb, index and middle fingers may be insensitive (numb) to either a gentle touch or a pin prick.

Your doctor may also tap over the median nerve on the palm side of your wrist (Tinel's test) or ask you to bend your palm towards your forearm for up to a minute (Phalen's test). These tests can help to confirm carpal tunnel syndrome, though they aren't fully reliable so you may have one of the tests described below.

Tests

Sometimes the condition can be mistaken for something else. For example, pressure on nerves in the neck due to disc problems or arthritis can cause similar symptoms. A nerve conduction test may help if there's any doubt about the diagnosis or to see how severe the compression of the nerve is. These tests can be done in several ways but one common measurement is made by stimulating a finger with a small electric current while recording the response of the median nerve at the wrist with a

pair of electrodes attached to the skin. When the nerve is impaired, the speed of conduction between the finger and the wrist is slower.

What treatments are there for carpal tunnel syndrome?

Many different treatments have been suggested for carpal tunnel syndrome but only a few have been proven to work. Not all cases are progressive and some may improve without any medical treatment. Importantly, if there's a particular cause for your problem (for example underactive thyroid gland, arthritis) then your symptoms may improve simply by treating that.

Your doctor will advise you which treatments are available, and they'll help to decide which is most appropriate for you.

The decision is usually affected by how severe the compression of the nerve is. If it's severe and there's weakness of your hand muscles, then it's important to get treatment quickly, and you'll normally be advised to have surgery.

Simple treatments can often help, including:

- a resting splint for your wrist – particularly if your symptoms are worse at night (see Figure 3)
- a working splint – if your symptoms are brought on by particular activities – to hold your wrist slightly extended back.

An occupational therapist or physiotherapist will be able to advise you about the different types of splint. Similarly, some therapists recommend certain exercises of the wrist which might help prevent the median nerve becoming stuck to nearby tendons.

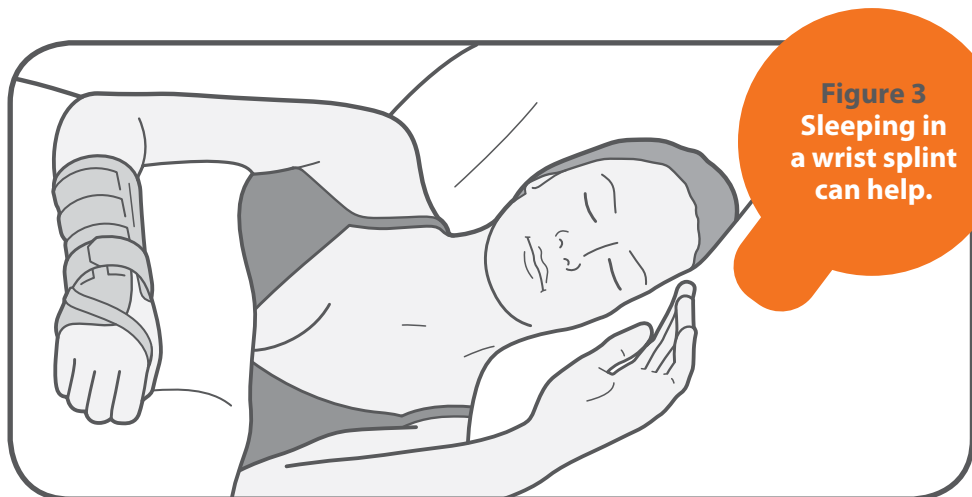


Figure 3
Sleeping in
a wrist splint
can help.

i See Arthritis Research UK booklets
Occupational therapy and arthritis;
Physiotherapy and arthritis; Splints for
arthritis of the wrist and hand.

Drugs

A steroid injection can be helpful, although the effect may wear off after weeks or months. A small quantity of steroid is injected into the carpal tunnel, which helps to reduce any swelling. The injection may rarely be uncomfortable, but it can be very effective. A steroid injection into the wrist joint itself may help if you have arthritis in your wrist.

i See Arthritis Research UK drug leaflet *Local steroid injections.*

Surgery

You may need surgery if there's severe compression of the median nerve or if the numbness and pain doesn't improve with other treatments.

Carpal tunnel release surgery relieves pain by reducing the pressure on the median nerve. Surgery usually takes place as a day case and you can expect to recover in less than a month. The operation is normally carried out under a local anaesthetic and usually leaves only a small scar.

If you've had carpal tunnel syndrome for a long time – especially if you have muscle-wasting or loss of sensation – the operation may not bring a complete recovery, but the pain should be greatly reduced. For most people surgery is very successful, but, as with all surgical treatments, some people will have complications.

i See Arthritis Research UK booklet
Hand and wrist surgery.

Self-help and daily living

No particular diet has been shown to help either to relieve or prevent carpal tunnel syndrome. However, a healthy, balanced diet and regular exercise are important for your general health. One preliminary study suggested that yoga might give short-term improvements in pain and function in those people with mild symptoms.

