

Through a lens darkly

Imagine this. You wear glasses for your short-sightedness because, without them you can't see a thing. At school, you were called four-eyes because of the thick and heavy lenses. They are the last thing you take off at night, the first thing you put on in the morning. You are afraid of surgery's irreversible effects, should something go wrong. You are a candidate for orthokeratology.

Orthokeratology uses a form of rigid contact lenses called reverse geometry design lenses, which are worn at night only. Within ten days, the pressure of the lens on the cornea remodels the corneal layers and changes the refraction or curvature, thus reducing the myopia. The cornea is not being bent; rather the cells covering the cornea are being redistributed by the gentle pressure of the night-time contact lenses.

Dr Helen Swarbrick, of the school of optometry and vision science, is such an enthusiastic convert to the benefits of orthokeratology that she was recently elected the inaugural president of the International

College of Orthokeratology. She is one of the few people in the world who is doing basic research into the corneal response to this new technology which is safe, non-surgical, reversible and highly successful in people with moderate degrees of myopia, or short-sightedness. Her work has redefined the science of orthokeratology and opened the possible applications to a range of other vision defects.

South East Asia appears to be undergoing an epidemic of myopia. As many as 80 per cent of young adults in the region are myopic, which is about three times the rate in Caucasian populations. Orthokeratology has been heavily promoted in Asia but unfortunately, through a combination of poor practitioner education, inappropriately designed lenses or material and poor patient compliance, complication rates in Asia have been high.

Swarbrick says one of the aims of the newly formed International College of Orthokeratology is to overcome some of these

problems, in particular that of practitioner training, through continuing education and accreditation.

Swarbrick, who is keen to take on more postgraduate students to expand her basic research, wants to explore the barrier function of the front of the cornea and to establish why the curvature which has been reshaped overnight does not immediately return to its previous shape the following day. By understanding the tissue response this will determine the safe limits of orthokeratology.

"Once we understand the science in terms of the forces reshaping the cornea and the corneal tissue response, we will be in a better position to control the procedure clinically and extend the procedure to other types of refractive error," Swarbrick said.

Future projects include comparing the tissue responses in different age groups; working to steepen the cornea, possibly creating a bifocal cornea; and determining the most appropriate oxygen permeability for the night lenses.

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Campus Camera



From left, Indigenous pre-law graduate Cbiquita Gray, Justice Michael Kirby and fellow graduate James Parfitt, with daughter Jyesba, at the graduation ceremony for the course. Justice Kirby was the guest of honour at the graduation and gave an address to the graduates.