

Refractive options with cataract surgery

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Introduction

With advances in technology and expertise, cataract surgery is now arguably the most successful surgical procedure in all of medicine.

After removal of the cloudy lens (the cataract) we need to implant an intra-ocular lens (IOL) of the appropriate optical power to restore focus to the eye. All patients have an ultrasound measurement pre-operatively to determine the optical strength of the IOL required. We can now do this with a high degree of accuracy, so a secondary benefit of surgery, as well as the primary aim of removing the cataract to give you clearer vision, is that we can make you far less dependent on glasses than previously, and in some cases eliminate the need for glasses completely.

This is of necessity a fairly brief summary of the issues involved, but hopefully enough to enable you to make an informed decision. Please feel free, and I would encourage you, to discuss any aspect of this with me prior to your surgery.

Refractive options

There are basically 3 options regarding the strength of the IOL inserted at the time of cataract surgery :

- 1 Both eyes for distance vision (emmetropic). In this we aim to give both eyes excellent distance vision without glasses eg for driving. However for near tasks eg reading, computer, you will need a pair of reading glasses.

Comment : this is the most common (and “safest”) option – the only downside of course is the need for reading glasses. If you don’t mind wearing reading (and computer) glasses, then this is the option for you.

2. Both eyes for near vision, eg for reading and computer without glasses. However you will need glasses for all distance tasks (anything more than about 5 metres) eg driving, movies, generally getting about.

Comment : this is ideal for those whose work, hobbies, lifestyle involves a lot of reading and computer time. Also for those who have been short sighted and are used to being able to read without glasses – the downside is the need for distance glasses

3. Mono-vision. This concept involves “one of each”, where one eye is focused for distance vision and the other for near. The brain automatically fuses both images to give a very good range of distance and near vision without glasses.

Comment : Mono-vision works extremely well for most people as long as you are realistic in your expectations – there is some compromise in stereopsis (depth perception) and quality of vision – thus not for pilots or those who do a lot of night driving. For prolonged periods of reading you may need glasses to ease eye strain (and also for prolonged periods of driving), but most patients in fact manage almost all the time without needing glasses.

Mono-vision works best for those who really dislike their glasses and are willing to put up with some compromise for the advantage of being relatively spectacle independent.

Many patients find no problem with mono-vision and are happy immediately, while some patients take a few weeks to adjust. In those, we can prescribe glasses as an interim measure, and then with time the glasses are needed less and less.

FAQs - frequently asked questions

Q: Why is there a difference in distance and reading vision?

A: When we are young the eye is able to automatically change focus to see things clearly at various distances , much like an auto focus camera.

This process is called “accommodation” , and is due to the inherent elasticity of the lens and ciliary muscle of the eye. With age, this elasticity gradually diminishes, so by the mid 40s most people will start to need reading glasses (“presbyopia”).

In cataract surgery, the lens is removed and replaced with an IOL (intra ocular lens). This is essentially a fixed focus, or monofocal lens.

Q: I’ve been told I have astigmatism. What is this and what can be done about it?

A: Astigmatism is an optical term related to curvature of the front surface of the eye (the cornea) Instead of being a perfectly round surface, in astigmatism the cornea is slightly oval in one direction. This is fairly easily correctable with glasses or contact lenses, and now also with modern “toric” IOLs. The decision as to whether to use a toric IOL is made after the pre-op measurements, and does not affect the various refractive options as discussed above.

Q. What can be done if mono-vision is not working for me?

A: If for some reason mono-vision is just not working then the options include :

- a) wear glasses, or
- b) refractive laser to readjust the focus of the eye, or
- c) further intra ocular surgery to replace the IOL or to implant a secondary “piggy-back” IOL

Q: What about multifocal or accommodative IOLs? Do you use them?

A: This is one of the most contentious issues in cataract surgery. There are a number of accommodative, pseudo-accommodative, diffractive IOLs on the market, heavily promoted by their various manufacturers. The operation itself is exactly the same, it all depends on which type of IOL is implanted. The aim of these IOLs is to give excellent distance, intermediate and near vision and make their recipients spectacle free.

My personal opinion is that currently (2011) I am NOT implanting these type of IOLs as I feel that their potential disadvantages outweigh their advantages, and I would prefer to wait until something better comes along.

Disadvantages of multifocal IOLs :

1. A significant number of patients will get annoying haloes around lights, glare and other visual disturbances (dysphotopsias). This is a statistical result, not related to the skill of the surgeon or predictable factors in the patient. Currently the most common indication in US studies for further surgery needed for IOL removal and exchange is dissatisfaction with multifocal IOLs.
2. With any associated macular degeneration, or with a family history and the possibility of developing macular degeneration in the future, multifocal IOLs may compromise macular function even further.

There are of course very many happy multifocal IOL recipients, and I often hear comments such as “my neighbour has them and thinks they’re great”. The dilemma is the very real risk of having problems , and then the choice needs to be made regarding further surgery to remove and replace the IOL, or hoping with time that the symptoms will diminish (“neuro-adaptation”)

Summary

Cataract surgery is a highly successful operation. However, complications can and do occur. Most patients will have excellent results, but you must be realistic. If you were previously long or short sighted, you will almost certainly be far less dependent on glasses.

No surgical procedure can restore the range of accommodation you had in your 20s, and whatever we do regarding accommodation involves some compromise. Eventually the perfect multifocal IOL will be developed – until then, I prefer to let others do trials on their patients, not mine!