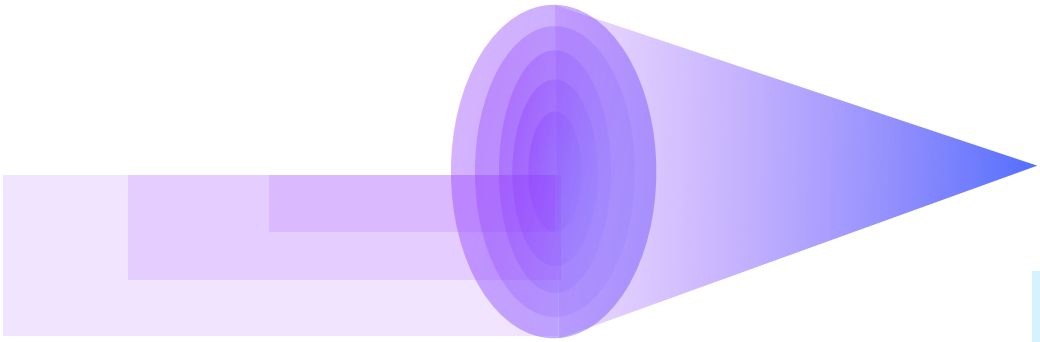
IMPLANTS FOR CATARACT SURGERY

Cataract surgery aims to rectify the clouding of the human lens by removing it and replacing it with an artificial lens implant. It is one of the most common and widely performed surgeries and treats the most common cause of reversible loss of vision. Advances have made this surgery safer and more predictable in achieving desired results. Modern cataract surgery is done through a self sealing micro incision which affords faster healing and minimises post surgical distortion. The cataract is broken up and removed using ultrasound energy and suction with microsurgical instruments(**phacoemulsification**) and replaced with a flexible implant that can be injected through the incision.

There have been huge advances in the material and design of these implants leading to a range of options to address the original visual problem as well as optimising the surgical outcome to closely match the patients needs.

PRESBYOPIA AND MULTIFOCAL LENS IMPLANTS

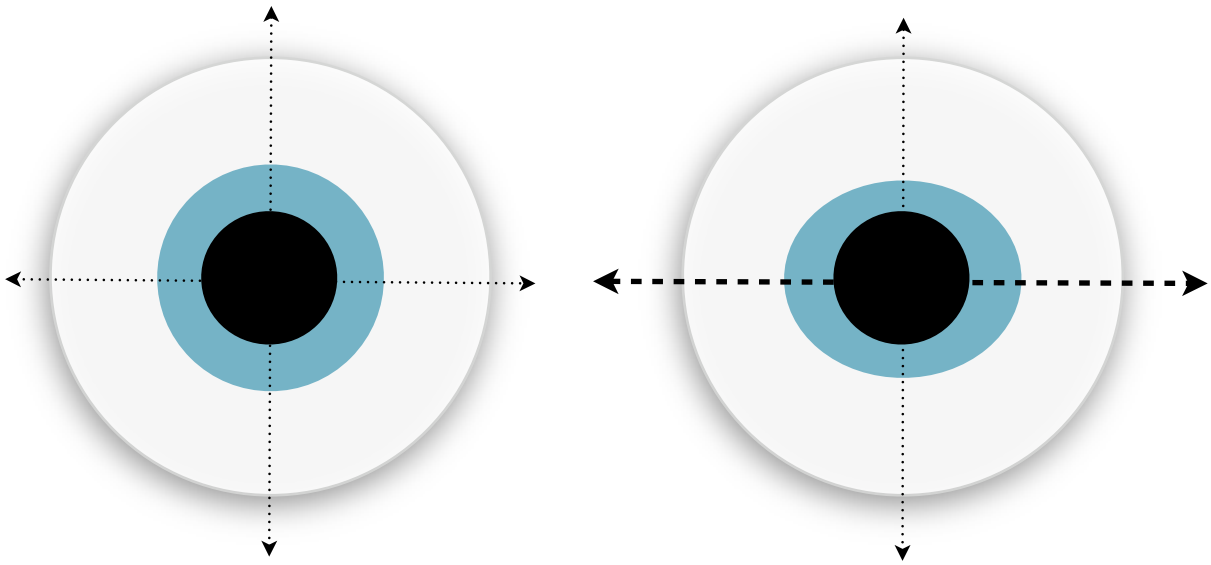
The human lens is a flexible structure that allows it to focus images from distance to near. As it ages, it becomes rigid and loses the capacity to focus for near, this is when we start to require reading glasses. This condition is called **presbyopia**.
Standard lens implants are rigid structures and therefore behave like the aged natural lens, necessitating reading glasses after cataract surgery. A multifocal lens implant tries to address this problem by creating multiple focusing zones to allow for near and distance vision without glasses.
While the vision achieved can not match the performance of the natural, young lens, most people are delighted with the outcome. The compromises they will need to accept are a slight loss of contrast in the image and a tendency for lights to have haloes around them. These effects wear off in time and most people adapt quickly to their new vision which largely makes them independent of spectacles.



