CENTRE FOR SIGHT

What is... Keratoconus?

The word Keratoconus is formed by two Greek words: kerato, meaning cornea, and konos, meaning cone. Keratoconus is a condition in which the shape of the cornea, which is usually round, is distorted, developing a cone-shaped bulge, resulting in harm to vision. Progression of the condition depends on the patient's age at the time of the onset. The earlier the onset, the faster keratoconus progresses. The condition is always bilateral and asymmetric - meaning that it affects both eyes, however one eye may be more affected than the other.

What causes Keratoconus?

Keratoconus is an inherited condition that sometimes skips generations. Its onset is usually during puberty and is often related to allergies (hay fever, asthma and eczema). The cornea is a bit more elastic than normal and tends to alter in shape and thin out becoming cone shaped. Rubbing the eyes can aggravate the condition.

How is Keratoconus treated?

1. Eyeglasses in the early stages.
2. Rigid contact lenses: when eyeglasses do not work.
3. C3R - Corneal Collagen Crosslinking with Riboflavin - increases the strength of the cornea to prevent progress.
3. Intracorneal rings (Intacs and Ferrara): when there is intolerance to contact lenses and when the condition continues to progress.
4. Corneal transplant: in advanced stages - either a partial thickness (Deep Anterior Lamellar or DALK) or full thickness (Penetrating or PK).

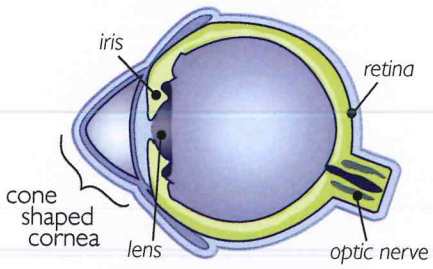

Diagram of Keratoconus eye

In the early stages eyeglasses with correction for astigmatism can be used. As the condition evolves, the increase in corneal thinning and bulging causes a high irregular astigmatism. Once the use of eyeglasses is not effective, correction is achieved through the use of contact lenses, often rigid gas-permeable contact lenses or hybrid lenses with a hard centre or soft skirt. Piggy backing a hard lens on a soft lens is also a good option and large specially made Scleral Lenses are also an option.

You may also find the following documents of interest:

Your guide to CXL

Your guide to Intracorneal Rings ~ Intacs / Ferrara rings

Your guide to Corneal Transplants

Please call the number below for your FREE copy or it is available as a download from www.centreforsight.com

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Your guide to Intracorneal Rings

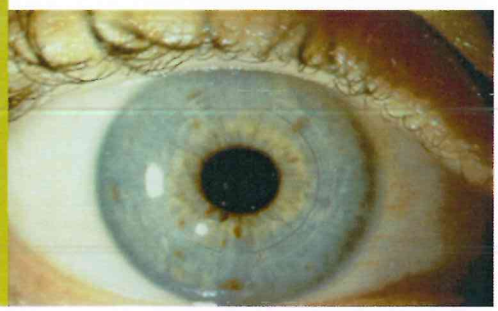
What are Intracorneal rings?

The INTACS or FERRARA intracorneal rings are micro-thin inserts of varying thicknesses composed of a special clear, biocompatible plastic that has been safely used in contact lenses and cataract surgery for more than fifty years.

The rings are designed to reinforce the cornea and reshape the surface of the eye, reducing the size and improving the shape of the cone. By improving the shape of the cone, patients suffering from keratoconus can improve the fit of their contact lenses, achieving improved visual acuity. In some cases, the vision may improve enough to allow usable vision without contact lenses.

Intracorneal rings are perfectly tolerated by the eye and there is no risk of rejection. Use of these rings may improve the structual integrity of the eye, and avert the requirement of a corneal graft which is more of a major operative procedure.

What are the indications for the Intacs implant?



Intacs implant in an eye

1. Moderate myopia (shortsightedness).
2. Morate to severe Keratoconus

Although developed for low myopia (shortsightedness), the device is mostly used for keratoconic patients of any age with an evolving condition and intolerance to contact lenses or with sharp distortions in the corneal shape, which can occur after corneal transplants.

The Centre for Sight Difference - Intralase implantation of Intacs and Ferrara rings

Unlike most centres, Centre for Sight uses the highly precise Intralase Femtosecond laser. This ensures very accurate placement of the channels maximising effect and reducing risks of complications. Centre for Sight doctors have modified the procedure with the Intralase laser and have demonstrated significantly better outcomes which have been presented internationally.

