

GENERAL INFORMATION

CORNEAL TRANSPLANTATION



vision
eye institute

WHAT IS CORNEAL TRANSPLANTATION?

A corneal transplant is an operation where a damaged or diseased cornea is replaced with donated, healthy tissue.

Also called corneal grafting or keratoplasty, the procedure was first performed in 1905 and is one of the most common types of organ transplant performed today.¹

The majority of patients gain considerable visual improvement for many years.²

When are corneal transplants needed?

Corneal transplantation is usually reserved for situations when all other treatment options have been exhausted. Conditions where a corneal transplant may be recommended include:

- Keratoconus
- Corneal scarring – due to a corneal ulcer, injury or infection (e.g. herpes keratitis)
- Excessive corneal swelling and clouding – e.g. due to Fuchs' dystrophy or corneal oedema.

REFERENCES

1. Coster DJ. History of corneal transplantation in Australia. Clin Exp Ophthalmol 2015;43(3):268–76.
2. The Australian Corneal Graft Registry. Australian Corneal Graft Registry 2021/2022 Report. Adelaide: ACGR, 2022.

HOW IS A CORNEAL TRANSPLANT PERFORMED?

The day of surgery

A corneal transplant is performed in a day surgery and usually takes about two hours.

Patients are given a sedative to ensure that they remain relaxed throughout the procedure, and a local anaesthetic is used to numb the eye. The donor cornea will have been tested to make sure it is healthy and free from disease or damage.

Your surgeon will use a microscope to perform the delicate surgery. Sutures are required and are made of a material that is finer than a human hair.

Afterwards, you will be taken to a recovery room to allow the effect of the sedative to wear off. You will be discharged with eye drops and a protective eye patch. A post-operative check will be scheduled for the following day and then regularly thereafter.

After surgery

Over a period of time, the donor corneal tissue slowly fuses with your own tissue. Eyesight recovery is gradual and varies depending on the procedure. For full-thickness transplants, complete recovery can take up to one year. Partial-thickness techniques are less invasive and recovery is generally faster.

Regular post-operative visits allow your ophthalmologist to monitor your progress and identify any complications. Eye drops, and occasionally oral medication, will be required to prevent swelling, infection and pain for at least 6 months.

Visual recovery

Generally, corneal transplants are highly successful. Most people experience a considerable improvement in vision.² However, glasses or contact lenses are often still required.



Your surgeon may need to adjust the stitches to create a regular and round corneal shape. Stitches can be removed anywhere from 6 months to 3 years later. If the corneal shape is not ideal following stitch removal, then laser eye surgery may be used for further reshaping to improve vision.

It's important to understand that the transplant will not last forever. How long it lasts depends on the reason for the transplant. For example, a transplant in a patient with keratoconus often lasts 15 to 20 years.²

Risks of a corneal transplant

Corneal transplants have a high success rate, but there are potential complications.

The risks of surgery include:

- Primary failure of donor tissue
- Eye infection
- Rejection of the donor cornea
- Cataract development
- Problems with the stitches
- Corneal swelling
- Bleeding.

Rejection is a possible complication of corneal transplants and can happen at any time, even years or decades later. Sometimes a new injury or illness causes the rejection. Fortunately, in most cases rejection can be controlled by medication if treated early enough.

If you notice redness or blurred vision that persists for longer than 24 hours, contact your surgeon immediately.



ARE THERE DIFFERENT TYPES OF CORNEAL TRANSPLANT?

FULL-THICKNESS CORNEAL TRANSPLANT

Also called penetrating keratoplasty, this is the most common corneal transplant procedure.

Surgery involves cutting through all five corneal layers to remove the damaged or diseased section. The donor cornea, usually about the size of a small button, is then gently positioned into the opening and stitched into place. The stitches are removed at a later date.

If you suffer from keratoconus or corneal scarring and have exhausted all other forms of treatment, this procedure will most likely be recommended.

PARTIAL-THICKNESS CORNEAL TRANSPLANT

If some of the corneal layers are undamaged or free from disease, a partial-thickness corneal transplant may be recommended where only the affected layers are removed and replaced with layers of healthy donor tissue.

There are two types of partial-thickness corneal transplants:

- **Deep anterior lamellar transplant** involves replacing all corneal layers except the deepest two. This procedure can be used to treat keratoconus and scarring (e.g. due to injury or the herpes simplex virus)
- **Endothelial layer transplant** (endothelial keratoplasty) replaces the deepest layer of the cornea that has been damaged by disease or injury, leaving the front layers intact. This procedure is commonly used to treat Fuchs' dystrophy.

Like organ donation, corneal tissue is limited. Availability of corneal tissue may not be confirmed by the Eye Bank until the day before surgery. If tissue is not available, your surgery will need to be rescheduled. Our staff will work closely with you to arrange the next available date and support you throughout the process.

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OUR CORNEAL TRANSPLANTATION CLINICS

For more information or to find a Vision Eye Institute clinic with surgeons who perform corneal transplantation, visit: visioneyeinstitute.com.au/services/corneal-transplantation

This information is general in nature. All medical and surgical procedures have potential benefits and risks. Consult your ophthalmologist for specific medical advice.



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