



SECTION

Clear Vision for Presbyopia

TIME TO THROW AWAY YOUR CUMBERSOME READING GLASSES. TWO BREAKTHROUGH TREATMENTS TO RESTORE CLEAR VISION TO AGEING EYES ARE NOW AVAILABLE IN SINGAPORE.

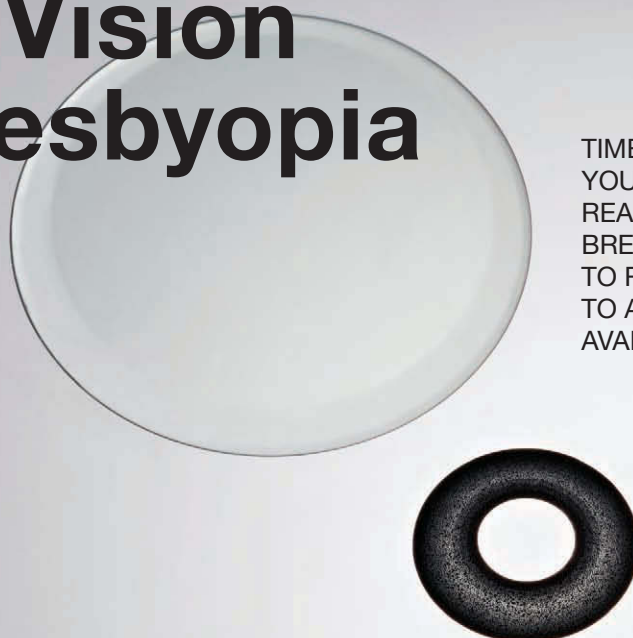


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KAMRA INLAY

Estimated Cost of Procedures in Singapore (excluding post-operative assessments)

KAMRA:
from approximately
US\$2,200 upwards

ICOLENS:
from approximately
US\$2,100 upwards

It is a typical morning scene: elderly people sitting in the park with their heads tilted backwards, eyeglasses perched near the tips of their noses and squinting at the fine print in their newspapers. Maybe there's no other way those with failing eyesight can read it. Presbyopia, the loss of near-vision clarity, isn't even a disease, just part of the normal ageing process. In fact, an estimated 1.7 billion people worldwide suffer from it, and not all of them are senior citizens. Presbyopia can appear even earlier than greying hair, typically around the age of 40.

It happens when the natural lens in the eye loses its elasticity and flexibility. That makes it unable to change shape in order to focus light accurately. The light becomes focused behind the retina instead of on it, thus causing nearby objects to appear blurry. Thankfully, two breakthrough treatments for presbyopia are now available to Singapore's ageing population, and travellers to this medical tourism hub.

KAMRA Inlay

If you think of your eye as a camera, then the KAMRA inlay developed by AcuFocus Inc. in California is based on the depth-of-field principle

that allows you to capture a clear image of nearby objects in photographs. The inlay is an opaque micro-disc smaller than a contact lens and one-tenth the thickness of a sheet of paper. An opening in its centre acts as a fixed aperture that focuses or controls the amount of light entering the eye. That increases the depth-of-focus and makes previously fuzzy minute details clear.

During the procedure, a femtosecond laser creates a LASIK-type flap in the cornea of the eye, or a smaller pocket incision in which the inlay is placed. The procedure takes only 10 minutes and patients can resume normal activities the next day. However, some may need up to three months for both their eyes to adjust to the corrected vision. That is because the inlay is only implanted in the non-dominant eye in order to improve near-vision. This eye's distance vision, or its ability to see faraway objects, is unaffected. Both eyes can thus work together to balance distant and near-vision.

Comparison with LASIK Treatment for Presbyopia

This one-eye procedure benefits presbyopic patients more than previous types of presbyopia treatments. "Monovision LASIK for presbyopia

affects distance vision in the under-corrected eye, whereas the inlay does not. In addition, the inlay procedure is reversible, whereas the Presbyopic LASIK alternative is a permanent laser-based correction.” That is how it’s described by Adjunct Associate Professor Jodhbir Mehta, Head of Research and Senior Consultant at the Cornea Service and Refractive Surgery Service at Singapore National Eye Centre (SNEC). The procedure’s reversibility allows for further vision correction if there are improvements in inlays.

The KAMRA Inlay’s Merits

The KAMRA inlay procedure has also been updated with new technologies. “The previous method of inserting the KAMRA inlay was by creating a corneal flap. The new FEMTO LDV Z6 laser now allows us to insert the inlay in a corneal pocket,” says Dr. Julian Theng, Medical Director, and Senior Consultant Ophthalmologist at Eagle Eye Centre in Singapore, which possesses this technology.

“A corneal pocket is less invasive than a corneal flap. It allows the cornea to maintain its biochemical strength and reduces the chances of post-operative topographic changes. In addition, an Acu-Focus target machine has been developed to assist in centring the KAMRA lens better, as it takes the patient’s viewing axis into account,” continues Dr. Theng.

“The SNEC has been involved in several FDA trials and related studies since 2006. It is one of the main centres in the Asia-Pacific arm of the FDA studies. The latest of these was a multi-centre study of the safety and efficacy of a KAMRA implant that was inserted via a pocket incision. This has shown the best results, and it is now our preferred method of implantation,” says Adjunct Associate Professor Mehta. The KAMRA implant is currently undergoing the final stages of review by the US Food and Drug Administration (FDA).

ICOLENS

Similar to KAMRA, the ICOLENS procedure relies on a femtosecond laser to create a corneal pocket in the non-dominant eye. However, the ICOLENS placed in the corneal pocket is not an inlay. Rather, it is a tiny bifocal lens a quarter of the size of a contact lens. Produced by Swiss medical device company Neoptics, the ICOLENS has a central zone for distance vision and a peripheral zone for near-vision correction. It improves near vision while preserving distance vision.

This outpatient procedure can likewise be completed in 10 minutes and the patient can



resume normal activities the following day. Like the KAMRA inlay, the patient may need some time to adapt to the corrected vision in the non-dominant eye, and for the brain to adjust to the imbalance.

Comparison with LASIK Treatments for Presbyopia

Compared to LASIK presbyopia techniques, the corneal incision during the ICOLENS procedure is smaller and less likely to result in weakening of the cornea. In addition, it is reversible. That is a crucial advantage, as presbyopia is a progressive condition. The micro-lens can simply be replaced when further vision correction or a stronger one is needed.

Comparison with KAMRA Inlay

“The KAMRA inlay is based on the pinhole principle, while ICOLENS is a bifocal micro-lens with a range of power. Both can still be installed even if the patient has myopia or hyperopia, which can also be corrected with LASIK before the patient goes for KAMRA or ICOLENS. The doctor will need to assess the patient’s eye before advising which procedure would be better,” says Dr. Theng. EEC is the first centre in Asia to offer the ICOLENS system, where it has been available since the start of this year.

In spite of their benefits, patients have to be carefully counselled, and screened by the doctor before they undergo either procedure. Not all presbyopic patients are suitable candidates for them, nor will they benefit from them. Patient expectations are another crucial factor in decisions about eye surgery. “Every treatment has its limitations, and none of them is perfect for presbyopic patients. But, with good patient screening, these inlays can work very well,” adds Adjunct Associate Professor Mehta. [GHT](#)

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