

PRESBYOPIA

What is presbyopia?

Presbyopia is the irreversible loss of accommodative ability of the eye that occurs due to aging. Accommodation is the ability of the eye to change the shape and power of the natural lens in order to bring near objects into focus.

What causes presbyopia?

As you focus on an object, the lens of the eye changes, getting thicker or thinner. When we are young, the lens is soft and flexible and can easily respond to the ciliary muscle. To look at something far away, the ciliary muscle relaxes causing the lens to flatten. When we focus on an object that is nearby, the ciliary muscle contracts causing the lens to thicken. As we age, the lens loses its flexibility or the ability to accommodate. When this happens, people have difficulty reading and performing other near tasks.

** No medications, vitamins or exercises can stop or reverse this normal aging process.*

How is presbyopia treated?

The safest and least invasive method to treat presbyopia is the use of **corrective lenses** in various forms.

- **Separate reading glasses** will help with near focus. Start with the lowest magnification that you need to read comfortably and slowly increase the strength every 3 to 4 years.
- **Bifocal/multifocal glasses** provide correction for near and distance vision, with/without intermediate vision correction. A progressive lens has a continuous gradual change in prescription from the top to the bottom of the lens; this allows images at any/all distances to be in focus.
- **Contact lenses** offer 2 possible options for the correction of presbyopia:
 - **Monovision**
This is the most common option, and corrects one eye for distance and one eye for near vision. Despite some loss in depth perception, many people adapt very well to this arrangement.
 - **Bifocal contact lenses** are manufactured in different ways.
One kind of bifocal contact lens allows you to read when you look down. The other type lets you read in any position, but can cause annoying ghost images, haziness and colour fringes.

There are however, a growing number of presbyopic patients who do not want to wear glasses or contact lenses, therefore surgical methods of compensating for near vision deficits in presbyopes have become available. This can be done by **combining lens/cataract surgery with special intraocular lenses** or by performing **laser refractive surgery** to enable this.

- **Monovision**

Monovision is one of the easiest methods to achieve sharp images for both near and far in presbyopic patients. One eye is corrected for distance and the other eye is corrected for near. This can be achieved either by implanting individually calculated intraocular lenses in the two eyes, or with LASIK/TransPRK (the cornea is reshaped with a laser to change its optical properties). The intended effect can be simulated with contact lenses pre-operatively; which helps to determine whether the optical difference between the two eyes is well tolerated. The main advantage of monovision is that both eyes have clear vision (one eye for distance and the other eye for near), without any loss of sharpness or contrast.

- **Multifocal intraocular lenses**

Multifocal intraocular lenses are becoming increasingly more popular and use an entirely different optical principle. These lenses create sharp images for near and far objects, and project both of these images onto the retina. The brain then selects which image it “sees” and with little practice chooses the focused one. Since one optical system has to create two or three images, it is unavoidable that there is some loss of image quality. Some patients complain of optically disturbing rings around lights at night especially, and as a result a very small percentage of patients find driving at night difficult.

These treatments are essentially treating the symptoms of presbyopia without addressing the underlying deficit.

Fortunately, with the methods described above, presbyopia is a solvable problem and an increasing number of patients can enjoy their senior years without spending time searching for their reading glasses. An increasing number of people are opting for a lens operation to treat their presbyopia, rather than waiting for the development of cataract. Your surgeon will discuss all the options with you and help you to decide which option is the best for you.