

Columbus Ophthalmology Associates
DESCEMET'S STRIPPING ENDOTHELIAL KERATOPLASTY (DSEK)

What is the cornea?

The cornea is the clear front window of the eye which covers the iris and pupil. It acts much like the crystal that covers the face of a watch. The human cornea is made up of three layers: epithelial layer (outer), stromal layer (middle), and endothelial layer (inner). The endothelial layer is made up of a single layer of thousands of small pump cells. These cells sit on a thin strip of tissue called Descemet's membrane. These endothelial pump cells pump fluid out of the cornea so it can remain clear and thin to provide good vision for the eye. If the pump cells stop working, the cornea fills up with fluid. It becomes swollen and cloudy, and causes blurry vision.

What causes this to occur?

The endothelial cells can be lost due to: aging, inherited diseases (such as Fuchs' Corneal Dystrophy), trauma or previous intraocular surgery.

If a critical number of endothelial cells are lost, the cornea becomes swollen and cloudy and medical treatment is not helpful. The outer corneal layers, the stroma and outer epithelium are most often healthy. Many patients needing corneal transplant surgery have problems only with the endothelial cells.

What treatment is available?

For many patients only the diseased or missing endothelial cells need to be replaced. The other layers are normal. A technique, called DSEK, has been developed for these cases. It replaces only the endothelial cell layer. A thin button of donor tissue, with only the endothelial cell layer, is inserted onto the back surface of the patient's cornea.

What are the advantages to this procedure?

- The operation is faster (60 to 90 minutes)
- The wound is smaller and closer in size and location to a cataract surgery incision
- The smaller wound is more stable and less likely to break open from trauma
- Because the wound is smaller and requires fewer sutures, there is very little postoperative astigmatism
- Recovery takes only about 3 to 4 months
- Since only the thin layer of the cornea is replaced, over 90% of the patient's own cornea remains behind. This adds to greater structural integrity and reduced chance of rejection

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