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EYE CENTER

iFS Precisely-Shaped Incisions for Corneal Transplants

Built from a legacy of innovative ***IntraLase*** technology, the ***iFS***-advanced femtosecond laser represents one of the significant technological breakthroughs in corneal transplantation in 55 years. The ultra-fast femtosecond laser allows the surgeon to create precisely-shaped incisions with micron level accuracy. This customized incision architecture enables the tissue to fit together much like a puzzle, providing a stronger and more stable graft that potentially requires fewer sutures.

CORNEAL INCISION

Using an "inside-out" process, the ***iFS*** laser's infrared light beam, generating 60,000 pulses per second, is precisely focused to a point within the cornea where bubbles are formed to gently create an incision.

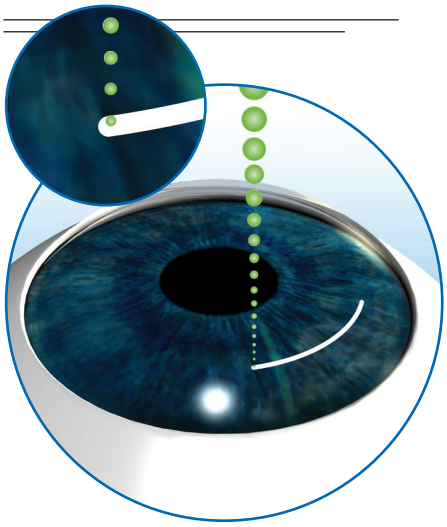
SURGEON-DESIGNED INCISIONS

The surgeon programs the laser to create precisely-shaped incisions forming individualized edges of both the patient's cornea and transplanted tissue, which fit together like a puzzle.

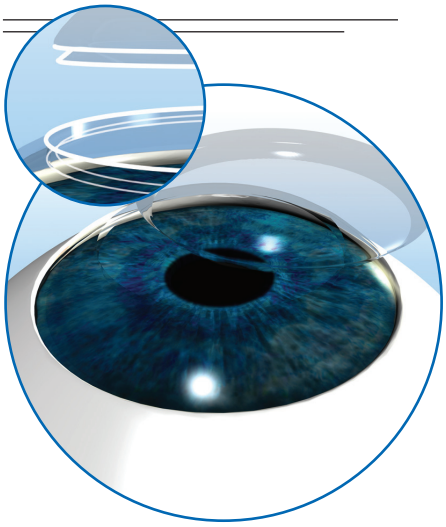
CORNEAL TRANSPLANT

These precisely-shaped incisions may result in a more stable graft that may require fewer sutures and be removed earlier. Shaped incisions may be stronger, greatly reducing the risk of displacement.[1]

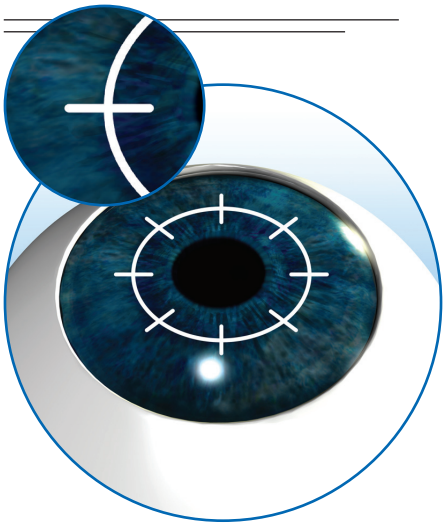
iFS LASER



INDIVIDUALIZED EDGE PROFILES



POTENTIALLY GREATER STABILITY, FEWER SUTURES



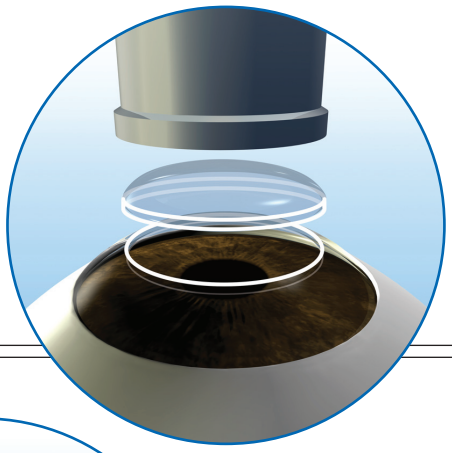
INTENDED USE
The iFS Laser is an ophthalmic surgical laser that can be used to make cuts in the cornea for corneal harvesting and transplantation procedures. Your doctor should be trained and certified in the safe use of the laser. **SIDE EFFECTS**: Side effects that can occur include rejection of the transplant, bleeding, cataracts, infection of the eye, glaucoma, loss of vision, scarring of the eye or swelling of the cornea.

