

# Media Report 02 Sept 2022

This weeks media reports will cover and answer great questions veterans are still asking and local Media Articles and An illness or injury can have an impact on your ability to adjust to life after service. We all need healthcare services. The Treatment benefits program provides coverage for a variety of benefits and services to help you get—and stay healthy.

## Carpal Tunnel Syndrome

### **Definition**

Carpal Tunnel Syndrome (CTS) is an entrapment neuropathy of the median nerve at the wrist which produces paresthesia and weakness of the muscles of the hand.

General terms such as "cumulative trauma disorder" and "repetitive strain injury of the wrist" need to be avoided. Further, "wrist tendinitis" is a separate and distinct entity.

Where a neuropathy such as CTS is part of the symptomatology of another disease entity, it is included in the assessment of that disease entity.

Please note: Entitlement should be granted for a *chronic* condition only. For VAC purposes, "chronic" means that the condition has existed for at least 6 months. Signs and symptoms are generally expected to persist despite medical attention, although they may wax and wane over the 6 month period and thereafter.

### **Diagnostic Standard**

Diagnosis by a qualified medical practitioner is required. It is to include positive findings on nerve conduction (EMG) testing, which is generally regarded as the standard test for diagnosis of CTS, and evidence of relevant symptoms of CTS.

Care should be taken to ensure an accurate diagnosis is made. The diagnostic positive finding for CTS is decreased median nerve conduction at the wrist. This finding may be demonstrated in individuals who are asymptomatic.

Clinical examination should rule out the possibility of alternate diagnoses such as cervical radiculopathy, peripheral neuropathy, and hand/arm vibration syndrome.

Evidence of duration of a disability existing for at least 6 months should be provided.

### **Anatomy and Physiology**

CTS is caused by pressure on the median nerve where it passes in company with the flexor tendons of the fingers through the tunnel formed by carpal bones and the transverse carpal ligament at the wrist.

The classically described physical tests for CTS include:

1. *Phelan's test*, in which paresthesia is reproduced after 60 seconds of wrist flexion, and
2. *Tinel's sign* in which paresthesia/electrical sensations occur in the affected fingers after tapping over the carpal tunnel at the wrist.

CTS is classified as follows:

1. intrinsic, i.e. secondary to another underlying disease or condition
2. use-related, e.g. from manual work, sports, hobbies
3. injury-related

### **Clinical Features**

The first symptoms of CTS include paresthesia in the distribution of the median nerve of the hand affecting one or more of the thumb, index finger, third (middle) finger and the radial side of the fourth (ring) finger. Symptoms may also include hand weakness and pain.

The presence of thenar muscle atrophy is often indicative of advanced CTS. Conservative treatment is generally used for less severe cases, and surgery is reserved for serious and prolonged cases. The success rate of surgery is high in the absence of aggravating factors; however, surgical intervention in individuals who return to occupations involving repetitive movement, assembly line work, typing or the use of vibration tools is associated with a higher risk of failure.

### **Pension Considerations**

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#### 1. Causes And / Or Aggravation

The timelines cited below are not binding. Each case should be adjudicated on the evidence provided and its own merits.

##### 1. Overuse prior to clinical onset or aggravation

*For overuse to cause or aggravate CTS, the following should be evident\*:*

- The overuse activity should be performed for the specified number of hours per day; and
- The overuse activity should be performed for at least 60 days out of 120 consecutive days; and
- Signs/symptoms should begin during the overuse activity or within 30 days after the overuse activity ceases; and
- Signs/symptoms should be ongoing or recurrent for at least 6 months to be considered chronic for pension purposes.

*\* The definitions and criteria apply to a normal joint. The total time per day or total number of days required to qualify as overuse may be less when the joint is abnormal or where other pertinent circumstances exist. To illustrate:*

- *A combination of relevant factors (where only 1 factor is required for overuse) may reduce the total time per day required to qualify as overuse, e.g. activity involving both high repetition and extreme posture as defined may require performance of the overuse activity less than 2 hours per day, OR activity involving extreme posture as defined and a level of high repetition which is in excess of the definition (e.g. 10 times per minute) may require performance of the overuse activity less than 2 hours per day.*
- *A combination of one or more relevant factors performed to excess for more than 2 hours per day may reduce the total number of days required to qualify as overuse, e.g. activity of high repetition in the order of 10 times per minute performed 4 hours per day may require performance of the overuse activity for less than 60 out of 120 consecutive days.*

Overuse means high repetition and/or extreme posture and/or high force and/or vibration in the soft tissues around the wrist joint prior to clinical onset or aggravation.

*High repetition* means actions performed more than 2 to 4 times a minute, or cycles less than 30 seconds for a substantial part of the day.

*Extreme posture* of the wrist is a flexion/extension angle greater than 45 degrees, and ulnar deviation greater than 20 degrees for a substantial part of the day. (A neutral flexion/extension angle is 0 to 25 degrees, and a non-neutral angle is 25 to 45 degrees. A neutral ulnar deviation is less than 10 degrees, and a non-neutral deviation is 10 to 20 degrees).

*Holding an object in grip or pinch position with extreme posture* is an exception to "extreme posture of the wrist", and requires that the position be held for most of the day.

*High force* means hand weights of more than 3 kg. for a substantial part of the day.

*Vibration* means direct vibration of the affected hand or forearm for a substantial part of the day.

*Substantial part of the day* means for a total of 2 hours or more per working day.

*Most of the day* means for a total of 4 hours or more per working day.

