

Carpal Tunnel Syndrome: Treatment Options and the Importance of Early Detection



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Carpal tunnel syndrome is a condition that causes pain, numbness and weakness in the hand and forearm. The disorder is caused by a compression of the median nerve running through the forearm and wrist into the palm of the hand. Pressure on the nerve as it passes through the wrist results in the pain and numbness associated with the condition. Carpal tunnel syndrome is a progressive disorder, and early detection is critical to its successful treatment. If left unchecked it can lead to a general worsening of symptoms for the patient, and potential permanent nerve damage.

The Anatomy of Carpal Tunnel Syndrome

The carpal tunnel is a narrow passage located on the palm side of the wrist. This passage, surrounded by bones and ligaments, protects the median nerve as it runs through the forearm and into the hand. The median nerve itself is one of the primary nerves in the hand, providing sensation in the fingers and controlling the muscles around the base of the thumb. It originates in a cluster of nerves in the neck, which come together to form a single nerve that runs down the arm and forearm and into the hand via the carpal tunnel. Carpal tunnel occurs when the carpal tunnel becomes narrowed or compresses, restricting the nerve's natural pathway and putting unusual pressure on the median nerve. This results in the tingling, numbness and weakness most commonly associated with carpal tunnel syndrome. Over time, the condition can worsen and the continued pressure and compression can lead to permanent nerve damage.

What Causes Carpal Tunnel Syndrome?

Repetitive stress injury is often a contributing factor in the development of carpal tunnel syndrome but it is rarely, if ever, the sole cause of the condition. In fact, carpal tunnel syndrome is sometimes confused with repetitive stress injury. While the two conditions do share some similarities they are in fact different disorders. In the majority of cases the onset of carpal tunnel is brought about by a combination of one or more of these contributing factors:

Health – Certain underlying medical conditions can contribute to the occurrence of carpal tunnel syndrome.

Hypothyroidism, diabetes and rheumatoid arthritis have all been linked to it. The hormone changes associated with pregnancy can also contribute to occurrences of it in women of child bearing age

Heredity – The carpal tunnel is smaller in some people than in others and this basic anatomical difference is often a family trait, making heredity one of the more likely contributing factors

Repetitive Hand Motion – Activities that involve prolonged flexing or extension of the hand and wrist can often place undue pressure on the median nerve. Prolonged repetition of these activities can cause the tendons in the wrist to swell, placing additional pressure on the nerve leading to onset

Recognizing the Symptoms of Carpal Tunnel Syndrome

Early symptoms of carpal tunnel syndrome typically include tingling, numbness or pain in the fingers and hand. During the early stages, the pain and numbness generally centers around the thumb, index finger, and middle finger of the affected hand. Gradually, the pain and tingling may begin to travel up through the forearm, often accompanied by an increasing weakness or loss of dexterity. In most cases these symptoms will come and go at first. However, as the condition worsens the symptoms will occur more frequently and linger for longer periods.

Early detection is key to the proper treatment of carpal tunnel syndrome, and the sooner the condition is diagnosed the quicker patients can make a full recovery and avoid any potential complications. When symptoms present, and especially if they persist or worsen, it is advisable to seek medical intervention. Your physician or orthopedic specialist will perform a number of tests to determine if carpal tunnel syndrome is the underlying cause of your pain and design treatment regimen to suit your condition. Fortunately, most cases respond well to conservative treatments, particularly when caught in the early stages before any permanent damage can be done to the median nerve.

Conservative Treatment Options for Carpal Tunnel Syndrome

The majority of patients respond positively to conservative treatments, and in most cases it is possible to slow or even stop the progression of the disease through nonsurgical means. When caught in the early stages, nonsurgical treatment typically includes:

