



Presbyopia

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What is Presbyopia?

Presbyopia is an eye condition related to ageing. In previously normal sighted individuals, it causes a progressive decline in the ability of the eye to focus on nearby objects. This is a change in the physiology of the eye and no one can escape the condition.

As you probably know, the eye's ability to focus on nearby objects declines progressively throughout life. For example, a child with normal vision can focus on objects as close as 5 cm. At the age of 25, this distance declines to about 10 cm and at the age of 60 it declines further to between 1 and 2 meters. And, of course, the poorer the light, the worse the effect of this phenomenon.

Presbyopia develops due to the natural lens losing its elasticity, the little ligaments attaching the lens to the surrounding muscle (zonules) becoming stretched and a reduction in the power of the muscles that control the lens (ciliary body). This culminates in an inability to adjust the curvature of the natural lens, which is required to focus on objects at different distances.

The first signs of presbyopia are eyestrain, difficulty seeing in dim light and a lack of ability to focus on small objects and/or fine print. These symptoms are usually first noticed between the ages of 40 and 50 and people jokingly complain that their "arms are getting too short".

How can Presbyopia be treated?

The first step is to have your eyes thoroughly examined by an eye specialist - not only for obvious problems, but also for hidden or latent problem areas, such as corneal irregularities, cataract, astigmatism and glaucoma. Such conditions may be part of the reason why you cannot see properly.

If the condition of your eyes are known, the eye specialist can determine which solution(s) will best address your condition. Three types of options are now discussed.

1. Eyeglasses

- Eyeglasses with bifocal or variable focus lenses are the most common solution to correct presbyopia.
 - *Bifocal means two points of focus: the prescription for the main part of the lens corrects for distance vision, while the lower portion corrects vision for close-up work.*
 - *Varifocal lenses are similar to bifocals, except that they have a seamless transition between the two prescriptions.*
- Reading glasses, unlike bifocals and varifocals, are typically only used for close-up work. Readers can be purchased without prescription at most retail stores and pharmacies, or you may order higher-quality prescription glasses that are made specifically for you from an optometrist.

2. Contact Lenses

- Even if you have contact lenses, reading glasses may still be required for close-up work. (See above)
- Another option is multifocal contact lenses, available in gas permeable or soft lens materials.
- Another type of correction is "mono-vision", in which the contact lens for the dominant eye has a prescription for distance vision, and the other for nearby vision. The brain then learns to favour the eye in focus for a specific task. Some people are delighted with this solution, whereas others complain of reduced visual ability and loss of depth perception. Please see the description below for more details on this option.

3. Surgery

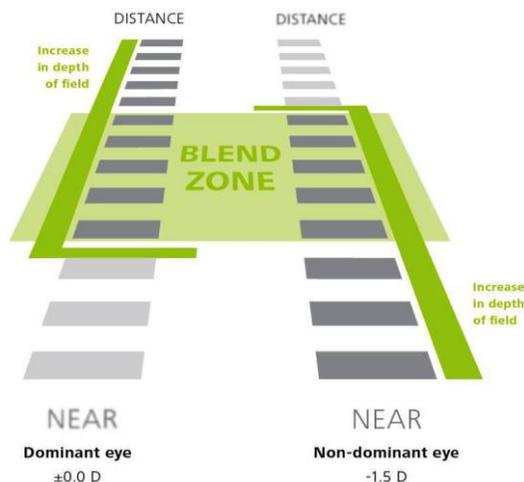
- Surgical options to treat presbyopia are becoming increasingly popular.

One of the techniques is “Laser Blended Vision”. It extends refractive laser correction beyond conventional and established laser methods and combines the simplicity and accuracy of laser refractive surgery with an increased depth of field.

Similar to conventional monovision, this technique corrects the dominant eye for distance vision and the non-dominant eye to be slightly myopic.

The result is an increased depth of field for each eye throughout the whole optical zone, because a more effective fusion of the two images for near and distance vision is created, known as the “Blend Zone”. The following diagram illustrates its impact on vision.

This option provides good vision at all distances with almost no need for visual aids.



- A surgical procedure, known as “refractive lens exchange”, is available to replace the clear (but inflexible) natural lens in your eye with an artificial presbyopia-correcting lens for multifocal vision, of which there are several types available.

These lenses work on the same principles as multifocal glasses and provide good nearby, intermediate and distant vision.

The major benefit of the surgical approaches, of course, is that it provides a permanent or long term solution to presbyopia.

Conclusion

Whether you currently use glasses, contact lenses or no optical aids, the lens in your eye will continue to become inelastic and deteriorate as you grow older. This will progressively affect your near vision as time goes by.

Should you currently use glasses or contact lenses to correct your near vision, its prescription will deteriorate over time.

Alternatively, you may select a more elegant and permanent solution that has a long lasting effect.

There used to be little choice about how to deal with presbyopia surgically, but due to modern technology, new choices and options than ever before are available to address this problem.

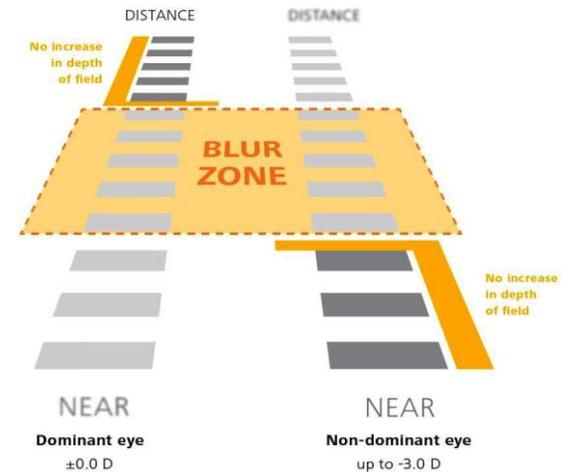
More about Monovision

Conventional monovision treatment, whether it be with glasses, contact lenses or laser, corrects the dominant eye for distance and the non-dominant eye for near. The brain now has to merge the two separate images into one, which many people find difficult to do.

Scientific studies show that approximately 60% of people can successfully merge the two images into sharp binocular vision at nearby and distance range, but even in such cases the brain takes time to become used to the new demands placed on it.

Those that may manage to tolerate the difference between the two eyes, are often left with a “gap” in the intermediate range, known as the “Blur Zone”. This situation may also cause other side effects like reduced contrast sensitivity and depth of field. Monovision is at best a compromise which, for some people, does not work well.

The following diagram illustrates its impact on vision.



Other Options to correct Presbyopia

- LASIK has been used for several years to create monovision, but it has its problems, which some people cannot tolerate or accept (See the section above on Monovision).
- Presby-LASIK is a new type of surgery now undergoing clinical trials in the US. It uses an excimer or femtosecond laser to create a multifocal cornea, which is intended to enable vision at all distances. This method also has certain limitations.