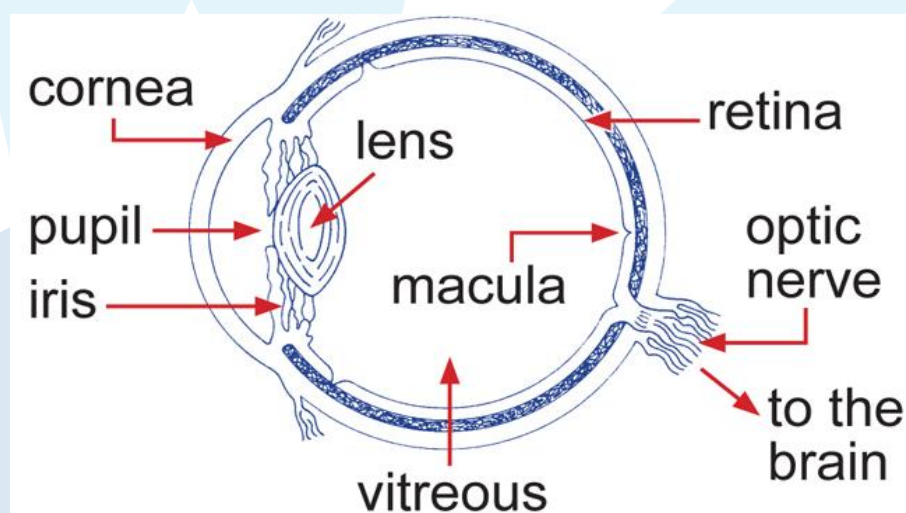


Corneal Transplantation

A corneal transplant is also known as a corneal graft.

What is a corneal graft?

The cornea is the curved window at the front of your eye that must be clear to enable you to see. It is in front of the iris (the coloured part of the eye) and the pupil (the black hole in the centre of the iris). The cornea consists of five layers, each having an important function.



If the cornea is hazy so that you can no longer see through it and cannot be helped by any other treatment (eye drops, glasses or contact lenses) a corneal graft might be appropriate. Depending on which layer(s) is affected, either a full or partial thickness graft can be performed to remove the diseased part of the cornea.

The corneal graft is taken from the healthy eye of a person who has died, (where permission has been given by the deceased prior to death, or more usually by the family) and implanted into the eye of a person with a hazy cornea; please see below for more details.

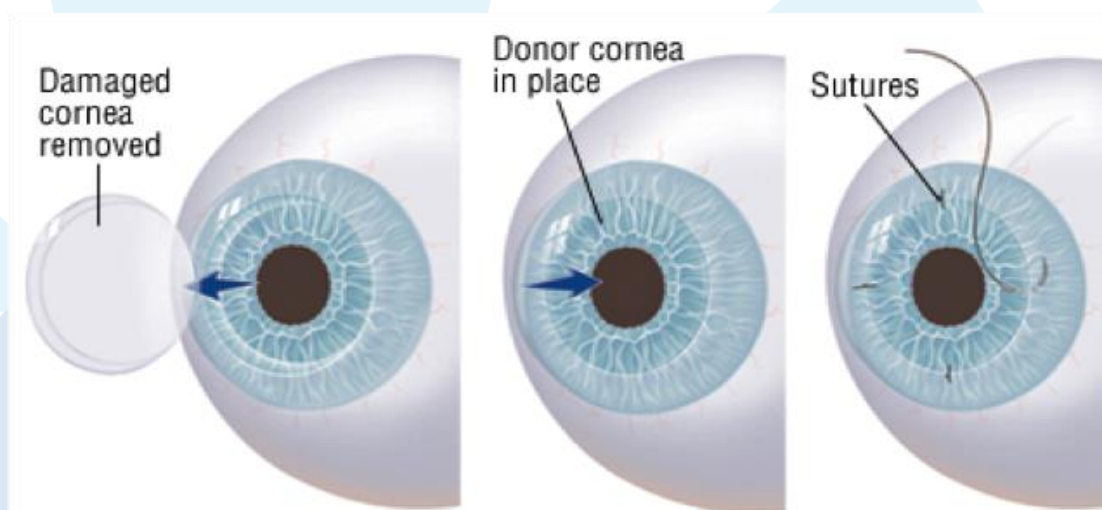
The operation

Various operations are performed and this will depend on your condition and discussion with your surgeon. The types of operations that can be performed are:

