

# Having a partial-thickness cornea transplant (endothelial keratoplasty)

Ophthalmology Department

Last reviewed: May 2024

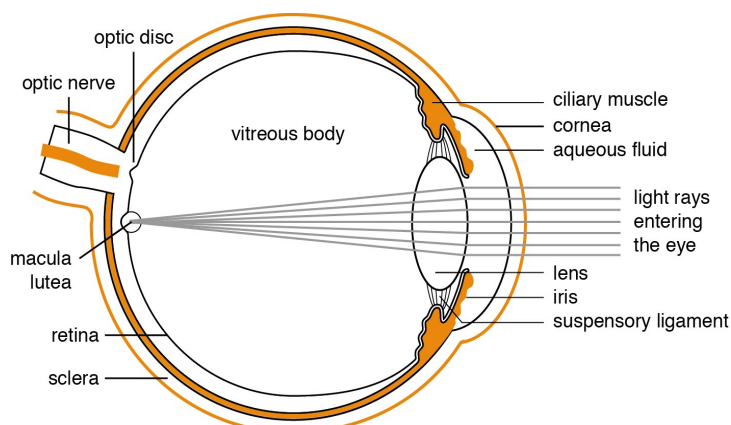
Information for Patients

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## What is the cornea?

The cornea is the window of the eye. Light passes through the cornea and is focused onto the back of the eye (retina), giving clear vision.



A clear cornea with regular shape is needed for clear vision. Various conditions can cause corneal swelling, scarring or irregular shape, resulting in blurred or poor quality vision. The cornea has 3 parts; the outer part (epithelium), the central part (stroma) and the inner part (endothelium).

## When is a cornea transplant needed?

When the internal corneal layer is damaged, the damaged corneal tissue can be replaced with human donor tissue. This operation is known as a cornea transplant or a corneal graft or keratoplasty.

Health information and support is available at [www.nhs.uk](http://www.nhs.uk)  
or call 111 for non-emergency medical advice

Visit [www.leicestershospitals.nhs.uk](http://www.leicestershospitals.nhs.uk) for maps and information about visiting Leicester's Hospitals  
To give feedback about this information sheet, contact [InformationForPatients@uhl-tr.nhs.uk](mailto:InformationForPatients@uhl-tr.nhs.uk)

Depending on the part of the cornea that is damaged, part or all of the cornea can be replaced. When the whole of the cornea is scarred or damaged, a full thickness graft is needed (penetrating keratoplasty). When only the inner layer (endothelium) is unhealthy, a partial thickness corneal graft (endothelial keratoplasty) is needed.

## When is a partial-thickness cornea transplant needed?

Corneal endothelium can be damaged by:

- **Corneal dystrophy:** a condition that can be passed on in families, known as Fuchs' endothelial dystrophy can result in endothelial cells not working normally.
- **Eye surgery:** cataract surgery (intraocular operations) can cause endothelial cell loss.

Once the endothelium fails, the cornea becomes swollen, vision is blurry and the eye is uncomfortable.

## Types of transplant

- **Descemet's stripping automated endothelial keratoplasty (DSAEK):**

Through small cuts in the cornea the unhealthy endothelium is removed. A thin disc of donor tissue containing stroma and cells is placed on the back surface of the cornea.

An air bubble presses it against the back surface of the cornea until it is attached properly. Usually 2 to 4 stitches are placed to secure the cuts. The thickness of the graft is 0.1 to 0.2mm in the traditional DSAEK, and 0.5 to 0.75mm in ultra-thin DSAEK.

(See figure 1 on next page).

- **Descemet's membrane endothelial keratoplasty (DMEK):**

Through small cuts in the cornea the unhealthy endothelium is removed. A thin disc of donor tissue which only contains the innermost endothelial cell layer of the donor cornea. The thickness of this tissue is approximately 0.015mm.

An air bubble is also used to press the graft against the back surface of the cornea until it attaches properly. Usually 2 to 4 stitches are placed to secure the cuts.

(See figure 2 on next page).

Both types of transplant are usually done under local anaesthetic and the operation lasts about 1 hour.