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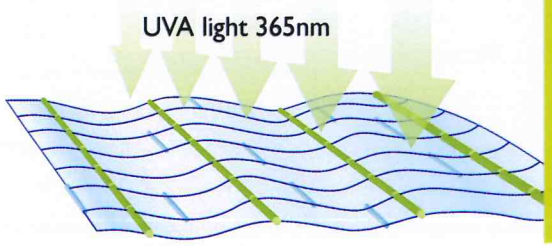
Your guide to CXL

What is CXL?

Collagen Crosslinking with Riboflavin: Ultraviolet light is used to promote increased cross-linking between collagen fibres within the cornea. Increasing the amount of cross-linking results in increased strength or rigidity of the cornea. Strengthening the cornea by cross-linking its building blocks (collagen) can arrest progression of keratoconus and has also been reported to partially reverse the corneal steepening that has already taken place.

What does the procedure involve?

The cornea which is the front transparent structure of the eye is first anaesthetised using drops. The procedure is performed in the clinic in a semi-reclined chair or stretcher. Strong antibiotics are also used to prevent infection. The mucous surface of the cornea (epithelium) is disrupted using a special instrument* and then Riboflavin (Vitamin B2) drops are placed in the eye every few minutes. The drops are yellow and become absorbed by the cornea and the front of the eye.



Increased collagen fibre diameter
Increased collagen rigisity

The eye is checked at the slit lamp biomicroscope by medical personnel to ensure it has been absorbed. A clip is placed in the eye to keep the lids open and the calibrated ultraviolet device is then focused on the ey and switched on for 30 minutes. It is important not to move during the procedure and medical personnel will check periodically to make sure the device is in the correct position. The yellow pigment of the Riboflavin absorbs the Ultraviolet A light. Once the procedure is completed, a soft bandage contact lens will be placed in the eye and antibiotics will be instilled. The contact lens will be removed in one or two days.

How long does it take for the procedure to work?

Cross-linking takes place as a result of exposure to Ultraviolet light. The cornea increases in rigidity soon after the procedure although the process of cross-linking continues on for a period of a few days afterwards. The effect on corneal shape takes longer but flattening does not occur in all eyes that have had treatment. A satisfactory result will be arresting the progression of keratoconus.

continued...

How often will I need to be followed?

You will be seen soon after the procedure to remove the contact lens and you will remain on eye drops for a few weeks. You will be seen at 1 month, 6 months and one year. Following this it is important that you be seen on an annual basis by your optometrist as you normally would.

When can I wear contact lenses again ?

You may return to wearing lenses after one month. Your lenses may need to be changed if your cornea changes shape.

Are there any risks ?

As the mucous lining of the cornea is disrupted, there is a very small risk of infection. This is rare and prevented through the use of antibiotics before and after the procedure.

Is Ultraviolet light harmful ?

Ultraviolet A light used in this procedure is not harmful to the eye in measured doses. Ultraviolet C light (in sunlight) is potentially harmful. The Light emitting diodes used in the CXL device is of a wavelength that is not harmful. Furthermore, light emission is carefully measured and calibrated prior to each treatment. There is also a self diagnostic check on the device which prevents use in case of a malfunction. There have been concerns about toxicity to the retina (at the back of the eye) however the Riboflavin pigment in the cornea and front of the eye, absorbs the Ultraviolet light and in effect stops the light from being transmitted to the retina.

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CENTRE FOR SIGHT

Nicola Hall

Keratoconus sufferer and recipient of ICL

I have been a patient of Mr Daya for over 17 years, having been diagnosed with Keratoconus in both eyes at the age of 20.

Due to the severity of my condition I underwent a corneal transplant in my left eye shortly after diagnosis, which was performed by Mr Daya and his team at the Queen Victoria hospital in East Grinstead. Then followed Lasik surgery, a wedge re-section, 5 years of hard, almost intolerable contact lenses, until Mr Daya told me four months ago that my condition had stabilised, technology had advanced and that I was able to have IOL Implantable Lenses in both eyes.

The news that I could have the surgery was a life changing moment in itself as a long distant dream of being able to see, was to going be realised.

Six weeks after surgery it is actually very emotional to type this testimonial as looking at the screen now, I can't actually believe what I can see. My condition and history are far from the average IOL patient and whilst I may end up wearing glasses (with a very weak prescription) for driving, my vision is absolutely amazing. The procedure has completely changed my life.

Over the years I have seen many changes at Centre for Sight. Mr Daya having started his clinic on a ward at the Queen Victoria Hospital, to the most sophisticated consultation rooms at Queen Anne Street and now, a purpose built, state of the art hospital in East Grinstead. I feel very truly grateful to have been referred to Mr Daya 17 years ago and I cannot thank him and his team enough for the care and treatment they have given me over the years.

I would not hesitate to recommend Centre for Sight for any type of eye surgery. They are an amazing team with the utmost commitment to patient care, professionalism and of course, fantastic results.