Determination of a service-relationship for an overuse syndrome will generally depend on whether the overuse factors can be seen to have arisen out of or to be directly connected with the performance of military duties.

Repetitive activities which have been implicated in the development of CTS include those which involve repetitive and forceful gripping, those which involve low force wrist movements with fine finger movements, and those which involve repeated use of the palm of the hand. Examples of such activities are as follows:

- Squash
- Golf
- Data entry and typing
- Permanent use of a manual wheelchair - this excludes temporary use of a manual wheelchair such as when recovering from an ankle sprain, or when the manual wheelchair is pushed primarily by a person other than the person affected by the permanent medical condition.

Occupations involving repetitive work that are closely associated with CTS include:

- Radio Operator
- Teletype Operator
- Postal Clerk
- Data Entry Clerk

In repetitive activities, the initial manifestation is aching of the affected part which occurs at work and disappears at rest. In the early stages there is no interference with work. Continued exposure without treatment results in recurrent pain occurring throughout the work day and persisting after ceasing work. The condition may take weeks or months to resolve even with treatment and cessation of work. The chronic stage brings pain at work and at rest, aggravated even by non-repetitive movements.

Examples of occupations involving vibration include Aviation Technician, Aero Engine Technician and Airframe Technician, all of which may involve pneumatic drilling.

2. Suffering an injury to the affected wrist, other than a wrist fracture, prior to clinical onset or aggravation  
The injury would alter the normal contour of the carpal tunnel, or damage the median nerve or flexor tendons within the carpal tunnel, or damage the forearm muscles forming the flexor tendons within the carpal tunnel.  
For the injury to cause or aggravate CTS, the symptoms of CTS must commence within several months of the injury.
3. Suffering a fracture to the affected wrist prior to clinical onset or aggravation  
The injury would alter the normal contour of the carpal tunnel, or damage the median nerve or flexor tendons within the carpal tunnel.  
For the wrist fracture to cause or aggravate CTS, the symptoms must commence within several months of the fracture.
4. Surgery to the affected wrist prior to clinical onset or aggravation  
The surgery would alter the normal contour of the carpal tunnel, or damage the median nerve or flexor tendons within the carpal tunnel.  
For the surgery to cause or aggravate CTS, symptoms must commence within several months of the surgery.
5. Obesity prior to clinical onset or aggravation  
For obesity to cause or aggravate CTS, it must result in a significant weight gain (of the order of a 20% increase in baseline weight) and occur in association with a body mass index (BMI) of 30 or greater.
6. Hemodialysis (renal dialysis) treatment prior to clinical onset or aggravation  
For hemodialysis treatment to cause or aggravate CTS, it must take place for a period of at least 1 year immediately before clinical onset or aggravation of CTS.  
Amyloid deposits (insoluble fibrillar proteins) have been found in the carpal tunnel tissues in more than 70% of dialysis patients operated on for CTS. Arterial venous shunts commonly used for dialysis can result in a vascular steal syndrome at the wrist, increasing the risk of CTS or its aggravation. There is no direct evidence that peritoneal dialysis promotes CTS.
7. Double crush syndrome prior to clinical onset or aggravation  
*"Double crush syndrome"* is the occurrence of an injury to a nerve that is previously diseased or injured.  
When the nerve is previously diseased from another cause, such as nerve fiber compression more proximally (at the cervical spine, thoracic outlet, or elbow), less pressure is required at the wrist to produce or aggravate CTS.
8. Myxedema at time of clinical onset or aggravation  
*Myxedema* is a condition characterized by dry, waxy swelling of the skin and other tissues and associated with primary hypothyroidism.
9. Acromegaly prior to clinical onset or aggravation  
*Acromegaly* is a chronic disease of adults due to hyper-secretion of the pituitary growth hormone and characterized by enlargement of many parts of the skeleton, especially the distal portions of the nose, ears, jaws, fingers and toes.
10. Amyloidosis prior to clinical onset or aggravation  
*Amyloidosis* is a group of conditions of diverse causes characterized by the accumulation of amyloid in various organs and tissues of the body such that vital function is compromised.
11. Rheumatoid Arthritis of the wrist prior to clinical onset or aggravation

12. Gout of the affected wrist prior to clinical onset or aggravation
13. A space occupying lesion of the carpal tunnel prior to clinical onset or aggravation  
"Space occupying lesion" of the affected carpal tunnel is a lesion which is situated within the carpal tunnel, such as:

- hemangioma
- neuroma of the median nerve
- aneurysm of the median artery
- calcification
- synovial sarcoma
- tendon sheath fibroma
- lipoma and ganglion

14. Peripheral neuropathy prior to clinical onset or aggravation  
"Peripheral neuropathy" is a neuropathy associated with Diabetes Mellitus and alcohol-abuse disorders.

For Diabetes Mellitus to cause or aggravate CTS, it must have existed for approximately 5 years immediately before the clinical onset or aggravation of CTS.

There is epidemiological evidence that long-standing Diabetes Mellitus increases the risk of suffering CTS, and that the risk of developing the syndrome increases with the duration of the diabetes.

15. Pregnancy prior to clinical onset or aggravation

While pregnancy may cause or aggravate CTS, CTS caused solely from a pregnancy is generally considered reversible within a few months of the completion of the pregnancy.

16. Hyperthyroidism or treated hyperthyroidism at time of clinical onset or prior to aggravation.

17. Inability to obtain appropriate clinical management

2. Medical Conditions Which Are To Be Included In Entitlement / Assessment

3. Common Medical Conditions Which May Result In Whole Or In Part From Carpal Tunnel Syndrome and/its Treatment

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