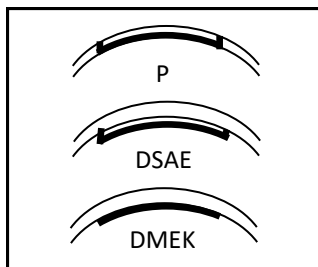


Figure 1

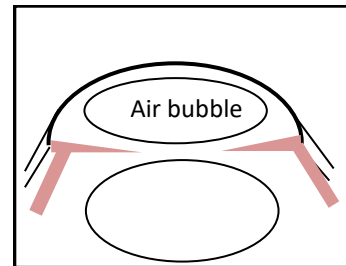


Figure 2

## What you must do before surgery

You must ring us on 07970 940125 to tell us of any infections or antibiotics in the month **before** your graft surgery. Any infections can cause the graft to reject or fail. Your body can attack the graft as a foreign object, as it is fighting the infection in your body too.

## After surgery

- You will need to lie flat for the first 2 to 3 hours after the operation, on the ward. This is to let the air bubble press the graft onto the back part of your cornea. To help the graft attach we also ask you to lie flat for the first 24 hours after surgery at home, and only get up for short periods to eat and drink.
- You will be able to go home the same day. Some patients may need to stay overnight. You will be seen again in the clinic within 1 week to make sure that the graft is properly attached.
- Avoid getting tap water in your eye, as this can cause infection. Use cool boiled water if you need to clean around the eye.
- Avoid rubbing your eye, as this can stop the eye from healing.
- You will need to use eye drops quite often for the first few weeks. If you do not use the drops it may affect the healing of the graft.
- You will need to use steroid eye drops long term, to help reduce the risk of rejection (explained on next pages).
- Make sure you have enough eye drops when you come to clinic.

## What are the benefits of the procedure?

- To improve vision. It can take several months until your vision fully recovers. You may also need glasses.

- To improve pain. Some patients have the graft for blisters that can form on the front of the cornea.

## **What are the risks of the procedure?**

- Severe infection that may threaten your vision.
- A rise in the eye pressure can happen (glaucoma). This can happen once, or be a long term issue after the operation. This can be managed with eye drops or may need surgery.
- The graft can fall off the back of the cornea. This is called a detachment. This is one of the most common risks of this operation in the first few weeks. If the graft is detached it will need to be put back with surgery. This will involve another air bubble, and laying flat for 2 to 3 hours in hospital, and 24 hours at home.
- Severe inflammation or bleeding into the eye that could result in loss of vision.
- The thin layer at the back of your eye (retina), becomes loose (retinal detachment).
- Cataract which can be managed with cataract surgery.
- If the graft does not work properly, the cornea will remain cloudy after surgery. A new transplant will be needed. This is called primary graft failure.
- Graft rejection - any transplant is recognised by the human immune system as a foreign body. Cells are produced to attack this foreign body. These cells are carried in the blood, but because graft tissue does not have blood vessels, the cells do not reach the corneal graft. However, graft rejection can still happen. The rate is less than 10% (10 people in every 100) in the first 2 years.

## **What are the symptoms of graft rejection?**

The main symptoms are:

- redness
- soreness or pain
- drop in vision
- sensitivity to light

If you have any of the above symptoms, even a few years after the transplant, please contact the Corneal team or come to the Eye Casualty Department.



## What if there is a rejection?

If the graft fails your vision will drop. We need to treat rejection as soon as possible. It is very important to see a doctor if you have any of the symptoms mentioned. Rejection can be managed with eye drops and tablets.

## What if the rejection cannot be managed?

If there is no response to treatment, the graft can fail and a new transplant will be needed.

## What to do if you think there is a problem

If you have any concerns please contact the Corneal Team.

It is very important to have your graft checked if you think there might be a problem. New symptoms could be a sign of graft rejection, which needs to be treated quickly. Do not wait for the corneal nurse to ring you back. Please come to Eye Casualty or the Emergency Department at Leicester Royal Infirmary.

Corneal Secretary: 0116 258 5913

Corneal Specialist Nurse: 07970 940 125  
Monday to Friday, 9am to 5pm

Eye Casualty: 0116 258 6273  
Monday to Saturday, 8.30am to 4.30pm  
Sunday and Bank Holidays, 8.30am to 12.30pm

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