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TREPHINE METHOD ("COOKIE CUTTER")

A hand-held bladed "cookie cutter" called a trephine is stamped onto the cornea to make a circular incision with straight, vertical edges. The remaining corneal bed is cut and lifted with a scalpel, resulting in a standard, plug-shaped tissue graft.

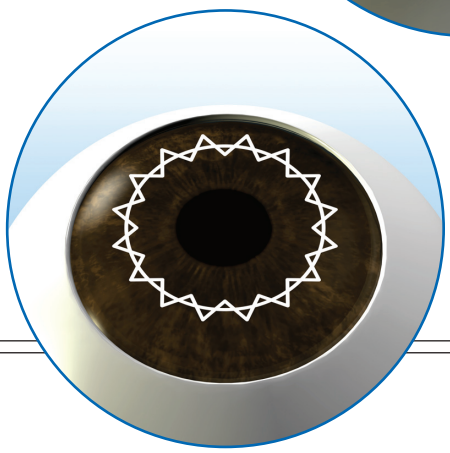
With trephine preparation, the transplanted tissue graft requires suturing around the circumference of the graft to maintain its position in the eye. Sutures stay in the eye for one year or longer.[2]



TREPHINE CUTS CORNEA

LASER METHOD ("PRECISELY-SHAPED INCISIONS)

Instead of the straight vertical edge cut created by the trephine, the ***iFS*** laser is programmed by the surgeon to create complex, customized, precisely-shaped incisions in both the patient's diseased cornea and transplant tissue. Creating incision edges that fit together in an interlocking design allows the graft to fit snugly into place, resulting in a stronger and more stable graft that requires fewer sutures and may be removed earlier.[2]



REQUIRES MORE SUTURES STAY IN LONGER

ABOUT CORNEAL TRANSPLANT SURGERY

A corneal transplant involves replacing a diseased or scarred cornea with a new one, usually donated through an eye bank. When the cornea becomes cloudy, light cannot penetrate the eye to reach the light-sensitive retina. Poor vision or blindness may result.

Corneal transplantation has restored sight to thousands, who otherwise would be blind due to corneal injury, infection, or inherited corneal disease or degeneration.

- Several of the leading eye banks use the ***iFS*** laser to harvest donor tissue, providing precisely-shaped corneal grafts.
- In 2012, 68,681 corneal grafts were supplied by over 59,221 donors through US eye banks; over 46,684 corneal transplants were performed in the US.

IMPORTANT SAFETY INFORMATION

INTENDED USE: The iFS Laser is an ophthalmic surgical laser that can be used to make cuts in the cornea for corneal harvesting and transplantation procedures. Your doctor should be trained and certified in the safe use of the laser. **CONTRAINDICATIONS**: You should not have cuts made in your cornea for harvesting or transplantation procedures if you have certain pre-existing eye conditions. You should have a complete eye exam prior to surgery. Tell your doctor about any eye related conditions, injuries or surgeries you have had. **PRECAUTIONS**: A hard shield should be used to protect your eye if you have to change location between creation of the laser cut and completion of the procedure. **SIDE EFFECTS**: Side effects that can occur include rejection of the transplant, bleeding, cataracts, infection of the eye, glaucoma, loss of vision, scarring of the eye or swelling of the cornea. **CAUTION**: Federal law restricts this device to sale, distribution, and use by practitioners who have been trained in the calibration and operation of this device, and who have experience in the surgical treatment and management of refractive errors.

References:

1. Marjan Farid, MD, et al. Results of Penetrating Keratoplasty Performed with a Femtosecond Laser Zigzag Incision Initial Report. *Ophthalmology* 2007; 114:2208–2212.
2. Roger F. Steinert, MD. Using IntraLase to Improve Penetrating Keratoplasty. *Refractive Eyecare* 2007.

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