

Keratoconus.

I actively fit keratoconic patients with rigid gas permeable contact lenses and scleral gas permeable contact lenses. Even those who have corneal scarring as a result of keratoconus achieve visual acuity enabling legal driving acuity and normal daily functioning. Corneal grafts resulting from progressive keratoconus are also amenable to scleral contact lenses.

Keratoconus is an inherited condition, with uncertain aetiology. It is known as a dystrophy and usually first becomes apparent between the ages of 10 and 25 years. It is a recessive condition requiring genetic factors from both parents, so the chances of it occurring in children is extremely slight - the incidence is about 1 in 5000. Keratoconus is sometimes, but not always, associated with conditions such as allergies, infantile eczema and asthma, reduced night vision, a maternal age of over 28, double jointed-ness and in rare instances, with occasional bouts of minor chest pain. If any of these factors apply, they should be mentioned to your eye-care practitioner. On the credit side, some 60 % of people with keratoconus go on to tertiary education as compared with 12 % of the population as a whole. **Keratoconus does not cause blindness but, if untreated, it can lead to significant loss of vision.**

Keratoconus (literally, conical cornea) is a thinning of the central zone of the cornea, the front surface of the eye. As this happens, the normal pressure within the eye makes the cornea bulge forward to a microscopic degree. The initial effect is to induce a myopic or short-sighted error and, indeed, early keratoconus is often not diagnosed for this reason. In early or mild cases, quite reasonable vision can be obtained with spectacles alone. In most cases, however, the condition deteriorates slightly, the cornea becomes more distorted, and spectacles become increasingly less effective. Consequently, for the majority of those with keratoconus, correction of vision is by means of a contact lens. This must be of a rigid material and, roughly speaking, performs the same function as a dental brace on crooked teeth - a soft lens cannot be used as it would mould itself to the shape of the irregular cornea.

The contact lens fitting concept is to match the shape of the periphery of the lens to that of the stronger, peripheral cornea and then to vault across the top of the thinner conical area, aiming to make hairline contact with the top of the cone. Great care, skill, and experience are required to fit a lens that is neither too tight nor too loose in the peripheral bearing area, and to avoid excessive pressure on the cone apex. Excessive pressures on the cone apex will cause permanent scarring within a few months (occasionally this can happen naturally). For this reason, follow-up visits are advisable at least every six months, but sooner if discomfort or visual problems occur. Refitting or lens modification must always be undertaken if advised by your practitioner or if discomfort, intolerance, or loss of vision occur. In some instances, refitting can actually reduce vision slightly. This is because a cone which has moved forward and is contacting the back of the of the lens is 'moulded' into a regular shape. Reducing pressure on the cone apex allows the cornea to return to a more regular shape again. Nevertheless, failure to eliminate pressure on the cone will lead to irreversible scarring and visual deterioration within between months and a year or so.

It should be emphasized that while contact lenses can very greatly improve your vision, it may not always be possible to improve it to the level of the normal-sighted person. In particular, problems may occur in situations of glare and poor lighting due to the fact that there is still some refraction at the irregular corneal surface beneath the contact lens.

Keratoconic contact lens wearers are strongly advised to maintain Extra Benefits Health Insurance since frequent lens replacements are often necessary. In some instances, the Health Insurance Company may require evidence of your special need for more than average lens replacements; because of the number of lens shapes for the management of keratoconus, several lenses may have to be supplied to optimize the initial fitting.

Keratoconus patients are advised to have spectacles for emergency use. However, it should be emphasised that typically these will provide only 25-50 % of the vision achieved with contact lenses.

In approximately 85% of keratoconics the condition gradually stabilizes by the age of 35, although exceptions are always possible. In the remaining 15 %, the condition progresses, and tolerance to the contact lens and/or vision continue to deteriorate. For this group, a corneal graft is necessary.

The success rate for corneal grafting is extremely high. Nevertheless, surgery should not be contemplated lightly and not until all other avenues have been explored. The average stay in hospital is normally 3-5 days followed by a week at home. Heavy or sudden lifting should be avoided for the first few weeks, as should all contact lens wear or active sports. Careful follow-up is necessary for several months and you should always report back to your surgeon when advised. If a minor rejection episode is suspected, that is, if the eye is red or painful and/or you experience sudden visual deterioration, you should report back immediately. These episodes can normally be controlled very easily with modern drugs and the symptoms gradually disappear. Vision is usually blurred immediately after the operation but improves over the first few weeks. Spectacles can sometimes be prescribed to help after the first month or two but this may be impractical if the eye is continually changing as the cornea heals. Optimum vision should not be expected until one month after the stitches are removed, which is sometimes as soon as six months after surgery but usually one to two years afterwards. Approximately two-thirds of graft cases require spectacles for optimum vision and one third require contact lenses (soft lenses can often be prescribed).

Recently, another operation has been performed in which a lathe-cut piece of foreign cornea is sewn onto the surface of the cornea, flattening the cornea. This procedure is called keratophakia. It remains experimental and is in a developmental phase.

In summary, keratoconus is a complex inherited condition that causes slight thinning, and therefore distortion, of the corneal surface of the eye. Because it is an inherited condition, it is not amenable to treatment by drugs as are disease processes. It does not cause blindness but, if untreated, can lead to serious impairment of vision. Fortunately, modern technology has made it possible to fit contact lenses that provide the eye with a new surface and hence with good or reasonable vision. In those cases not corrected or controlled by contact lenses, the surgical procedure of corneal grafting will normally return a healthy clear cornea with some distortion, which in turn can benefit from contact lens wear.