

CORNEAL TRANSPLANTATION AND YOU

Defective corneas are the leading cause of reversible blindness worldwide and the second leading cause of blindness in the United States. Nearly 95 percent of those who have a defective cornea may receive help through a corneal transplant.

Corneal transplantation, or penetrating keratoplasty (PKP), enables most patients who have suffered visual loss due to corneal opacity or deformity to see again. Today, corneal transplantation is one of the most successful transplant operations, largely due to modern eye banking methods. Also, improved surgical techniques, effective medications, and a better understanding of the complex relationship between the eye and the transplant procedure have been attributed to an increase in the number of successful transplants.

This information is designed to provide you with basic facts that will help you make an educated and insightful decision about receiving a cornea transplant. After consulting with an ophthalmologist, you will be able to determine if a corneal transplant can help you.

The Cornea

The cornea is the transparent tissue layer that covers the front of the eye. It is approximately the size of a dime and is attached to the white portion of your eye called the sclera.

A normal cornea is thin, clear, and does not contain blood vessels. One of its functions is to protect the more delicate parts of the eye, much like how the face of a watch protects its sensitive inner parts.

The cornea also “refracts”, or bends, light rays as they pass through the lens and further onto the retina. The cornea is actually composed of five layers which all have very specific functions.

The innermost layer’s cells (endothelium) keep the cornea clear. These cells do not regenerate so once they become damaged and vision appears cloudy, only a corneal transplant can restore sight.

Where Does Corneal Tissue Come From?

Eye tissue is acquired from an eye bank, which is a medical facility that obtains human eye tissue from donors for the purpose of corneal transplants, ophthalmic research, or educational training.

Eye banks employ highly trained technicians to remove eye tissue from an individual who has designated their decision to donate at the time of death. The removal of the eye tissue from a donor is performed as soon as possible following death. Donor eye tissue is then procured and stored in a laboratory in the eye bank in a preservation medium under refrigeration.

The technician carefully examines the cornea for defects and numerous tests are performed to ensure that there is no harm of transmitting diseases such as AIDS, or Hepatitis B and C viruses. All donors are carefully screened before the tissue is transplanted.

When is Surgery Needed?

Corneal transplants are necessary to restore vision if the following occurs:

- The surface of the cornea changes shape
- The cornea is scarred from a previous injury to the eye
- The layers become too thin
- Infections or inflammations of the cornea occur that lead to scarring
- Complications due to a previous eye surgery
- Certain inherited corneal dystrophies or degenerative processes

Some causes of these defects in the cornea may be attributed to various eye diseases known to affect and even destroy a healthy cornea. Keratoconus is a thinning disorder of the cornea where a cone-shaped protrusion forms. This abnormality prevents entering light rays from passing through the cornea properly.

Corneal Transplant Surgery

Once a decision is made to proceed with corneal transplantation, the average waiting period for available cornea tissue may be several weeks. In addition to a physical exam, the ophthalmologist may request a few lab tests prior to surgery to be certain the patient is in good health. The physician may also administer antibiotic drops in the eye immediately before the patient's surgery.

A corneal transplant takes approximately one to two hours and can be done as an in-patient or out-patient service. Most ophthalmologists use a local anesthetic to numb the eye and prevent it from moving during surgery. The patient may be awake during the procedure, but will feel no discomfort. General anesthesia may also be used; the patient and the doctor can decide what is best for each situation.

A trained ophthalmologist works through a microscope to remove the diseased corneal tissue and replace it with donor tissue. A trephine (a circular surgical blade) is used to cut the donor tissue to the appropriate size for the transplant. The diseased tissue is removed and the donor tissue replaces it. A nylon stitch that is one-third the size of a human hair is used to suture the new tissue in its place. These stitches will remain in place until proper healing has occurred.

What to Do After Surgery

A protective cover is placed over the eye following surgery and should remain in place for at least 24 hours and used when sleeping.

There will be some discomfort following the surgery for two to three days. Some symptoms may include irritation, a feeling of scratchiness, and mild pain. The patient will receive an

antibiotic and steroid drops to reduce the risks of infection and swelling. The ophthalmologist may also suggest a mild pain reliever.

Vision is usually blurred initially and visual recovery is gradual. Corneal transplantation has a long healing period, therefore it is very important that patients frequently visit their ophthalmologist and use all medications as instructed. The ophthalmologist may prescribe glasses to further correct the vision at some point.

Most physicians will schedule office visits once a week for the first two to three weeks. Then routine visits will be scheduled once every month for two to three months. After the first three months, the ophthalmologist will want to see the transplant patient every three months for a year and then every six months.

Transplant patients should limit any strenuous activity following surgery. However, most ophthalmologists will allow the following:

- Watching television
- Reading
- Walking
- Light housework
- Bending at the knees to pick up light objects
- Intercourse may be resumed eight to ten days after surgery

Patients should not:

- Rub the eyes
- Lift heavy objects
- Bend from the waist
- Participate in vigorous exercise like jogging, aerobics, or tennis for the first three months

Because the new cornea tissue is foreign to your body, the risk of rejection, although very slight, is always a possibility. Patients must pay close attention to any signs of redness, sensitivity to light, vision loss, or pain and report them to the physician immediately.

A corneal transplant is a wonderful gift of restored sight. Please do not hesitate to ask questions about your transplant or how to best care for your eyes.

If you would like to receive additional information contact the Old Dominion Eye Foundation, Inc. at 1-800-832-0728.

Old Dominion Eye Foundation continues to develop relationships with the people we help regain sight. We also work to reach the public through educational programs that help many learn more about eye tissue donation and all it has to offer.

If you would like to become a part of our educational efforts by telling others your story, please call or write to us about your experiences. Talking with others about your experiences helps in many ways. Many people want to learn more about eye donation, and you can help.

Old Dominion Eye Foundation, Inc.

Old Dominion Eye Foundation, Inc. is supported by generous contributions made by the Lions of Virginia in Districts 24-A, B, C, E and F. If you would like to make a contribution in memory or honor of someone please contact us at 1-800-832-0728.

Old Dominion Eye Foundation, Inc.
1-800-832-0728
www.odef.org

Central Virginia Headquarters
9200 Arboretum Parkway, Suite 104
Richmond, VA 23112

Central Southwestern Virginia
6701 Peters Creek Road, Suite 110
Roanoke, VA 24019
(540) 366-4500

Northern Virginia
3299 Woodburn Road, Suite 150
Annandale, VA 22003
(703) 876-2703

Southwestern Virginia
191 Johnson Street
Abingdon, VA 24201
(540) 628-7141