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.

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

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.

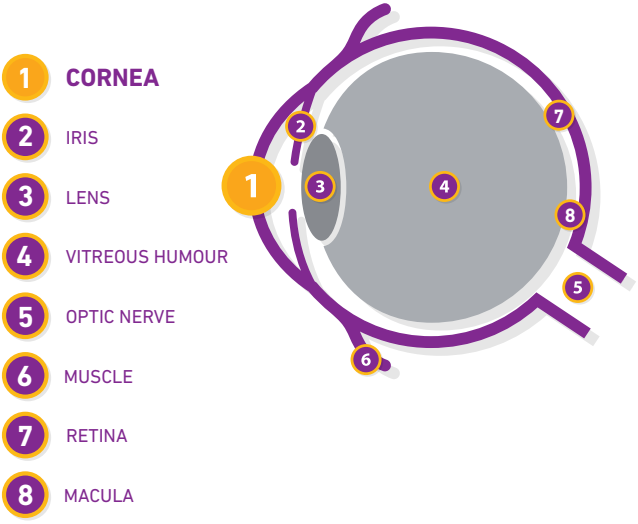
ARE THERE DIFFERENT WAYS TO DO A CORNEAL TRANSPLANT?

Though the general technique is the same, different amounts of tissue can be used during a corneal transplantation depending on the condition and degree of corneal damage.

FULL-THICKNESS CORNEAL TRANSPLANTS

Also called penetrating keratoplasty, these are 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 TRANSPLANTS

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. The surgeon does not cut through the entire thickness of the cornea, usually resulting in a more stable outcome.

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 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.

WHAT IS THE PROCESS FOR HAVING A CORNEAL TRANSPLANT?

The day of surgery

A corneal transplant is performed in a day surgery and usually takes about an hour.

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 disease- or damage-free.

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'll then 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

Following surgery, your corneal tissue will slowly grow and fuse to the donor 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. 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 (ASLA) 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 usually lasts 15 to 20 years.

Risks of a corneal transplant

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

The risks of surgery include:

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

Rejection occurs in about 20% 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.

FAQs

What is the cornea?

The cornea is the clear outer layer of the eye. Shaped like a dome, it protects the eye from foreign bodies. The cornea plays an important role in vision by refracting (bending) light entering the eye to help focus it on the light-sensitive tissue at the back of the eye (retina). While minor abrasions tend to heal quickly, deeper corneal injuries can cause scarring.

Where does the donor cornea come from?

Almost anyone can donate their corneas or other parts of their eyes. Unlike organ donation, age and blood type are not factors in determining the suitability of a cornea donor. Neither is donor eye colour. Donated corneas are tested to make sure they are free from disease and damage. People with severe infections or diseases such as HIV and hepatitis cannot donate their corneas.

Individuals can register with the Australian Organ Donor Register at register.donatelife.gov.au or tell their next of kin they wish to become a donor.

What are the risks?

Potential complications of a corneal transplantation include eye infection, swelling, bleeding or a cataract developing. Rejection occurs in approximately 20% of cases, often as the result of a new injury or illness.

COMPREHENSIVE EYE CARE

Vision Eye Institute is the leading provider of ophthalmic services in Australia. Our team of highly regarded doctors includes general ophthalmologists as well as those who specialise in specific areas/conditions of the eye.

- LASER EYE SURGERY
- CATARACT & LENS SURGERY
- GLAUCOMA
- DIABETIC EYE DISEASE
- MACULAR DEGENERATION
- RETINAL CONDITIONS
- KERATOCONUS
- DRY EYE
- PTERYGIUM
- CORNEAL TRANSPLANTATION
- CORNEAL CONDITIONS
- NERVE-RELATED VISION PROBLEMS
- RECONSTRUCTIVE EYE SURGERY
- CHILDREN'S EYE HEALTH
- GENERAL EYE HEALTH

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/

All medical and surgical procedures have potential complications. Check with your doctor before proceeding.

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