

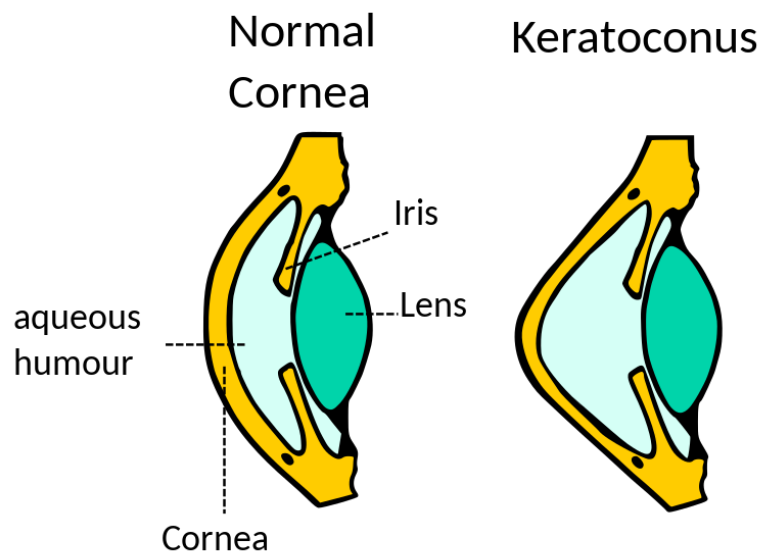
## Ophthalmology

# Corneal cross-linking

### What is a corneal cross-linking and how does it work?

Corneal cross-linking (CXL) is a procedure which aims to strengthen the cornea and stop the progression of keratoconus. It is successful in more than 9 out of 10 cases.

Keratoconus is a condition in which the cornea becomes thinner and begins to bulge into a cone-like shape. This causes eyesight to blur and distort. It usually starts in childhood or during the early teens, and often stops getting worse by the mid-30s.



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## Patient Information

Corneal cross-linking is the only treatment currently available that appears to stop keratoconus from getting worse. It is likely that without the treatment, your condition will get worse, unless we have demonstrated that it has already stabilised naturally.

CXL uses ultraviolet light and riboflavin (Vitamin B2) eye drops to stiffen your cornea. Used together, it makes the bonds (cross-links) between the collagen fibres in your cornea stronger. This treatment mimics the age-related stiffening that normally happens to the cornea, which is known as natural cross-linking.

### **What are the risks of CXL?**

Evidence shows that CXL is very safe, but like all operations your eye needs time to heal, and problems do occur occasionally.

More common, temporary side effects in the eye are:

- Redness
- Being sensitive to light
- Feeling severe eye pain in the next 24 to 48 hours. The surface layer of the eye will be taken off and heals back after this period.
- Having dry eye
- Having hazy cornea (can settle within 2 weeks to 6 months) or blurry vision

A small percentage of rare complications after cross-linking include:

- Progression of the eye condition (1:10)
- Infection (1:1000)
- Scarring (1:1000)

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- Loss of vision

Extremely rare cases (higher risk in thinner cornea <400) include:

- Endothelial decompensation
- Corneal melting

The risks of this procedure will be discussed with you in detail. If you have any questions about the risks or would like more information, please speak to a doctor or nurse caring for you.

## What happens during CXL?

CXL is performed as a day-case procedure by a doctor and/or a senior ophthalmic nurse under topical (eyedrop) anaesthesia. The procedure takes about 40 minutes to complete, but you may be in the treatment room for 1 hour. We do not currently offer CXL treatments for both eyes on the same day. If you need CXL for both eyes, we will offer you a second appointment after your first treatment.

1. You will be asked to lie flat on the treatment table.
2. Anaesthetic drops will be applied to your eye to make sure you do not feel any pain.
3. Your eye will be cleaned with an antibacterial solution. A drape will cover your face around your eye to minimise the risk of infection.
4. A small clip is placed to hold your eyelids apart.
5. The surface skin of your eye (epithelium) is gently brushed off and riboflavin (Vitamin B2) drops are applied for 10 to 20 minutes. This allows them to be absorbed into the full thickness of the cornea.
6. After this, the ultraviolet light is shone onto the surface of the cornea for 10 minutes.

