PROCEDURE

Carpal tunnel release

Carpal tunnel release is surgery that creates more space for the median nerve at the wrist.

PURPOSE
Relieve median nerve pressure and protect hand function

PROCEDURE TYPE
Therapeutic surgery, performed open or endoscopically

WHERE IT IS DONE
Operating theatre or outpatient clinic

ANAESTHESIA
Local, sometimes with moderate sedation or general anaesthesia

HOW LONG IT TAKES
About 10 to 30 minutes

PREPARATION
Medication review; fasting if sedation or general anaesthesia is planned

RECOVERY
Same day; no driving until safe hand control returns

MAIN RISKS
Infection, nerve injury, scar pain, persistent symptoms

RESULTS
Numbness may improve quickly; strength can take months

Overview

Carpal tunnel release is an operation to reduce pressure on the median nerve at the wrist. This nerve supplies feeling to the thumb, index finger, middle finger, and part of the ring finger. It also controls some muscles around the thumb.

The nerve passes through a narrow space called the carpal tunnel. During surgery, the surgeon cuts the transverse carpal ligament, which forms the roof of this tunnel. The ligament later heals with more room underneath it.

The operation can be done through a small incision in the palm, called open surgery. It can also be done using a thin camera through one or two smaller incisions, called endoscopic surgery. Both approaches aim to release the same ligament.

Carpal tunnel release is usually a same-day procedure.

Why the procedure is performed

The operation is used to treat carpal tunnel syndrome when pressure on the median nerve is causing troublesome or progressive problems. These may include numbness, tingling, night waking, pain, weakness, or difficulty gripping and handling small objects.

Surgery may be considered when:

The main goals are to stop further nerve damage and improve symptoms. Night-time tingling often improves early. Long-standing numbness, weakness, or muscle loss may recover slowly or may not fully reverse.

- Symptoms continue despite treatments such as a wrist splint or steroid injection
- Numbness is constant or getting worse
- Tests show significant median nerve compression
- Thumb muscles are weak or shrinking
- Symptoms seriously affect sleep, work, or daily activities

Who should and should not have it

Carpal tunnel release may suit you if your symptoms and examination support median nerve compression at the wrist, particularly when non-surgical care has not helped enough.

Nerve conduction studies may be used to confirm the diagnosis or measure nerve damage. These tests check how quickly electrical signals move through the nerve. They are not needed in every situation.

Surgery may not be the right first step when symptoms are mild, recent, or likely to improve with splinting or changes in activity. Pregnancy-related carpal tunnel symptoms often improve after delivery, so surgery may be delayed unless symptoms are severe or nerve function is at risk.

The operation may be delayed if you have:

Having diabetes, arthritis, or taking a blood thinner like warfarin or apixaban does not automatically rule out surgery. These factors may affect planning, healing, or the likely result.

- An infection or broken skin near the planned incision
- A health condition that needs better control before surgery
- Unexplained hand symptoms that may come from the neck or another nerve

- A recent injury that needs further assessment
- Medicines that create a bleeding risk and require a safe management plan

How to prepare

Your treating facility's own instructions take priority because preparation differs according to the anaesthetic and where the procedure is performed.

Give the team a current list of medicines, vitamins, supplements, allergies, and previous reactions to anaesthesia. Tell them about blood thinners, including prescribed anticoagulants and antiplatelet medicines. Do not stop these medicines unless the clinician who manages them and the surgical team have given you a plan.

You may be able to eat and drink normally before surgery performed with local anaesthetic alone. If sedation or general anaesthesia is planned, you will receive fasting instructions.

Before the procedure:

Tell the team before surgery if you develop an illness, fever, skin infection, or wound near the wrist.

- Arrange transport home, especially if you will receive sedation
- Plan for help with lifting, cooking, childcare, or personal care
- Remove rings from the affected hand
- Follow instructions about washing and nail products
- Wear loose clothing that fits over a hand dressing

What happens during the procedure

The team confirms which hand is being treated and marks the surgical site. Monitoring equipment may be used to check your pulse, blood pressure, and oxygen level.

Many releases are performed with local anaesthetic, which numbs the hand and wrist while you remain awake. You may also receive medicine to help you relax. Regional or general anaesthesia is used in some cases.

For open release, the surgeon makes a short incision in the palm. The transverse carpal ligament is divided, creating more room for the median nerve.

For endoscopic release, the surgeon inserts a small camera and cutting instrument through one or two small incisions. The ligament is viewed from underneath and divided.

The surgeon checks the release, closes the incision, and applies a dressing. A bulky bandage or splint may be used, although the fingers are usually left free to move.

Recovery and what to expect afterward

Pain: Mild to moderate soreness, swelling, and bruising are expected around the incision. The palm may feel tender when you press on it. Use pain relief as directed, keep the hand elevated at first, and move your fingers regularly unless told otherwise.

Eating: You can usually return to your normal diet after local anaesthetic. After sedation or general anaesthesia, start with food and fluids as instructed if you feel nauseated.

