

Carpal Tunnel Syndrome

What is Carpal Tunnel?

Carpal Tunnel Syndrome (CTS) is a condition when the median nerve in your hand becomes irritated or gets compressed at the wrist. The carpal tunnel is narrow and is formed by the space between the bones of your wrist and a ligament that stretches across them. The tendons to your fingers also run through the tunnel alongside the nerve. This nerve supplies sensation to the tip of the thumb, index, middle and half of the ring finger.

What are the signs and symptoms?

- Discomfort at night
- Abnormal sensation
- Pins and needles in the tips of the fingers, commonly in the distribution noted above
- Pain in the hand, wrist or arm.
- Fingers and thumb may feel numb
- Decrease in grip strength which can limit hand function

Risk Factors for CTS

- Wrist or thumb OA
- Rheumatoid Arthritis
- Hypothyroidism
- Pregnancy
- Kidney disease
- Genetic predisposition
- Any activity which requires repetitive movement of the wrist
- Tendonitis
- Diabetes Mellitus
- Hormonal Imbalance
- Trauma to the wrist
- Hypermobility
- Postural

As symptoms progress the tingling sensation and numbness may be present during the day. You may notice some weakness in your grip strength and the hand may start to feel clumsy and you may start to drop objects.

What can I do to help?

Splinting:

Use of a splint will keep the wrist in a neutral position which is likely to reduce Irritation to the nerve in the carpal tunnel. Use the splint at night only. It is recommended that you do this for a 2 month period.



Fitting the splint

The splint has a rigid metal bar which lies in a pocket of the Splint. The metal bar should be along the palm side of the wrist and forearm. The top edge of the splint must be placed along the horizontal crease in the palm below the base of the fingers. Ensure you are able to bend and straighten the knuckles comfortably. If you notice any rash, rubbing or an increase in your symptoms remove the splint. To wash splint do so in cold soapy water, but remove bar first and dry thoroughly.

What else can I do?

- Modify work station i.e. sitting posture and wrist positioning, use equipment with thicker handles
- Reduce the duration, frequency and or force required to complete tasks that irritate your symptoms
- Avoid positioning your wrist in extremes of movement
- Avoid repetitive or prolonged movements e.g. holding a book to read

Are there any exercises I can do?

Exercises that mobilise the nerve in the carpal tunnel may help the condition. As in picture 1, hold the arm up and out to the side with the wrist extended and palm facing up. Then straighten the elbow and hand $\frac{3}{4}$ of the way then return to the starting position do 5 reps, 5 times a day

Picture 1.



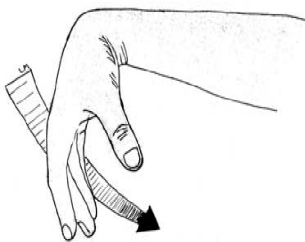
Median nerve glides at the wrist (see Picture 2)

Bend your wrist down and back, keep fingers relaxed, keep elbow still while doing this.

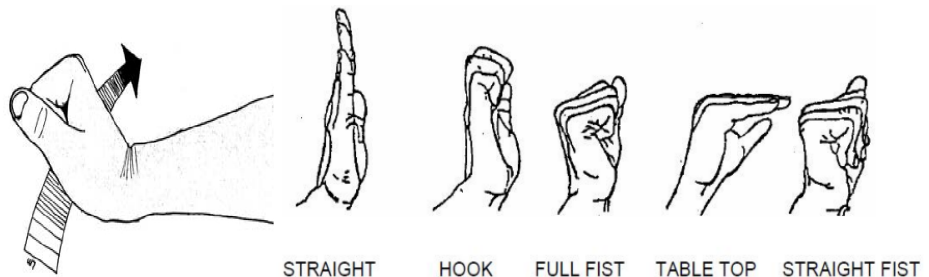
Do 10 repetitions 5 times a day.

Tendon gliders (picture 3) Start with fingers and wrist straight every time. Do each exercise 5-10 times per session, and hold for 1 second. Do these sessions 5 times each day

Picture 2.



Picture 3



What to look out for!

Please speak to a clinician if:

- symptoms are not responding to the splint and exercises
- you start to notice any numbness that has become constant
- you begin noticing wasting of the muscles at the base of the thumb

The above symptoms may indicate that the nerve is being compressed more significantly and this can result in permanent damage to the nerve if not treated.

Other options:

Should the symptoms not settle with splinting and exercise, or if your symptoms progress, the condition can be treated effectively with a steroid injection or surgery. The appropriate options are determined on an individual basis so please speak to your clinician about these for further information.

Reference:

Lewis, K.J., Coppieters, M.W., Ross, L., Hughes, L., Vincenzino, B., Schmid, A.B. (2020) Group education, night splinting and home exercises reduce conversion to surgery for carpal tunnel syndrome: a multicenter trial. *Journal of Physiotherapy*. 66. 97-104