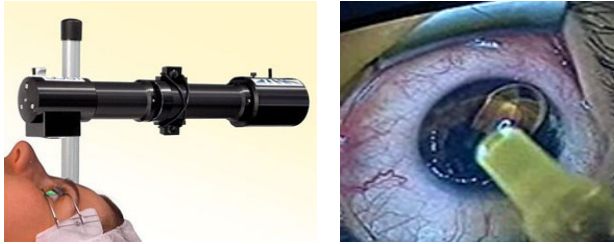
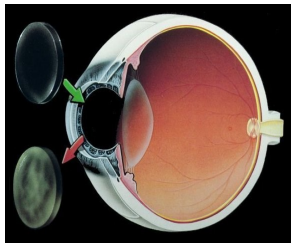


- Corneal COLLAGEN CROSSLINKING
- also known as CXL or C3R



The 30-minute corneal crosslinking treatment is performed in the doctor's office. During the treatment, riboflavin eye drops are applied to saturate the cornea, which is then illuminated by ultraviolet light. This amazingly simple process has been shown in laboratory and clinical studies to increase the amount of collagen cross-linking in the cornea to strengthen the cornea and arrest further progression of Keratoconus. In published European studies, such treatments were proven safe and effective in patients.

- Corneal Transplant Surgery



Corneal transplantation or corneal grafting, is a procedure where a diseased cornea is replaced by donated corneal tissue as a lamellar (partial) or penetrating (full thickness) graft. A corneal transplant is warranted when the cornea cannot provide sufficient visual acuity to meet the individual's needs, despite the use of various contact lenses, due to excessive steepening of the cornea, scarring or lens intolerance.

Management of Keratoconus is often complex and differs at different stages of the disease. Special attention should be given to optimize visual outcome depending on the need of the patient. Corneal collagen cross-linking should be considered as a treatment modality in patients with this progressive disease. Since Keratoconus has an early onset (around puberty), early diagnosis and treatment are key in reducing the morbidity and preserving a good quality of "life" and "vision".

For further readings and references, visit:

www.gulfeyecenter.com;

www.nkcf.org

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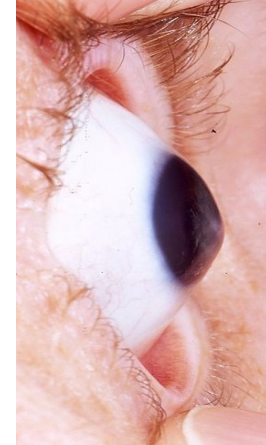
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or 800 LASIK (800 52745)

KERATOCONUS

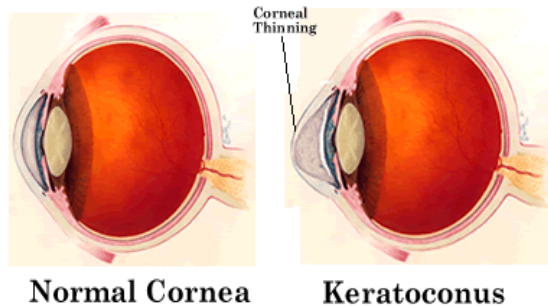


Facts and Treatment Options



WHAT IS KERATOCONUS?

Keratoconus is the gradual thinning of the cornea due to weakening of its layers producing a cone-shaped appearance. This non-inflammatory eye condition can result in a significant visual impairment.



SIGNS and SYMPTOMS:

- frequent changes in eyeglass prescription more than once in a year
- blurring of vision despite best correction
- distortion of images (e.g. like a smear)
- haloes, ghosting and/or doubling of vision
- increased sensitivity to light
- headaches and general eye pain



RISK FACTORS:

- frequent rubbing of the eyes during childhood due to allergies or dry eyes
- Vernal conjunctivitis
- family history of keratoconus

DIAGNOSIS:

Keratoconus can usually be diagnosed with a slit-lamp examination. The classic signs of keratoconus that the doctor will see when examining your eyes include:

- Corneal thinning
- Fleischer ring (an iron colored ring surrounding the cone base)
- Vogt striae (stress lines caused by corneal thinning)
- Apical scarring (scarring at the apex of the cone) at the late stage of the disease

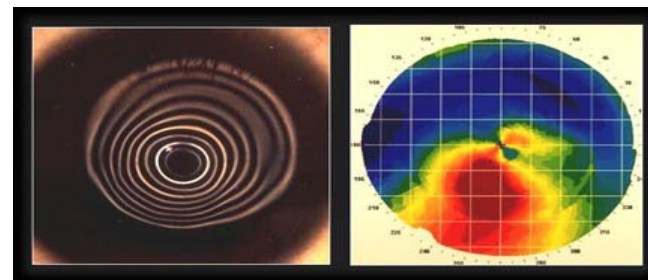
The doctor will also measure the curvature of the cornea.

This is done by:

- Keratometry: an instrument that shines a pattern of light onto the cornea. The shape of the reflection of the pattern tells the doctor how the eye is curved.
- Corneal topography, a computerized instrument that make three-dimensional "maps" of the cornea

A typical corneal topography map in Keratoconus looks like this:

Corneal topography has facilitated the diagno-



sis of keratoconus, helping establish the diagnosis earlier, follow progression more accurately and differentiate keratoconus from other conditions.

TREATMENT:

- Eyeglasses

This option may be of help in the early stages of Keratoconus to correct nearsightedness and mild astigmatism. In moderate to advanced stages, it will not be sufficient to give the patient the best vision.

- Contact Lenses

Keratoconus is managed by different contact lens options. There is no single design that suits all types of Keratoconus. The lens fitter carefully evaluates the needs of the individual eye to find the lens that offers the best combination of visual acuity, comfort and corneal health. Soft Toric contact lenses can be useful for the early stages. As the Keratoconus progresses, Rigid Gas Permeable lenses or Hybrid lenses are recommended to give better vision.



- INTACS and Ferrara / Kera Rings (Intra-corneal ring segments)

These are thin plastic, semi-circular rings inserted into the mid layers of the cornea. They flatten the cornea, changing the shape and location of the cone. The placement of Intacs remodels and reinforces the cornea, eliminating some or all of the irregularities caused by keratoconus. This can improve uncorrected vision, however, depending on the severity of the KC,



glasses or contact lenses may still be needed for functional vision.