PROCEDURE

Replantation of digits

Digit replantation is surgery to reattach a completely amputated finger, thumb, or toe.

PURPOSE
Restore blood flow, length, sensation, and useful movement

PROCEDURE TYPE
Therapeutic surgery using microsurgery

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
4 to 8 hours; longer for multiple digits

PREPARATION
Fasting, medication review, and safe transport of the amputated part

RECOVERY
Several days in hospital; no driving until cleared

MAIN RISKS
Blood-vessel blockage, tissue death, infection, and stiffness

RESULTS
Blood flow immediately; function becomes clearer over months

Overview

Digit replantation is an operation to reattach a finger, thumb, or toe that has been completely cut off. If part of the digit remains attached, restoring its blood supply is called revascularization rather than replantation.

Replantation is complex emergency surgery. The surgeon repairs tiny arteries and veins using a microscope and very fine instruments. Bone, tendons, nerves, and skin must also be repaired.

The goal is not simply to make the digit survive. The team considers whether replantation is likely to provide useful movement, feeling, appearance, and function. A surviving digit can remain stiff, painful, weak, or numb.

Timing matters because tissue is damaged when it has no blood supply. The type of injury, how the amputated part was stored, and your overall condition all affect whether replantation can

be attempted.

Why the procedure is performed

Replantation may preserve hand function, especially when the injury involves:

For a single finger, the expected benefit depends on which finger and where it was amputated. In some situations, a replanted finger may interfere with hand movement more than a well-healed amputation would.

Toe replantation is less common. The decision considers walking, balance, shoe wear, the specific toe involved, and whether more than one toe was amputated.

- A thumb, which is important for gripping and pinching
- Several fingers
- A finger in a child
- An amputation through the palm or wrist
- A cleanly cut digit with repairable tissues

Who should and should not have it

Replantation may be appropriate when the amputated part is available, the tissues can be repaired, and the likely function justifies a long operation and rehabilitation.

It may not be the right option after severe crushing, pulling, or contamination because blood vessels, nerves, and tendons may be damaged over a wide area. A long period without blood flow can also make successful replantation less likely.

The operation may be avoided or delayed when:

Age alone does not decide eligibility. Your health, injury pattern, work and daily activities, rehabilitation needs, and personal priorities all matter. Nicotine use can reduce blood flow and healing, so the team will discuss this with you.

- Serious bleeding or another life-threatening injury must be treated first
- The amputated part is too damaged to repair
- Infection or heavy contamination cannot be controlled
- Your health makes prolonged surgery or anaesthesia unsafe

- The expected function would be worse than after revision amputation

How to prepare

This is usually an emergency procedure, so preparation happens quickly. The treating facility's own instructions take priority over general information in this article.

Do not eat or drink unless the emergency or surgical team says it is safe. Tell them when you last ate or drank.

Give the team a complete list of medicines, including blood thinners like warfarin or apixaban , aspirin, supplements, and non-prescription products. Do not stop a prescribed blood thinner unless instructed. Report allergies, previous anaesthesia problems, medical conditions, and possible pregnancy.

If you are transporting the amputated part, handle it gently. Wrap it in clean gauze moistened with saline or clean water, seal it inside a clean waterproof bag, and place that bag in a container with ice and water. Do not put the digit directly on ice or allow it to soak in water. Do not scrub it or remove attached tissue.

The hospital may provide antibiotics and update tetanus protection when appropriate.

What happens during the procedure

You will usually receive general anaesthesia, so you are unconscious during the operation. A regional nerve block may also be used to reduce pain during or after surgery.

The surgeon examines the amputated digit and injured stump. Damaged or contaminated tissue is removed. The bone may be shortened slightly so the remaining structures can be joined without excess tension.

The usual repair involves several steps:

Microsurgery is used for vessels and nerves that may be only a few millimetres wide. Vein grafts taken from another area may be needed to bridge damaged blood vessels.

Afterward, the replanted digit is monitored closely. Staff check its colour, temperature, swelling, and blood flow. If venous drainage is poor, another operation or treatment with medicinal leeches may occasionally be considered.

- Stabilizing the bone with wires, screws, or small plates
- Repairing tendons that move the digit

- Joining arteries to restore incoming blood flow
- Joining veins so blood can drain away
- Repairing nerves to allow possible return of feeling
- Closing or covering the skin and soft tissue

Recovery and what to expect afterward

Pain: Pain and throbbing are expected after surgery. You will receive pain relief. Tell the hospital team about pain that suddenly worsens or is not controlled, because this can sometimes signal a blood-flow problem.

Eating: You can usually start drinking and eating when you are awake and it is safe after anaesthesia. Another operation may be needed if circulation becomes blocked, so the team may temporarily limit food and drink.

