

# Replantation

## What is replantation?

“Replantation” refers to the surgical reattachment of a finger, hand, or arm that has been completely cut from a person’s body (see **Figure 1**). The goal of replantation surgery is to give the patient back as much use of the injured area as possible. In some cases, replantation is not possible because the part is too damaged. If the lost part cannot or should not be reattached, you may have the alternative of a completion amputation with or without a prosthesis, a device that substitutes for a missing part of the body. In some cases, this option will give you better and faster recovery than a replantation. See section on “Amputations and Prosthetics”.

Replantation is usually recommended when the replanted part will work at least as well as a prosthesis or completion amputation. Generally, a missing hand or finger would not be replanted knowing that it would not work, be painful, or get in the way of everyday life. Before surgery, the doctor will, if possible, explain the procedure and the substantial commitment of time and effort needed from the patient for recovery, as well as how much use is likely to return following replantation. The patient and/or family members must decide whether that amount of use justifies the long and difficult operation(s), time in the hospital, and months or years of rehabilitation.

## How is the procedure done?

There are a number of steps in the replantation process. First, damaged tissue is carefully removed. Then bone ends are shortened and rejoined with pins, wires, or plates and screws. This holds the part in place to allow the rest of the tissues to be restored to a normal position. Muscles, tendons, arteries, nerves and veins are then repaired. Sometimes grafts or artificial spacers of bone, skin, tendons, and blood vessels may be needed, too. The grafts can be from your own body or from a tissue bank.

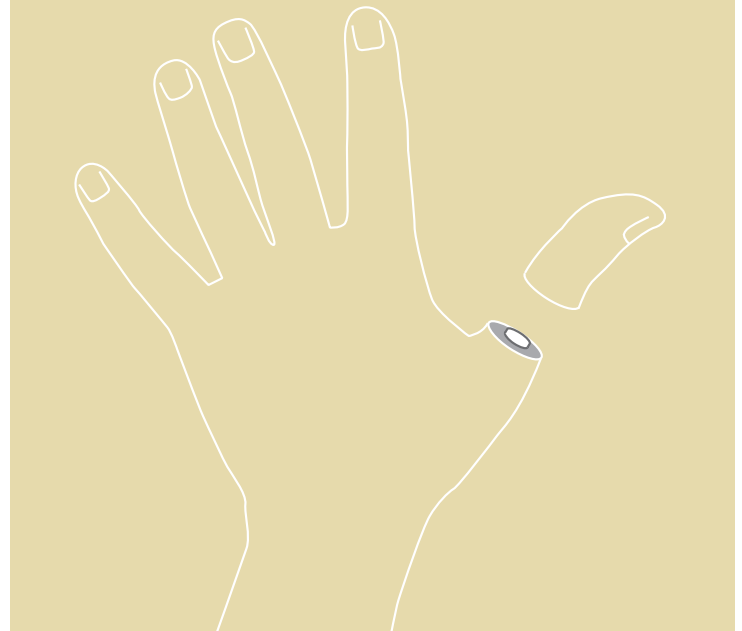
## What kind of recovery can I expect?

As the patient, you have a very important role in the recovery process. Smoking causes poor circulation and may cause loss of blood flow to the replanted part. You can improve the blood flow to the replanted part by not smoking. Allowing the replanted part to hang below heart level may also cause poor circulation. Age plays a role in recovery. Younger patients have a better chance of their nerves growing back; they may regain more feeling and movement in the replanted part. Generally, the further down the arm the injury occurs, the better the return of use of the replanted part. Patients who have not injured a joint will get more movement back than those with a joint injury. A cleanly severed part usually works better after replantation than one that has been pulled off or crushed. Recovery of use depends on re-growth of two types of nerves: sensory nerves that let you feel, and motor nerves that tell your muscles to move. Nerves grow about an inch per month. The number of inches from the injury to the tip of a finger gives the minimum number of months after which the patient may be able to feel something with that fingertip. The replanted part never regains 100% of its original use, and most doctors consider 60% to 80% of use an excellent result. Cold weather may be uncomfortable and be a cause of frequent complaints even for those with excellent recovery.

## What about therapy and rehabilitation?

Complete healing of the injury and surgical wounds is only the beginning of a long process of rehabilitation. Therapy and temporary bracing are important to the recovery process. From the beginning, braces are used to protect the newly repaired tendons but allow the patient to move the replanted part. Therapy with limited motion helps keep joints from getting stiff, helps keep muscles mobile, and helps keep scar tissue to a minimum. Even after you have recovered, you may find that you cannot do everything you wish to do. Tailor-made devices may help many patients do special activities or hobbies. Talk to your physician or therapist to find out more about such devices. Many replant patients are able to return to the jobs they held before the injury. When this is not possible, patients can seek assistance in selecting a new type of work.

**Figure 1:** Replantation refers to the surgical reattachment of a finger, hand, or arm that has been completely cut from a person’s body.



## Are emotional problems common following replantation?

Replantation and completion amputation/prosthesis use can affect your emotional life as well as your body. When your bandages are removed and you see the replanted or amputated part for the first time, you may feel shock, grief, anger, disbelief, or disappointment because the body part does not look like it did before. Worries about the look of a body part and how it will work are common. Talking about these feelings with your doctor often helps you come to terms with the outcome. Your doctor may also ask a counselor to assist with this process. You may find it helpful to talk with someone about it and work through your feelings, so you can move on with your life.

## Will additional surgery be necessary?

After replantation surgery, some patients may need additional surgery at a later time to gain better function of the part. Some of the more common procedures are:

**Tenolysis:** frees tendons from scar tissue.

**Capsulotomy:** releases stiff, locked joints.

**Tendon or muscle transfer:** moves tendons or muscles to another spot so that they can work in an area that needs the tendon or muscle more.

**Nerve grafting:** replaces a scarred nerve or a gap in the nerves to improve how the nerve works.

**Fusion:** unites two bones across a joint that is damaged, making them into a single bone.

**Joint implants:** reconstruct damaged joint surfaces with materials that allow some motion.

**Later amputation:** removes the part because it does not work well, interferes with use of the hand, or has become painful.

Stay in the flow of life. You have many great gifts. Even with the best medical care, you need to be strong during the course of recovery. Remember that quality of life is directly related to your attitude and expectations — not on just regaining limb use.