Patient information

Keratoconus

Introduction
The clear window at the front of the eye, the cornea, is usually an even round shape. Keratoconus (pronounced keh-rah-toe-cone-us) is when the cornea becomes thinner and bulges outwards in a cone shape. Keratoconus is a progressive condition and can get worse gradually over time. The speed of change and severity varies between affected people.

What causes keratoconus?
We do not know exactly what causes keratoconus. It may be partly genetic (passed on in a family through the genes) and it happens more in people who have allergies like asthma or eczema. There may also be a link between people who rub their eyes and keratoconus.

Who gets keratoconus?
Keratoconus is usually diagnosed in young people at puberty, in their late teens or early twenties. Depending on ethnicity, it affects up to 1 in 450 people. It is more common in non-Caucasians.

How keratoconus affects your vision
When you have keratoconus, your vision becomes blurred. This is because the front of your eye is not completely smooth and round. This affects the focus of your eye causing short sight (myopia) and astigmatism, in which the light that passes through your eye forms an unclear image at the back of the eye. In advanced stages of keratoconus, some patients may develop scarring in the cornea, which can make their sight blurred by reducing the amount of light which can enter the eye. A small number of patients may experience a sudden, painful loss of vision if fluid from the eye enters a very thin cornea. This is called hydrops and will settle with time.
How can the ophthalmologist tell I have keratoconus?
The eye doctor (ophthalmologist) or optometrist (ophthalmic optician) examines your eyes with a microscope called a slit-lamp. You might also have a corneal topography scan. This is a quick, painless photo which checks in detail the shape and thickness of your cornea.

![Topography scan in keratoconus](image)

Examineing the eyes with a slit-lamp

What treatment is available?
There is no cure for keratoconus. It cannot be treated with eye drops or medication.

In the early stages, some patients will simply need glasses to see well, but many patients eventually require contact lenses for better vision. The contact lenses are usually small hard lenses (rigid gas permeable lenses) but some people may wear soft (hydrogel) lenses and some need special lenses made specifically for keratoconus eyes. Contact lenses do not make keratoconus worse or better, they just improve your vision while you are wearing them. In very advanced cases, where contact lenses fail to improve vision, a corneal transplant (‘graft’) may be needed. Most patients with keratoconus will not need a corneal transplant.

**Corneal collagen cross-linking (CXL)**
CXL is a new treatment that can stop keratoconus getting worse. Also known as C3R, it uses ultraviolet light and vitamin B2 (riboflavin) drops to stiffen (and strengthen) the cornea. It is effective in over 90% of patients with a single 30-minute outpatient procedure. It is only suitable for some people with progressive keratoconus.

As with all operations there are risks: CXL is safe, but there is a small chance of worse vision afterwards. Because it is a new treatment, we do not know the long-term effects for certain, although we believe the risks of any unexpected long-term side effects are very low. For further information on CXL, please see the separate ‘corneal cross-linking’ patient information leaflet.
Acknowledgements
Keratoconus Group leaflet – see http://www.keratoconus-group.org.uk/

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Your right to treatment within 18 weeks
Under the NHS constitution, all patients have the right to start their consultant-led treatment within 18 weeks of being referred by their GP. Moorfields is committed to fulfilling this right, but if you feel that we have failed to do so, please contact our patient advice and liaison service (PALS) who will be able to advise you further – see above for contact details. For more information about your rights under the NHS constitution, please visit www.nhs.uk/choiceinthenhs.