Activity: Your hand or foot will be protected in a dressing or splint. Elevation helps limit swelling. Avoid pressure, cold exposure, and activities that could injure the repair. Hand therapy usually begins according to the stability of the repairs. Movement may be restricted at first.

Avoid smoking, vaping nicotine, and other nicotine products. Nicotine narrows blood vessels and can threaten circulation to the replanted digit.

Driving: Do not drive home. Do not drive while taking medicine that causes drowsiness, while wearing a restrictive splint, or until you can control the vehicle safely and your surgical team has cleared you.

Work: Time away from work is often measured in weeks or months. Desk work may be possible earlier than lifting, tool use, climbing, or other manual tasks. Rehabilitation commonly continues for months.

Risks and possible complications

A replanted digit can lose circulation even when surgery initially appears successful. A clot or damaged vessel may block blood entering or leaving the digit. Urgent repeat surgery may be needed, and some digits cannot be saved.

Other possible complications include:

Medicinal leeches can cause bleeding and infection, so they are used with close monitoring

and specific preventive treatment.

- Bleeding, infection, or wound-healing problems
- Partial or complete tissue death
- Stiff joints and scarred tendons
- Weakness or limited movement
- Numbness, tingling, or painful nerve sensitivity
- Poor bone healing or abnormal bone alignment
- Intolerance of cold temperatures
- Ongoing pain, including pain felt in the missing part
- Need for further surgery or later amputation

Results and follow up

The team can assess blood flow immediately, but the digit remains at risk while vessels heal. Frequent checks are especially important during the first days.

Survival does not guarantee normal function. Bone and tendon healing takes weeks, while nerve recovery is much slower. Feeling and movement may continue to change for many months. Sensation may not return fully, particularly after a severe crush or pulling injury.

Follow-up usually includes wound and circulation checks, X-rays when bone has been repaired, removal of wires or other temporary supports when appropriate, and hand or physical therapy. Further procedures may be offered to release scar tissue, improve tendon movement, treat nerve pain, or correct joint stiffness.

Attend routine appointments even if recovery seems satisfactory. They allow the team to adjust splints and exercises without placing the repair at unnecessary risk.

Alternatives

Revision amputation removes damaged tissue and shapes the remaining finger or toe for healing. Recovery is usually shorter and more predictable than replantation, but length, sensation, appearance, or function is permanently lost.

Wound closure, a skin graft, or a local flap may cover exposed tissue without reattaching the digit. These options can provide durable healing but cannot restore the missing part.

Healing with dressings may be suitable for selected small fingertip injuries. It avoids major surgery but can take time and may leave changes in shape, nail growth, or sensitivity.

A prosthesis can improve appearance or help with selected tasks. It does not restore natural feeling and may not provide the movement of a successfully replanted digit.

Toe-to-hand transfer may later reconstruct a missing thumb or finger using a toe. It can improve hand function, but it requires major surgery and creates a second surgical site on the foot.

When to call your healthcare team

Keep routine appointments for dressing care, splint review, therapy, and removal of stitches or wires.

Contact the surgical team urgently if the replanted digit:

Also seek urgent advice for fever or chills, uncontrolled vomiting, medication problems, or a wet, damaged, or overly tight dressing.

Call emergency services for severe uncontrolled bleeding, fainting, severe breathing difficulty, chest pain, or another immediately life-threatening problem.

- Becomes pale, blue, dark, unusually cold, or much more swollen
- Develops sudden or worsening pain
- Starts bleeding through the dressing
- Loses movement or feeling that was previously present
- Has spreading redness, pus, a bad smell, or wound separation

Common questions

Will I be asleep?

Usually, yes. Digit replantation is generally performed under general anaesthesia. A nerve block may also be used for pain control.

Can I drive home?

No. Arrange for someone else to take you home when you are discharged. Driving must wait until your medicines, splint, movement, and pain no longer prevent safe control of a vehicle.

How painful is it?

Pain is expected, especially during the early recovery period, but treatment is available. Sudden or rapidly increasing pain needs urgent assessment because it may indicate reduced blood flow.

When will I know if it worked?

Blood flow is assessed during surgery and closely monitored afterward. The team may know within the first days whether the digit is surviving, but useful movement and sensation can take months to assess.

Will my finger or toe feel normal again?

Not always. Nerves recover slowly, and some numbness, sensitivity, or cold intolerance may remain. The result is influenced by the injury level, tissue damage, healing, and rehabilitation.

Could I need more surgery?

Yes. Repeat surgery may be needed to restore blood flow, treat infection, improve movement, or manage scar tissue. If the digit does not survive, completion amputation may be necessary.

Sources

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