



What is orthokeratology?

ORTHOKERATOLOGY (also known as OK, ortho-k or corneal refractive therapy - CRT) is a clinical technique of corneal reshaping using specially designed rigid contact lenses. In modern OK, lenses are usually worn only during sleep and are removed first thing in the morning. During the night the contact lenses gently reshape the front surface of the eye, correcting the refractive error and allowing clear vision through all waking hours without the need for spectacles or contact lenses.

Are my eyes suitable for OK?

At the moment we are able to correct low to moderate degrees of myopia (short-sightedness) with OK. If you know your prescription, this translates to a maximum of about 4.00 to 5.00 dioptres of myopia. The correction is achieved by applying gentle pressure to the centre of the cornea (the clear window of the eye) to flatten it slightly. This reduces the optical power of the cornea, thus correcting myopia.

OK lenses for myopia may correct about half of your astigmatism, but this varies from patient to patient. Some practitioners, particularly in Europe, are experimenting with relatively complex toric lens designs to correct astigmatism.

New lens designs for the correction of hyperopia (long-sightedness) are being developed here in Australia and also in the USA. These lenses aim to gently steepen the cornea, increasing corneal optical power and thus correcting hyperopia.

There are currently no OK lens designs specifically to help people who require glasses mainly for reading. This condition is known as presbyopia, and affects everyone over the age of 40 years. In the near future we plan to trial new lens designs aimed at creating a multi-focal cornea, to assist those patients who require glasses for correcting both near and far vision.

Apart from the refractive status of your eye, there are many other factors that may influence your suitability for overnight OK lens wear. In general, this procedure is only suitable for people with good ocular (and general) health and relatively low prescriptions. Patients must have the dexterity to handle the lenses for insertion and removal, and must closely follow practitioner instructions on lens wearing schedule and lens care procedures, to ensure safe lens wear.

Is the OK treatment permanent?

No, the effect of overnight OK lenses on corneal shape is temporary, and wears off over a few days if the lenses are not worn. To maintain the optical effect, lenses must be re-inserted and worn every night (or in some cases, every 2nd or 3rd night).

Is the OK treatment safe?

As with all contact lens wear, there are some risks associated with OK treatment. Strict adherence to practitioner instructions on lens wear, handling and care is absolutely essential to minimise these risks and ensure safe lens wear. This is particularly so because OK lenses are worn in the closed eye, which is a more risky environment than the open eye. In our previous studies we have not experienced any serious adverse reactions to OK lens wear. However, corneal infections resulting

in scarring and loss of vision have been reported with this type of lens wear, particularly in Asia where clinical standards are not necessarily as strict as in Australia.

What research is being conducted on OK lenses?

The Research in Orthokeratology (ROK) Group in the School of Optometry and Vision Science at the University of New South Wales has recently received funding from the Australian Government and contact lens industry partners to pursue research in three main areas:

- ✓ Developing contact lens designs for correcting hyperopia (and possibly presbyopia)
- ✓ Optimising contact lens material properties (e.g. oxygen permeability) for overnight OK
- ✓ Extending the limits of myopic OK correction to higher refractive errors

Many other research groups around the world are also conducting research in this very interesting modality of contact lens wear. This research is not only aimed at developing new products for OK, but also at understanding the corneal tissue response to overnight OK so that the procedure can be made as safe and effective as possible.

I am interested in being fitted with OK lenses. Where can I get further information?

If you are a low to moderate myope and would like to find out more about being fitted with OK lenses, the Orthokeratology Society of Australia lists appropriately qualified Australian orthokeratology practitioners on its website at: www.osa.net.au.

I am interested in participating in ROK Group research on OK. What do I need to do?

We are currently recruiting myopic and hyperopic subjects to take part in our research at UNSW. If you are interested in participating in our research, please complete and return the accompanying short questionnaire.

Your answers will help us determine whether you are suitable for our studies.

Our current research involves the following types of studies:

- ❖ Short-term lens-wearing trials: Experimental lenses are worn in the open eye for between 15 minutes and 4 hours. You would need to be available during the day and prepared to come to UNSW to participate in these studies
- ❖ Overnight lens-wearing trials: Once the lens designs have been optimised on the basis of short-term lens-wearing trials, we will ask subjects to wear experimental lenses overnight during sleep. We need to assess the lenses very soon after eye opening, so it would be best if you live close to the UNSW campus at Kensington.
- ❖ Dispensing studies: Following on from the short-term and overnight trials, we will recruit subjects to wear lenses in the “real world” for periods ranging from two weeks up to 3 or more months. Lenses will be individually tailored to each subject’s eyes, and will be worn during sleep only. We will require you to attend our clinic on UNSW campus for regular checkups and measurement sessions during these dispensing studies.

If you require further information on OK, there are many websites providing details on this technology. Apart from the OSA website (see above), other useful websites are:

<http://aca.ninemsn.com.au/stories/1852.asp>

<http://www.science.unsw.edu.au/news/precms/news14042004.html>

<http://www.allaboutvision.com/contacts/orthok.htm>