

## **CARPAL TUNNEL DECOMPRESSION**

### **Introduction**

The median nerve supplies sensation to the thumb, index, middle and half of the ring fingers. It also supplies power to the muscles at the base of the thumb. The median nerve runs through the carpal tunnel, which consists of a u-shaped collection of bones with a ligament (the transverse carpal ligament) over the top. It is a fixed volume structure with one nerve and 9 tendons running through it. The nerve is vulnerable to compression, and prolonged compression can cause the nerve to wither.

The results of nerve compression are pain and tingling; as the nerve withers, numbness and weakness occur. Pain and tingling are effectively treated by surgery but the permanent symptoms of numbness and weakness may not recover completely. In these cases surgery prevents further deterioration.

### **What is the technique for carpal tunnel decompression /release?**

This operation is usually performed under local anaesthetic and sometimes a tourniquet (a tight cuff on the upper arm to control bleeding) is used. A cut of between 3-5 cm is made down the base of the palm. The transverse carpal ligament is divided and this springs open, allowing more room within the carpal tunnel and reducing pressure on the nerve. The nerve is inspected and then the wound is closed with sutures. A big dressing is applied to support the wrist.

### **What will my recovery be like?**

Pain and tingling should resolve in the first 48-72 hours.

Permanent numbness or wasting of the thumb muscles indicates more severe nerve damage; the nerve needs to grow back over 6-12 months and recovery may be incomplete. As the nerves grow back the fingers can feel tingly and occasionally unpleasant. If the thumb muscles have been without nerve supply for more than 12 months they are unlikely to regenerate at all.

Your grip will be weaker than usual following your operation and uncomfortable on performing heavy work or significant activities. This is due to the division of the ligament that aids in providing stability to the wrist. This phenomenon is called "pillar pain" and resolves over 3-4 months. Excessive strengthening exercises do not speed resolution of this symptom; time alone settles it.

### **When can I drive?**

You can drive a car when your hand feels comfortable and strong enough to control a motorcar. As a minimum, I recommend not driving for 2 weeks if you have had one side released and four weeks if both sides have been released.

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## Plastic, Reconstructive and Hand Surgeon

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### **When can I return to work?**

This depends on your occupation but as general guidance:

- Supervisory, managerial: 1-2 weeks
- Light manual e.g. clerical: 2-4 weeks
- Medium manual e.g. nurse: 4-6 weeks
- Heavy manual e.g. labourer: 6-10 weeks
- Custodial or rescue services e.g. fireman, prison officer: 6-10 weeks.

This may be longer if you have both sides operated on.

### **Possible complications**

**Wound complications:** Possible problems include swelling, bruising, bleeding, blood collecting under the wound (haematoma), infection and splitting open of the wound (dehiscence)

**Scar:** Depending on the size of your hands, you will have a scar over the base of the palm between 3-5 cm in length. The scar may become a little thickened and red as it heals, but this will settle with time. The scar will be tender, and this will also resolve. Firm massage with a plain cream or oil will aid in the healing of the scar.

**Nerve damage:** I am acutely aware of the median nerve at all times during your operation, however occasionally the nerve or its branches can be vulnerable to damage; this includes small branches that supply the palm, a variant branch that supplies the 3<sup>rd</sup> web space and the branch that supplies the base of thumb if it has unusual anatomy. Nerve damage that causes problems may require further surgery.

**Recurrence:** If your symptoms do not resolve it may mean that not all the ligament has been cut. This is rare (2%) but may mean the operation would need to be repeated.

**Incomplete resolution of symptoms:** Sometimes the compression will have caused permanent nerve damage and recovery will be incomplete

**Complex regional pain syndrome:** This is a syndrome of pain, stiffness and swelling that occurs in about 5% of people following surgery. The symptoms are out of proportion to the nature of the operation; at the moment we are not sure why it happens and we cannot predict whom it will happen to. I monitor patients for this after the operation and the treatment involves special forms of pain relief and physiotherapy.