A multifocal lens focusing images from varying distances to a single point of focus

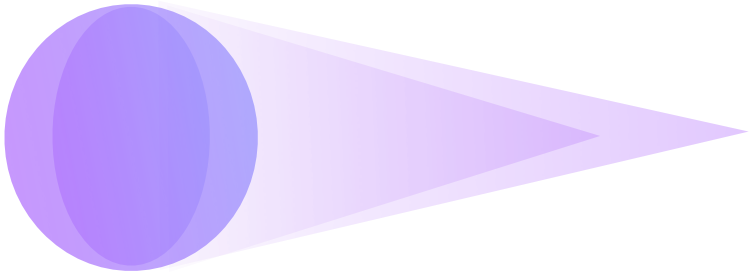
ASTIGMATISM AND TORIC LENS IMPLANTS

Besides the lens, the cornea which is the clear window of the eye has a significant role in focusing images in the eye. When the cornea is not uniformly curved it results in the light being focused at different points leading to a blurred image. This condition is called **astigmatism**.

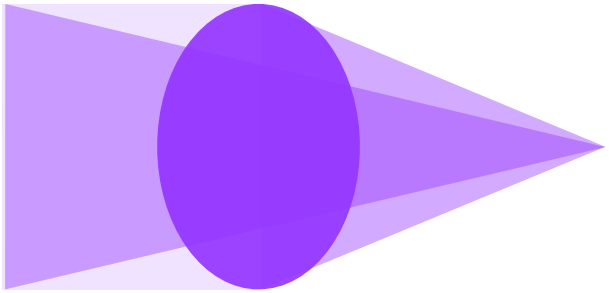


An eye with uniform curvature of the cornea compared with one with astigmatism

Most people have some degree of variation in their corneal curvature. When this results in a significant blurring of vision it is rectified by spectacles or contact lenses which have a varying curvature to counter that of the cornea.



Astigmatism causing varying points of focus leading to blurred vision



A toric lens counters the astigmatism and creates a single point of focus in the eye

When a person undergoes cataract surgery it presents an excellent opportunity to get rid of the need for glasses to correct the astigmatism. Lens implants which have a varying curvature to counter that of the cornea are called **toric** lenses. These are built to specific measurements of the patients eye and need to be placed at a specific angle within the eye to counter the astigmatism.

There are now combinations of toric and multifocal lenses to achieve a spectacle free status for those who need it.

Your surgeon may also discuss the concept of **monovision**. When a person requires cataract surgery to both their eyes, monofocal lenses of different powers can be placed in each eye such that one eye is focused for distance and the other eye for near. While this results in a pure image in each eye, the person needs to adapt to the differing images from each eye. While this situation reduces the need for reading glasses, some people will find it difficult to adapt.

CLEAR LENS EXCHANGE

Due to ever improving results from cataract surgery, it is now being offered to patients who have very high powered spectacles or contact lenses even though their natural lens is clear, ie. they do not have a cataract. The aim of this treatment is to do away with glasses for extreme short or farsighted conditions. **PRELEX** or presbyopic lens exchange is a similar principle applied to those who have developed presbyopia and want to reduce their dependence on spectacles.
When contemplating this treatment one must consider that even though cataract surgery is a very safe procedure there is a small but significant risk of vision loss.

Your surgeon will be able to discuss the pros and cons of the various options in detail and help you with your decision.

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