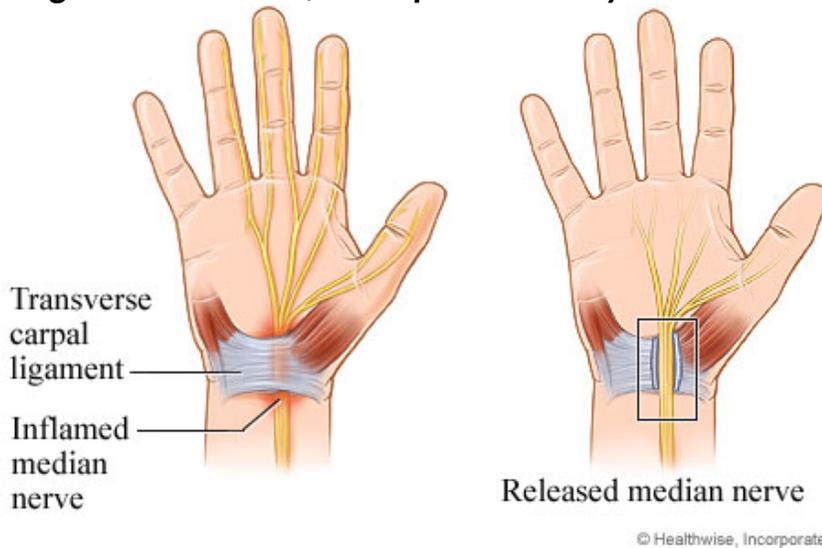
Wrist Splinting – Wearing a wrist splint often helps to reduce pressure on the nerve in the carpal tunnel by restricting the movement of the patient’s wrist. Typically, wrist splints are worn at night to keep patient’s from bending their wrists during sleep. However, in some advanced cases a wrist splint may be worn during the day to avoid aggravating the condition during work or recreational activities

Medication – Non-steroidal anti-inflammatory drugs, such as ibuprofen or naproxen, are often prescribed to reduce inflammation and alleviate pain. In cases that fail to respond to over-the-counter medications steroid injections may be prescribed to reduce chronic pain and inflammation

Behavior Modification – Carpal tunnel syndrome and its symptoms is often exacerbated by certain daily activities. In addition to wrist splinting and anti-inflammatory medications patients are often advised to temporarily avoid or modify work and recreational habits to avoid aggravating their condition

Occupational Hand Therapy – Hand therapy is often prescribed as a support for basic carpal tunnel syndrome treatments. Therapy typically includes soft tissue massage, range of motion exercises, and ultrasound or electrical stimulation. While occupational hand therapy can be beneficial as a support to nonsurgical treatment, it is more commonly prescribed following carpal tunnel surgery

Surgical Treatment for Carpal Tunnel Syndrome



While conservative treatments work well for the majority of patients, some may require surgical intervention if their symptoms persist or worsen over time. The surgical procedure involved is called ‘carpal tunnel release’, and is designed to increase the size of the carpal tunnel and reduce pressure on the median nerve. Essentially surgeons divide the band that is putting pressure on the nerve. Surgeons rely on two techniques to achieve this end, the ‘Open Carpal Tunnel Release’ and the ‘Endoscopic Carpal Tunnel Release’. Both techniques are minimally invasive, and in most cases the surgery can be performed on an outpatient basis with under general anesthetic. As with any surgical procedure, your

physician or orthopedic specialist will guide you through the options and advise you on the surgical procedure that is best suited to your condition.

Recovery from open carpal release surgery is a gradual process, and pain and swelling may linger for several weeks following the procedure. Patients typically require 2-3 months of occupational hand therapy before pinch and grip strength begins to return to normal. Patients may also be advised to periodically wear a splint or wrist brace during recovery, and should expect to modify their work and recreational activities until strength and dexterity returns to normal. In some cases a patient may require a longer rehabilitation period following surgery, particularly if their median nerve was overly compromised prior to the surgical procedure.

At Fox Valley Orthopedic our physicians and surgeons are dedicated to keeping our patients healthy and active. If you are experiencing any of the symptoms of carpal tunnel syndrome, we can evaluate your condition and work with you to find the treatment option that best suits your needs and lifestyle. In most cases conservative treatments and moderate physical therapy achieves the desired results, with patients showing a marked reduction in pain and an overall improvement in strength and dexterity. If surgery is indicated, our orthopedic specialists are trained in the latest procedures and work closely with trained occupational hand therapists to provide carpal tunnel syndrome patients with the post-operative support they need to make a full recovery and reengage with an active and pain-free lifestyle.