

About Ortho-Keratology

What is Ortho-K?

Ortho-keratology, or Ortho-K, is the use of specially designed rigid gas-permeable (RGP) contact lenses to alter the shape of the cornea in order to reduce or correct myopia (short-sight). It can also be effective with low degrees of astigmatism (when the front of the eye is rugby ball shaped). It has been practised in the United States for many years, but hitherto the results have been disappointing, with a variable and often minor degree of reduction in the degree of myopia. However, in the last 5 years new technology has become available to accurately scan the cornea and manufacture lenses that will achieve a controlled and precise reduction in the eye's optical imperfection. In addition new developments in lens materials have been made that enable safe overnight wear to be possible. The technique of Ortho-K is now a viable and reversible alternative to refractive surgery. The cornea is highly elastic, however, and always returns to its original shape. For this reason retainer lenses are worn nightly, alternate nights or 3-5 hours each day after the ideal corneal shape has been achieved.

Why have Ortho-K done?

The main purpose of Ortho-K is to be free of both contact lenses and spectacles for the majority of, or possibly all, waking hours. The freedom from any artificial aid appeals to myopic spectacle and contact lens wearers and is ideal for sportsmen, those who work in dusty or dirty environments or people who find spectacles and conventional lenses just a plain nuisance. In addition those who need to have a certain degree of uncorrected vision to satisfy their employers or a licensing body (e.g. pilots, police) can also be helped by Ortho-K.

Possibly one of the ideal situations for using Ortho-K is for the child or teenager with early myopia. Not only does it have all the advantages already given above, but the procedure appears to retard the progression of the Myopia.

Is everyone suitable for Ortho-K?

No. The procedure works best up to 4.00 dioptres of myopia and 2.00 dioptres of astigmatism. Errors above this may be reduced but total correction is not usually possible. In addition there are several unknown factors for each individual; the complexity of the corneal shape and the rigidity of the cornea itself. Thus the speed of corneal moulding from one individual to the next will vary. Whilst the success rate is very high, total success cannot be guaranteed due to these factors.

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What does the procedure involve?

First an initial assessment appointment including a full eye examination and computerised corneal topographical scanning. This gives a chance to both assess the general condition and health of the eyes and also to determine the likely effectivity of the procedure in that individual.

A series of Ortho-K contact lenses, made from highly oxygen permeable rigid material, are then fitted in progressive stages to gently reshape the cornea towards less curvature and a more spherical shape. This reduces myopia and astigmatism whilst dramatically improving unaided eyesight. Excellent vision and comfort are normally maintained whilst wearing Ortho-K lenses.

Most of the visual changes occur rapidly in the first few weeks requiring fairly frequent examinations and progressive lens changes. Stabilisation procedures then follow at a slower pace over the next few months. The program length varies between 1 and 3 months depending upon the degree of visual error.

When the maximum results are achieved, the final or 'retainer' lenses are worn to stabilise the new corneal shape. The final wearing time depends on many variables, but I consider the treatment aim to be good unaided vision all or most waking hours, with lenses being worn overnight or part of each day only. Some patients will be able to wear their lenses every second night.

What are the advantages of Ortho-K over Laser Surgery (Lasik)?

- No ethical surgeon will treat a patient until they are at least 18, or more usually 21 years old.
- It does not cause the permanent hazy vision experienced by some patients following laser surgery.
- Both eyes are done together (rather than several weeks or months apart)
- Changes in prescription over time can be dealt without surgery.
- The procedure is REVERSIBLE (Lasik is not!).
- There is very significant understanding of the effects of contact lens

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wear on the cornea, because of the many years of lens use. Lasik's effects are not totally understood.

- There is no post-operative pain.
- Ortho-K is significantly cheaper and does not preclude surgery in the future.

Cost

The procedure is time consuming and involves several lens changes. However, the first years' charges are less than the cost of daily disposable contact lenses. Once complete, the on-going costs are significantly less than conventional soft contact lens wear.

What are the advantages of Ortho-K?

- Good vision without spectacles or contact lenses for most of the day.
- It is not a surgical procedure.
- It is reversible.
- It is modifiable.
- It does not hurt.
- It may slow down the increase in myopia in children.
- Using well established contact lens fitting techniques mean that there are very few risks.

What are the disadvantages of Ortho-K?

- You must be prepared to allow for 4-6 visits over 3-6 months.

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- Retainer lens wear is essential or the cornea will revert to its original shape.
- The degree of success is high but cannot always be guaranteed.
- The speed of reduction in the myopia varies from one person to the next.
- You must follow instructions implicitly for the best results.

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