

## Corneal transplant

This leaflet contains information about the various corneal transplant techniques. The cornea is the outermost layer of the eye.

## Choosing the right treatment for you

If medications, glasses or contact lenses have failed to correct your vision, we may try and improve your eyesight by means of an operation. If your cornea is cloudy or has an irregular shape, it can be replaced by a cornea that is clear. This clear cornea will be obtained from a deceased tissue donor. Ideally, we will only replace the layer of the cornea that is cloudy or causing your eye disorder. Corneal transplantation is also known as keratoplasty.

## Surgical techniques

There are various ways to perform a corneal transplant. The technique chosen by your ophthalmologist (eye doctor) will mainly depend on which layer of your cornea is cloudy. Your ophthalmologist will discuss the best technique to use with you.

### *Replacing all layers of the cornea*

If all the layers of your cornea are damaged, your cornea will have to be replaced in its entirety. This means all layers will be replaced. This type of surgery is called 'penetrating keratoplasty' (PKP). This surgical technique can be performed with either a straight incision (surgical wound) (see Figure 1) or a 'zig-zag' incision (see Figures 2 and 3).

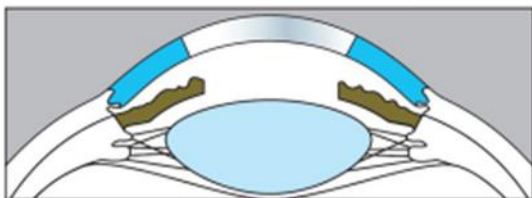


Figure 1: PKP

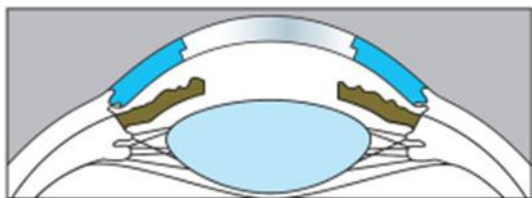


Figure 2: Posterior Mushroom PKP

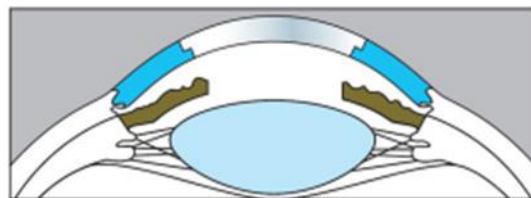


Figure 3: Anterior Mushroom PKP

### *Replacing one layer of the cornea*

If not all the layers of the cornea are damaged, the ophthalmologist may decide to replace the diseased layer only. This type of surgery is called lamellar corneal transplantation. In such a procedure, only a part of the cornea is replaced by bright donor tissue. This part is called a lamella.

#### Anterior lamellar keratoplasty (ALK)

If there is a scar on the outside of the cornea, a thin layer may be sliced off the front of the cornea. This is done with an automated blade. This instrument is called a microkeratome. The layer that is cut away is then replaced by donor tissue (see Figure 4).

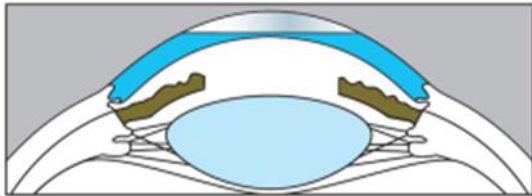


Figure 4: ALK

#### Deep anterior lamellar keratoplasty (DALK)

If the scar or cloudiness covers the entire cornea, but if the cells on the inside of the cornea (endothelium) still work, the outermost layer of the cornea (epithelium) and a large part of the middle layer of the cornea (stroma) will be removed and replaced by donor tissue.

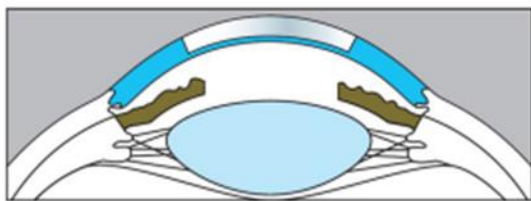


Figure 5: DALK

#### Posterior lamellar keratoplasty (DSAEK and DMEK)

If only the cells on the innermost layer of the cornea (endothelium) are damaged, this layer can be replaced by a thin layer of donor tissue.

This technique, too, involves the use of a microkeratome. During the first few hours after the operation, this thin layer of donor tissue will be kept in place by means of an air bubble or gas bubble (see Figure 6). When DMEK is performed, the new layer of donor tissue is thinner than when DSAEK is performed.

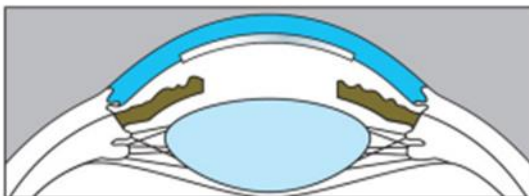


Figure 6: DSAEK/DMEK

### **Patients' association**

Would you like to talk to others who are or have been in your situation? Or would you like some more information about your eye disorder? If so, don't hesitate to contact the Hoornvliespatiëntenvereniging (Association of Corneal Disease Patients) at [www.oogvooru.nl](http://www.oogvooru.nl) or on phone number 030 200 6345.

### **Undergoing treatment at Oogziekenhuis Rotterdam**

Oogziekenhuis Rotterdam trains doctors, paramedics and nurses. This means that you may be (partially) treated by someone who is still training to become an ophthalmologist. This is always done under the supervision and responsibility of a fully qualified ophthalmologist.

Oogziekenhuis Rotterdam's policy is to refer patients back to their own ophthalmologist, or to another ophthalmologist closer to their own home. Naturally, we will only refer you back if your ophthalmic symptoms are fully under control. This is also true for patients who came to Oogziekenhuis Rotterdam of their own accord, to obtain a 'second opinion'.

### **More information**

If you have any questions after reading this leaflet, please write them down and ask them the next time you have an appointment, or contact the corneal disease nurses at the helpline. They can be reached by phone, Monday through Friday, between 10 and 11am and between 2 and 2.45pm, on 010 402 3308.