Activity: Keep the dressing clean and dry. Finger movement is usually encouraged, but forceful gripping, heavy lifting, and pressure on the palm are limited while the wound heals. Follow your team's instructions about wound care, exercises, and when to restart heavier activity.

Driving: Do not drive home after sedation or general anaesthesia. Later, drive only when you can grip and control the steering wheel, make an emergency manoeuvre, and use the vehicle safely without impairing pain medicine. Your surgeon, insurer, or local licensing rules may set additional restrictions.

Work: Return depends on the hand treated and your job. Desk work may be possible relatively soon with adjustments. Work involving tools, vibration, repeated gripping, heavy lifting, or manual handling usually requires more recovery time.

Stitches are commonly removed or reviewed within the first few weeks. Scar sensitivity and reduced grip strength can continue for several weeks or months.

Risks and possible complications

Carpal tunnel release is commonly performed, but no operation is risk-free. Possible complications include:

Open and endoscopic techniques have somewhat different short-term risks and benefits. Endoscopic surgery may allow an earlier return to some activities, but it requires specific equipment and training. Long-term symptom relief is generally similar.

- Bleeding, bruising, or a collection of blood under the skin
- Wound infection or delayed healing
- A tender or thickened scar

- Pain on either side of the divided ligament, called pillar pain
- Stiffness, swelling, or reduced grip strength
- Incomplete relief because the nerve was already badly damaged
- Persistent symptoms from an incomplete release or another condition
- Injury to the median nerve or one of its branches
- Complex regional pain syndrome, which causes persistent pain and sensitivity
- Symptoms returning after an initial improvement

Results and follow up

Some people notice less night-time tingling soon after surgery. Numbness may take weeks or months to improve because compressed nerves recover slowly. If nerve damage was severe or present for a long time, feeling and strength may not return completely.

A routine follow-up visit checks the wound, hand movement, sensation, and symptom improvement. It is also a chance to discuss work, driving, scar care, and rehabilitation. Hand therapy may be recommended if stiffness, weakness, swelling, or scar sensitivity limits recovery.

Carpal tunnel release does not usually produce a laboratory or pathology result. Success is judged by how your symptoms and hand function change over time.

Alternatives

The best alternative depends on symptom severity, nerve function, and how much the problem affects you.

Night-time wrist splinting keeps the wrist straight and avoids extra pressure in the tunnel. It is low risk and may help mild or intermittent symptoms, but it may not protect a nerve that is already significantly damaged.

Steroid injection can reduce inflammation and provide short-term relief. It avoids an operation, but symptoms may return and repeated injections do not permanently enlarge the tunnel.

Activity or workstation changes may reduce wrist strain and symptom triggers. They can help with comfort but may not resolve ongoing nerve compression.

Treatment of contributing conditions may help when swelling, inflammatory arthritis, thyroid disease, or another health issue is involved. This does not always remove the need for surgery.

Waiting with monitoring may be reasonable for mild symptoms. The trade-off is that worsening or constant compression can lead to lasting numbness, weakness, or thumb muscle loss.

Open and endoscopic release are alternatives to each other. A surgeon can explain which methods are available and why one may be more suitable for you.

When to call your healthcare team

Contact your surgical team promptly if you have increasing redness, warmth, swelling, wound drainage, fever, worsening pain, or numbness that is new or clearly worse. Also call if the wound opens or the dressing becomes soaked with blood.

Seek urgent assessment if your fingers become pale, blue, cold, or very swollen, or if a dressing feels dangerously tight and symptoms do not improve after following the team's instructions.

Call emergency services for severe breathing difficulty, collapse, or signs of a serious allergic reaction. These are not routine recovery symptoms.

For routine questions about scar tenderness, returning to work, exercises, or slow improvement in numbness, contact the team during normal hours or discuss them at follow-up.

Common questions

Will I be asleep?

Often, no. Many carpal tunnel releases use local anaesthetic, so your hand is numb but you are awake. Sedation or general anaesthesia may be offered depending on the setting, your health, and the surgical approach.

Can I drive home?

No if you have sedation or general anaesthesia. Even after local anaesthetic, the dressing and numb hand may prevent safe control of a vehicle. Arrange transport and follow the facility's instructions.

How painful is it?

You may feel pressure or movement during surgery, but you should not feel sharp pain. Soreness around the incision and tenderness in the palm are common afterward and usually improve as healing progresses.

When will I know if it worked?

Night symptoms may improve within days. Feeling and strength can take weeks or months to recover. Long-standing nerve damage may not recover fully.

How long will I be off work?

This depends mainly on your job. Computer-based work may need a shorter break than heavy manual work, tool use, or repeated gripping. Ask for a work plan tailored to your duties.

Can carpal tunnel symptoms return?

They can return, although persistent symptoms may also mean the nerve did not fully recover, the release was incomplete, or another condition is affecting the hand.

Sources

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