- **Penetrating Keratoplasty (PK)**

This is also known as a full thickness graft. If the disease affects all the layers of the cornea then a full thickness graft is required. A full thickness circular portion is removed from the centre of your cornea. A similar circular portion is then taken from the centre of the donor cornea (this is the corneal graft). This is placed into the hole in your cornea and stitched into place using very fine stitches (sutures), usually there are 16 stitches in total. These will remain in place for at least 1 year. Removal of stitches is discussed later in the leaflet.

You will now have a new corneal graft replacing the central part of your cornea.



- **Deep anterior lamellar keratoplasty (DALK)**

This is also known as a partial thickness graft. A circular portion of the outer three layers of the cornea is removed from the centre of your eye, leaving the inner two layers intact. A similar circular portion is then taken from the centre of the donor

cornea, removing the inner layer and it is placed into the hole in your cornea and stitched as in a penetrating keratoplasty.

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

This is also a partial thickness corneal graft involving the inner layers of the cornea. A partial thickness corneal portion is removed from inside your cornea leaving the outer layers intact. A similar circular portion is then cut from the donor cornea, removing the inner layers. This portion is then placed into your eye and floated into place, so that it will adhere to your remaining cornea. A bubble of gas or air is also placed into the eye to help the layers stick together. This operation requires you to lie **strictly flat** on your back for a few hours, not getting up at all.

For approximately the next 48 hours you must then lie on your back as much as possible. During this time you may get up for meals and toilet purposes only and then you must lie flat on your back again.

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

This is another partial thickness graft of the inner corneal layers. It is similar to DSAEK however, only the thin, inner-most layer of your cornea is replaced (without any other supporting tissue known as corneal stroma). This layer is key in pumping out water from your cornea and ensuring it remains as clear as possible. The donor tissue is delicately attached to the underside of your cornea with the use of gas or air to secure it in place. Again, you will be required to posture on your back to ensure the donor cornea remains in a good position.

In both DSAEK and DMEK there is a risk of graft dislocation, where the thin layer of transplanted tissue moves from its current location. This may happen in approximately 10% of DSAEK operations and 20% of DMEK operations. Your surgeon will assess the eye should this occur, and they may inject more gas or air to re-attach the graft, if required. Depending on the size of the dislocation this will either be done on clinic or back in theatre. The advantages of DSAEK/DMEK over PK include fewer stitches, quicker recovery, smaller wounds, and a lower risk of rejection.

What happens to the part of my cornea which is removed?

Most corneas are sent to a laboratory to be examined under a microscope for further information. Some corneal tissue might be kept for research into corneal disease. Your consent will be obtained and all research will be approved.

Will I be asleep for the operation?

The operation can be done either with you asleep (general anaesthetic) or when the eye has been numbed by an injection (local anaesthetic) or under sedation. Your surgeon will discuss these options with you.

How long will I be in hospital?

In most cases, you will be admitted on the day of the operation and can usually go home the day after your surgery. In some cases, you may need to stay in hospital for a couple of days after the surgery depending on how you recover from the operation..

Medications

Please bring with you any medications including eye drops and over the counter remedies in their original containers. Please also bring a print out of your current medicines which can be obtained from your GP. This should be the most recent list and requested 2 weeks before hospital admission.

What will my eye feel like the day after surgery?

Your eye could feel irritable and uncomfortable but this should settle in 5-7 days. Your eye might also water and you could be sensitive to light for a few days. Significant pain is not common. If you experience severe pain you must contact Manchester Royal Eye Hospital on the numbers provided below.

Will I need drops after the operation?

You will need to put eye drops in frequently for the first few weeks; later they are used less frequently but may be used for many months or even lifelong. These eye drops, especially the steroid eye drops, are **very** important and must not be stopped unless you are told to do so by your consultant at the hospital. You will be given drops on your discharge from the hospital and instructions on their use. You should get further supplies from your GP. Please contact us at the hospital if you are having problems obtaining your eye drops on the numbers below.