If you think your work may be causing your symptoms you should discuss this with your supervisor or an occupational health nurse. If necessary, your local JobCentre Plus office can put you in touch with a Disability Employment Advisor who'll be able to advise on changes to your equipment or working techniques.

i See Arthritis Research UK booklets
Diet and arthritis; Work and arthritis.

Research and new developments

There's ongoing research looking into the causes of carpal tunnel syndrome, particularly whether it can be prevented by altering the way people carry out different tasks with their hands in the workplace. Other treatments, such as acupuncture and therapeutic ultrasound, are also being evaluated, and there's active research into the best dose and timing of steroid injections.



Glossary

Diabetes – a medical condition that affects the body's ability to use glucose (sugar) for energy. The body needs insulin, normally produced in the pancreas, in order to use glucose. In diabetes the body may produce no insulin or not enough insulin, or may become resistant to insulin. When the body is unable to use glucose obtained from foods the level of sugar in the blood increases. If untreated, raised blood sugar can cause a wide variety of symptoms.

Median nerve – the nerve that controls movement of the thumb and carries information back to the brain about sensations felt in the thumb and fingers.

Occupational therapist – a trained specialist who uses a range of strategies and specialist equipment to help people to reach their goals and maintain their independence by giving practical advice on equipment, adaptations or by changing the way you do things (such as learning to dress using one handed methods following hand surgery).

Physiotherapist – a trained specialist who helps to keep your joints and muscles moving, helps ease pain and keeps you mobile.

Tendon – a strong, fibrous band or cord that anchors muscle to bone.

Thyroid gland – a gland at the front of the neck that produces various hormones which help to regulate the body's internal processes, such as metabolism, reproduction, growth and development.

Where can I find out more?

If you've found this information useful you might be interested in these other titles from our range:

Therapies

- *Occupational therapy and arthritis*
- *Physiotherapy and arthritis*

Surgeries

- *Hand and wrist surgery*

Self-help and daily living

- *Diet and arthritis*
- *Looking after your joints when you have arthritis*
- *Splints for arthritis of the wrist and hand*
- *Work-related joint disorders*

Drug leaflet

- *Local steroid injections*

You can download all of our booklets and leaflets from our website or order them by contacting:

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Chesterfield
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Email: enquiries@arthritisresearchuk.org
www.arthritisresearchuk.org

Related organisations

The following organisations may be able to provide additional advice and information:

Arthritis Care

Floor 4, Linen Court
10 East Road
London N1 6AD
Phone: 020 7380 6500
Helpline: 0808 800 4050
Email: info@arthritiscare.org.uk
www.arthritiscare.org.uk

Disability Employment Advisors

Your Jobcentre or Jobcentre Plus office can put you in touch with your local Disability Employment Advisor.
www.jobcentreplus.gov.uk

Links to sites and resources provided by third parties are provided for your general information only. We have no control over the contents of those sites or resources and we give no warranty about their accuracy or suitability. You should always consult with your GP or other medical professional.



We're here to help

Arthritis Research UK is the charity leading the fight against arthritis.

We're the UK's fourth largest medical research charity and fund scientific and medical research into all types of arthritis and musculoskeletal conditions.

We're working to take the pain away for sufferers with all forms of arthritis and helping people to remain active. We'll do this by funding high-quality research, providing information and campaigning.

Everything we do is underpinned by research.

We publish over 60 information booklets which help people affected by arthritis to understand more about the condition, its treatment, therapies and how to help themselves.

We also produce a range of separate leaflets on many of the drugs used for arthritis and related conditions. We recommend that you read the relevant leaflet for more detailed information about your medication.

Please also let us know if you'd like to receive our quarterly magazine, *Arthritis Today*, which keeps you up to date with current research and education news, highlighting key

projects that we're funding and giving insight into the latest treatment and self-help available.

We often feature case studies and have regular columns for questions and answers, as well as readers' hints and tips for managing arthritis.

Tell us what you think of our booklet

Please send your views to:
feedback@arthritisresearchuk.org
or write to us at:
Arthritis Research UK, Copeman House, St Mary's Court, St Mary's Gate, Chesterfield, Derbyshire S41 7TD

A team of people contributed to this booklet. The original text was written by Dr Jonathan Barnardo, who has expertise in the subject. It was assessed at draft stage by upper limb clinical specialist physiotherapist Marcus Bateman, neurophysiologist Dr Jeremy Bland, lecturer in physiotherapy Dr Joe McVeigh and clinical nurse specialist Heather Savage. An **Arthritis Research UK** editor revised the text to make it easy to understand, and a non-medical panel, including interested societies, checked it for understanding. An **Arthritis Research UK** medical advisor, Dr Ben Thompson, is responsible for the content overall.

Get involved

You can help to take the pain away from millions of people in the UK by:

- volunteering
- supporting our campaigns
- taking part in a fundraising event
- making a donation
- asking your company to support us
- buying products from our online and high-street shops.

To get more **actively involved**, please call us on **0300 790 0400**, email us at **enquiries@arthritisresearchuk.org** or go to **www.arthritisresearchuk.org**



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calls charged at standard rate

www.arthritisresearchuk.org

Registered Charity No 207711
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Published November 2012 2008/CTS/12-1

