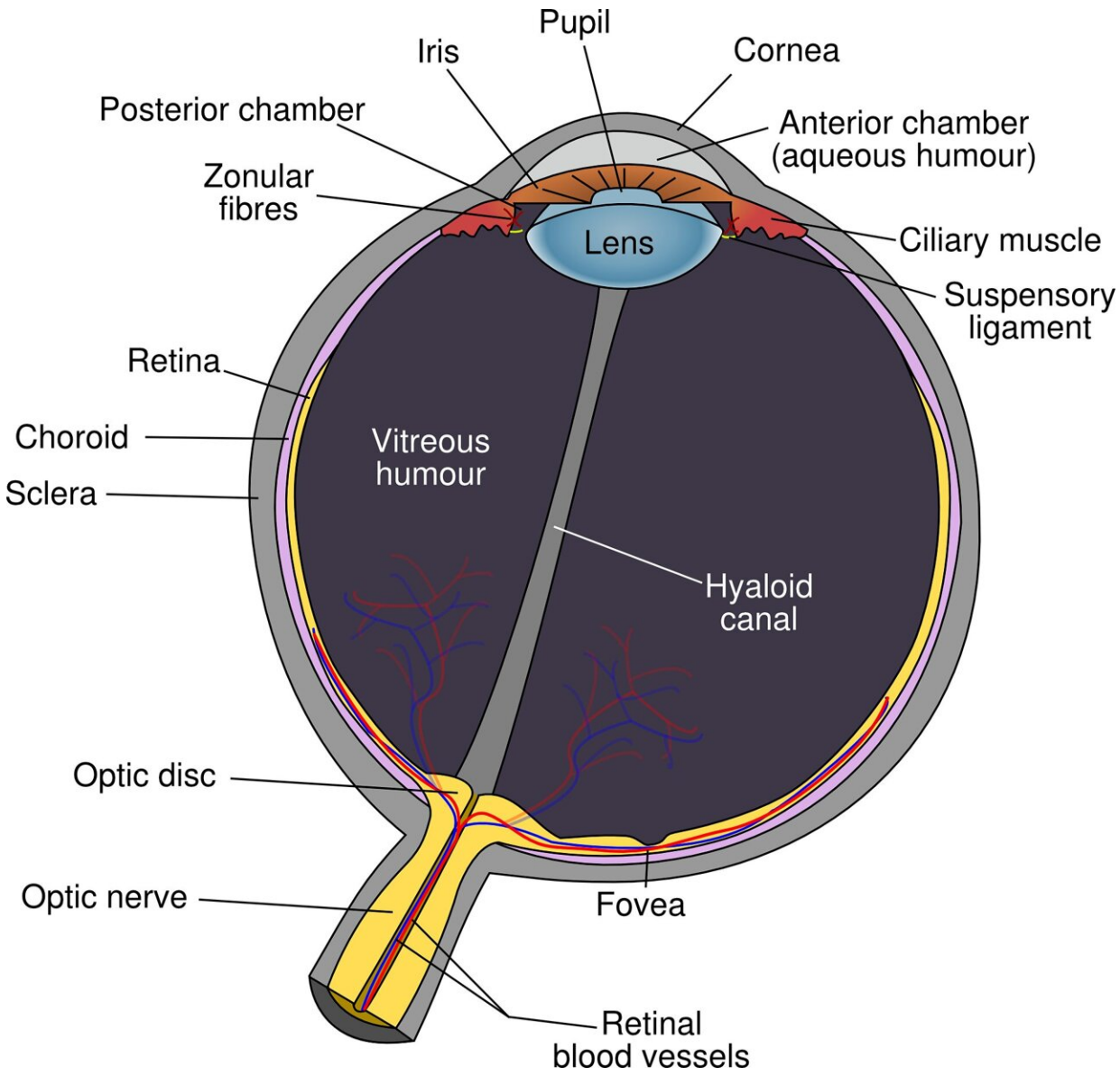
Consumer Health: What do you know about cornea transplantation?

March 30 2023, by Laurel Kelly



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A cornea transplant, or keratoplasty, is an operation to replace part of the cornea with corneal tissue from a donor. The cornea is the transparent, dome-shaped surface of the eye. Light enters the eye through the cornea.

Nearly 80,000 corneal transplants were performed worldwide in 2021, according to the Eye Bank Association of America. More than 2 million people have recovered their sight through corneal transplants since 1961.

Why it's done

A cornea transplant most often is used to restore vision to a person with a damaged cornea. A cornea transplant also can relieve pain or other symptoms associated with cornea diseases.

Conditions that can be treated with a cornea transplant include:

- A cornea that bulges outward, called keratoconus
- Fuchs' dystrophy, a genetic condition
- Thinning or tearing of the cornea
- Cornea scarring, caused by infection or injury
- Swelling of the cornea
- Corneal ulcers not responding to medical treatment
- Complications caused by previous eye surgery

How it's done

A cornea transplant removes either the entire thickness or a partial thickness of the diseased cornea and replaces it with healthy donor tissue . The type of procedure your surgeon will recommend depends on your eye condition.

Types of corneal transplant surgery include:

- Penetrating keratoplasty. This operation involves a full-thickness cornea transplant. Your surgeon cuts through the entire thickness of the irregular or diseased cornea to remove a small button-sized disk of corneal tissue. The donor cornea, cut to fit, is placed in the opening. Your surgeon then uses stitches to keep the new cornea in place.
- Endothelial keratoplasty. There are two types of endothelial keratoplasty, and both remove diseased tissue from the back corneal layers. These layers include the endothelium and a layer of tissue called the Descemet membrane, which is attached to the endothelium. Donor tissue replaces the removed tissue.
- Anterior lamellar keratoplasty. Two different methods of anterior lamellar keratoplasty remove diseased tissue from the front corneal layers, including the epithelium and the stroma. However, they leave the back endothelial layer in place. The depth of cornea damage determines which method is right for you.
- Artificial cornea transplant. If you aren't eligible for a cornea transplant with a donor cornea, you might receive an artificial cornea. This operation is known as keratoprosthesis.

Corneas used in transplants come from people who have died. Corneas from people who died from unknown causes are not used. Corneas from people who had previous eye surgery, eye disease or certain conditions, such as diseases that are passed from one person to the next, also are not used. Unlike people who need organs such as livers and kidneys, people needing cornea transplants don't require tissue matching. In the U.S., donor corneas are widely available, so there's usually not a long waiting list.

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