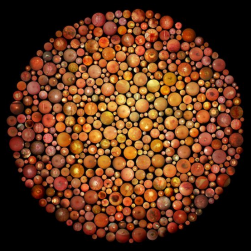
Intraocular Lens Options

Patient Information Leaflet

CATARACT



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KEY POINTS

- During cataract surgery, your cloudy natural lens is replaced with a clear artificial lens implant - the intraocular lens, or IOL.
- Unlike your natural lens, an IOL has a fixed focus - so the choice of lens determines where your vision will be sharpest after surgery.
- Several types of IOL are available, each suited to different visual priorities and lifestyles.
- No IOL can completely eliminate the need for glasses in every situation, but some are designed to reduce glasses dependence.
- I will work through the options with you and recommend the right choice for your eyes and your lifestyle.

Why Lens Choice Matters

Your natural lens is flexible and changes shape automatically to focus at different distances - this ability gradually declines from around the age of 45 (presbyopia), which is why reading glasses eventually become necessary. An IOL, by contrast, is fixed. This means we decide in advance where your vision will be sharpest. Most patients want good unaided distance vision and are content to use reading glasses for close work - this is what a standard monofocal IOL delivers, and it remains the right choice for the majority. There are, however, lens options designed to reduce glasses dependence in various ways, each with their own tradeoffs.

Setting Expectations

There are two important things to understand before making a lens choice:

First, individual results vary. Even with careful preoperative measurements, the precise refractive outcome cannot be guaranteed - two patients given the same lens can end up with slightly different experiences of their vision afterwards. Biological variability in how the eye heals, and in the exact final position the implant settles into, means that "aiming for zero" in terms of residual prescription is exactly that - an aim, not a promise.

Second, no IOL replicates the full flexibility of a young natural lens. Some glasses wear is likely with any option - even with lenses specifically designed for spectacle independence. Being realistic about what can and cannot be achieved is an essential part of making a good decision.

The Options

Standard Monofocal (Tecnis Eyhance / RayOne)

My first-choice lens for most patients is the Tecnis Eyhance. It is set to give the best possible unaided distance vision, with reading glasses used for near tasks. The Eyhance has a subtle optical design that gives slightly better intermediate (computer-screen) range vision than older monofocals, while preserving the clean image quality of a monofocal lens. The RayOne is an alternative standard monofocal that I also use. Neither has presbyopia-correcting features and neither is associated with glare or halo effects.

Toric Monofocal (Eyhance Toric / RayOne Toric)

For patients with significant astigmatism, a toric IOL corrects this at the same time as the cataract, reducing the need for distance glasses. Image quality is equivalent to a standard monofocal. The lens must be precisely aligned during surgery, and there is a small risk of rotation in the early post-operative period which may occasionally require a further procedure to reposition it.

Enhanced Monovision (RayOne EMV)

This approach uses the principle of monovision: your dominant eye is set for distance, and your non-dominant eye for a closer focus - typically around -1 dioptre, giving a roughly one-metre focal point. With both eyes open, the brain blends these images, producing good unaided distance and intermediate vision and often useful near vision, with significantly less reliance on reading glasses.

The RayOne EMV is specifically designed to extend the depth of focus of each eye, making this "blended vision" smoother than it would be with older standard monofocal lenses. A toric version is available if you also have astigmatism.

Not everyone adapts well to monovision - if you have no prior experience of it, we can arrange a contact lens trial before surgery to see how you find it.

Extended Depth of Focus - EDOF (Tecnis PureSee)

A presbyopia-correcting lens with a continuous-power design that provides an uninterrupted range of focus from distance through to intermediate, with improved near vision compared to a standard monofocal. Unlike diffractive multifocal lenses, it delivers its range of focus without splitting light into separate focal points, which largely avoids the halo and starburst effects around lights at night that can affect some patients with multifocal lenses. A toric version is available if you also have astigmatism.

Glasses are still likely to be needed for small print, in low light, or for prolonged close work.

A Note on Multifocal and Trifocal Lenses

Diffractive multifocal and trifocal lenses are designed for patients whose primary goal is complete spectacle independence, including for near work. They can achieve this for a proportion of patients, but because they split incoming light between focal points, a minority experience visual side effects - most notably halos and starbursts around lights at night, and some reduction in contrast - that can be difficult to live with.

I do not routinely implant diffractive multifocal or trifocal IOLs in my practice. If your priority is the greatest possible freedom from glasses, and you would like to consider these lenses, I would be very happy to refer you to a colleague who specialises in this type of implant.

Making the Decision

At your assessment I will ask about your hobbies, work, how you use your vision day to day, and how you feel about glasses. Some lens choices suit some eyes better than others, and any co-existing eye conditions (for example a history of macular degeneration or previous retinal surgery) will also influence what is appropriate. We will reach the right decision together, and there is always time to reflect before committing.

Target refraction preference

Most patients aim for emmetropia - the best possible unaided distance vision. However, some patients who have been short-sighted throughout their lives are used to taking their glasses off to read, and may prefer to retain this ability by leaving the eye with a modest degree of short-sightedness. If this applies to you, please raise it at your assessment so we can discuss the right target for you.

Cost of premium lenses in private practice

The Tecnis PureSee carries a supplementary lens fee at the Nuffield hospitals; my secretary can confirm current fees.

Further Information

More detailed manufacturer information is available for each lens option:

- **Tecnis Eyhance (Monofocal):** robertpurbrick.co.uk/resources/tecnis-eyhance.pdf
- **RayOne (Monofocal):** robertpurbrick.co.uk/resources/rayone.pdf
- **RayOne EMV (Enhanced Monovision):** robertpurbrick.co.uk/resources/rayone-emv.pdf
- **Tecnis PureSee (EDOF):** robertpurbrick.co.uk/resources/tecnis-puresee.pdf

This leaflet provides general information about intraocular lens options. It does not replace advice specific to your individual circumstances. Your final lens choice will be discussed and agreed with me at your pre-operative assessment.