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7. Topical antibiotics and anti-inflammatory eye drops will be prescribed.

### **What happens after CXL?**

You may feel your vision is more blurred, and it is difficult to focus. This is partly due to the eye drops applied, and partly due to the cross-linking itself. You will be able to see out of the eye, but you will have a clear, plastic shield on when you leave the hospital with your post-operative medications.

Once the anaesthetic eye drops have worn off, your eye will be sore. Pain is a common complaint, with most patients reporting the first 2 days as very painful. The following measures can help:

- taking regular painkillers
- wearing sunglasses in bright light
- resting in a darkened environment with your eyes closed or sleeping in between the doses of eye drops
- using cool compresses over the eyes

If you experience increasing pain, redness, or your vision getting worse 3 or 4 days after the procedure, this could indicate an infection. You will need to seek urgent medical help. Please note that infection is rare and affects less than 1 in 100 of patients.

It is advisable to stay home to rest and avoid any strenuous/sporting activities for 2 weeks. You will have multiple drops to apply into the eye.

After a week, once the surface of your eye has grown back over, the eye should be pain-free but may feel a bit gritty. You will need to continue applying your lubricating eye drops to help keep the surface moist, as the eye is still healing. You may notice some

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haze/blurring while the eye recovers. This could last from 2 weeks to 6 months.

You may resume wearing contact lenses, or you will be fitted for contact lens 3 months after the procedure. We will not be able to tell whether the treatment has worked until the year is over. After your initial 1 week post-operative attendance, a further review will be arranged every 4 months for the first year, 6 monthly on the second and third year, and annually for 5 years to monitor your progress with a corneal scan.

The risk of needing further CXL is very low, and it is not done in the first year following the treatment. The main way to avoid progression is to avoid rubbing the eyes. We therefore advise you to continue with lubricating eye drops in the first year.

### **Is there anything I should do, or not do, after CXL?**

- It is important to put the eye drops in regularly as prescribed.
- Wash and shower normally, but avoid getting water in your eyes.
- Swimming and contact sports should be avoided at least before the surface of your eye has healed. This typically happens around the end of the second week.
- You may drive when you can read a number plate at 20 metres with both eyes open while wearing glasses or contact lenses as appropriate.

### **Do I need to take time off work or studies?**

Yes. You should take at least 1 week off while most of the surface healing occurs, or 2 weeks if your job involves a lot of computer work. You will be putting eye drops regularly during this period.

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Soon after treatment, using your eyes to read, watch television or use a computer will not do any damage. However, you might find it more comfortable to rest with your eyes closed early on.

We will arrange for further review the week after your procedure to check that your eye is healing properly.

### Contact us

If you have any concerns following your treatment, please contact the numbers below:

Glenda Bajar (Corneal Nurse Specialist) 0247 696 6511

Ellen Somal (Medical secretary to Mr Rana) 0247 696 6511

The Trust has access to interpreting and translation services. If you need this Information in another language or format, please ask or contact 0247 696 6511 and we will do our best to meet your needs.

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[www.uhcw.nhs.uk/feedback](http://www.uhcw.nhs.uk/feedback)



### Emergency eye appointments:

## Patient Information

### **New booking system**

If you have an urgent eye problem, you can now book an on-the-day telephone consultation via the Eye Emergency Referral Service (EERS).



**Scan the QR code or visit [uhcw.nhs.uk](http://uhcw.nhs.uk) and search Eye Emergency Referral Service the section How to Access our Services will take you to a link to book a telephone consultation.**

You will be spoken to by an expert clinician who will give you specialist advice on the next steps to take.

Please provide a phone number which you can be contacted on for the consultation. Please also be aware that you will be phoned as close to the allotted time as possible, although at busy times unfortunately there may be a delay.

**In the event that you feel you cannot wait to speak to someone or do not have online access then you may call 0247 696 4800.**

**This phone line is open 9am to 1pm; 1.30pm to 5pm (Monday - Friday, excluding bank holidays) and 9am to 12pm (Saturday).**

In the event of an eye emergency out of hours, please attend the Minor Injuries Unit/Emergency Department. Please only attend the Eye Outpatient department if you have had a telephone consultation in advance and have been advised to attend.