



## **CARPEL TUNNEL SYNDROME FAQ**

### **1) What is Carpal Tunnel Syndrome?**

Carpal tunnel syndrome is a disorder that causes pain, weakness and numbness in the hand and wrist. Patients often complain of symptoms during activities such as driving a car, holding a telephone, and reading the newspaper. It occurs due to increased pressure on the median nerve at the wrist. The associated pain occurs most often about the palm side of the wrist and hand but may be diffuse. The pain may radiate to the forearm and shoulder but rarely to the neck. The median nerve provides sensation to the thumb, index, long and half the ring fingers and therefore patients with carpal tunnel syndrome will classically note numbness and tingling in this distribution. Some patients may note numbness about the entire hand. These symptoms may occur with activities during the day or while at rest during the night. In addition to numbness and pain, patients may complain of weakness of the hand and dropping objects. With a more severe carpal tunnel syndrome, atrophy of the muscles at the base of the thumb may be noted.

### **2) What is the carpal tunnel?**

There are eight carpal bones of varying shape and size that make up the wrist. These carpal bones form a "C" shaped ring that is covered by a ligament, the transverse carpal ligament. The ligament and bones form the carpal tunnel through which pass the median nerve and nine tendons that flex the fingers and thumb. Any condition that decreases the size of the tunnel or increases the size of the contents can cause carpal tunnel syndrome.

### **3) What causes carpal tunnel syndrome?**

There are numerous factors that may cause carpal tunnel syndrome. It may be related to strenuous repetitive use of the hands or occur after trauma such as a wrist fracture. The nerve can be compressed from something extra within the canal. This includes a mass, an anomalous muscle, or a hematoma which can occur particularly in patients taking anticoagulation medication after a fall on the hand. Other disorders associated with carpal tunnel syndrome include diabetes mellitus, hypothyroidism, alcoholism, severe infections, and arthritic diseases such as rheumatoid arthritis, and gout. Carpal tunnel syndrome is also associated with pregnancy as well as patients on hemodialysis.

### **4) How does the doctor make the diagnosis of carpal syndrome?**

The physician can often make the diagnosis after the patient has explained their symptoms and the extremity has been examined. During the examination the physician may perform certain provocative maneuvers to determine if carpal tunnel syndrome is evident. By tapping over the nerve at the wrist, termed Tinel's sign, a patient with carpal tunnel syndrome may note a tingling sensation in the digits innervated by the median nerve. Similar findings may be noted while holding the wrist fully flexed or extended, termed Phalen's and reverse Phalen's signs respectively. The strength of the muscles of the hand are evaluated as well as the sensation. An EMG / NCV, electromyography and nerve conduction velocity, is often performed to confirm the diagnosis and determine severity. Xrays are not routinely obtained.

### **5) How is carpal tunnel syndrome treated?**

Patients with carpal tunnel syndrome due to a specific medical condition such as diabetes or a thyroid disorder should have the associated medical disorder treated appropriately. Wrist splints are used at night and during the day during activities that may exacerbate the symptoms. Non-steroidal anti-inflammatory medications may be of benefit but have the risk of gastritis. Alteration of activities is important. This includes taking frequent breaks from repetitive activities, and stretching before and after activities. A therapist may be helpful in reviewing ergonomic tips or performing a work place evaluation. A corticosteroid injection of the carpal canal often provides temporary relief. Approximately 25% of patient treated with an injection will have long-term relief of their symptoms. Non-operative treatment modalities are tried for months and if the symptoms persist or progress surgical treatment is considered. Those patients with a severe carpal tunnel syndrome are considered for surgery more promptly since the non-operative modalities typically are not helpful at this stage.

#### **6) What is involved in the surgery for carpal tunnel syndrome?**

Carpal tunnel release is the most common procedure performed in the upper extremity. In general surgical procedures for carpal tunnel syndrome cut the ligament over the canal to take the pressure off of the median nerve. The surgery is performed on an outpatient basis under local anesthesia and often in conjunction with intravenous sedation. The procedure may be performed using the open technique in which an incision is made in the palm to cut the ligament. The nerve and canal is inspected to confirm that there is no other process compressing the nerve. The skin is sutured and a sterile dressing and often a splint are applied. The sutures are removed in 5 to 10 days and an exercise program is started. An alternative surgical procedure is the endoscopic carpal tunnel release in which one or two smaller incisions are made at the palm and or wrist and the ligament is cut while keeping the skin above the ligament intact. The benefit of the endoscopic release is less postoperative pain, earlier return of grip strength, and earlier return to work.

#### **7) What are the results of surgery for carpal tunnel syndrome?**

The majority of patients undergoing carpal tunnel release note an improvement in their symptoms. Some patients may notice persistent numbness and tingling. This will occur particularly in patients that have a more severe carpal tunnel syndrome. At this stage more permanent changes may have occurred within the nerve due to longstanding compression. Other patients may notice persistent or recurrent symptoms due to other factors for example nerve compression in the neck (cervical radiculopathy), or a polyneuropathy due to diabetes. Most patients are capable of performing their activities of daily living soon after the procedure. Pain about the about the palm is often noted initially that is treated with scar massage. This scar pain is one reason full grip strength often does not return until three months after the procedure.

#### **8) What are the risks of surgery for carpal tunnel syndrome?**

There is a small risk of nerve injury since the procedure is performed adjacent to the nerve. The endoscopic release has a higher risk of nerve and blood vessel injury as compared to the open procedure. There is a low risk of infection and bleeding during the procedure is minimal. Hand and wrist stiffness is a potential risk but is uncommon if the postoperative exercises are performed.