How often will I need to be seen in out-patients after the operation?

Your first visit is usually a few days to a week after leaving hospital. We then increase the time between visits, often to four weeks, then two months and so on. Again, this will depend on each individual. You can expect to be seen at least six times in the first year.

Is there anything I should avoid after the operation?

You should plan to take up to one month off work. Generally take things easy for the first week or so after surgery. Swimming should be avoided for at least a couple of months and you should never do contact sports (e.g. rugby, football or boxing). Please discuss with your consultant's team before going back to sporting activities. Otherwise, try to live life as normally as possible.

Can I catch any diseases from the transplant?

The medical history of the donor is checked to exclude the following conditions: Rabies, Creutzfeldt-Jakob disease (CJD) and diseases of the nervous system of unknown cause. Blood is taken from all donors to exclude Hepatitis B, Hepatitis C and the AIDS virus. The cornea is very carefully examined to reduce the risk of infection with bacteria and fungi. As a result of these checks the risk is very small. However, because of this minimal risk, once you have had a corneal transplant you will not be able to be a blood or organ donor. If this concerns you or you have any further questions, please discuss with your surgeon.

What are the risks of surgery?

As with any operation there are risks involved that can affect the outcome. These include:

- Infection
- Graft rejection
- Glaucoma (raised pressure in the eye)
- Cataract formation
- Haemorrhage (bleeding) in the eye
- Damage to the iris (coloured part of the eye)
- Retinal detachment

- Graft failure leading to further surgery

These can all lead to loss of vision in the eye or blindness and will be discussed with you further by your surgeon.

How good will my vision be eventually?

This will depend on the particular features of your eye, but your vision might not be perfect in the operated eye. How much you depend on this eye will be influenced by how good the other eye is. In a full thickness corneal transplant, approximately 75% of patients will achieve a visual standard that meets the legal driving criteria.

When will I notice an improvement in my vision?

Each person varies in their response to the operation. Some notice a big improvement early on, whereas in others, the vision will improve gradually over several months. In full thickness corneal grafts, it can however, take up to two years before the maximum visual improvement is achieved. This time period is much shorter in DSAEK/DMEK where the full improvement can be seen at up to 6 months.

When will my stitches be removed?

Again, this varies from person to person, but generally stitches will not be removed until at least a year after the operation. The stitches will usually not be removed all at once, but a few at a time. This is not a painful procedure and can be performed under a local or general anaesthetic. The options will be discussed with you by your surgeon.

Will I need glasses afterwards?

In some cases, it is possible to see quite clearly without glasses. However, most people usually require glasses or contact lenses. How long after your operation these are required depends on a number of things including when the stitches are removed.

What problems should I seek advice about?

Graft rejection is our main concern. This rejection results from your immune system recognising the graft as being 'foreign'. If you experience any increasing symptoms of:

Redness,
Sensitivity to light,
Disturbance of **V**ision, or
Pain (RSVP)

you should contact us on the numbers below immediately.

Do not wait until your next appointment, please contact a member of staff on one of the following numbers the same day:

- Denni Augusty - Corneal Specialist Nurse (0161) 701 4224, Monday – Friday, 8.00am – 4.00pm. There is an answerphone available; just leave your name and contact telephone number and your call will be returned.
- Professor Carly and Miss Kim’s secretary (0161) 276 5522, Monday – Friday, 9.00am – 4.00pm.
- Mr Au and Mr Walkden’s secretary (0161) 276 8957, Monday – Friday, 9.00am – 4.00pm.

If you require emergency treatment, you can contact the Emergency Eye Department which is open from 8.00am to 8.00pm every day. Outside of these hours please contact Ward 55 open 24 hours every day. These departments can be contacted via the hospital switchboard on (0161) 276 1234 asking to be put through to the Emergency Eye Department or the ward.

Please note:

Because each patient is different, the information contained in this leaflet is a general guide only. It is important to remember that your operation is the beginning of a course of treatment, not the end of it.