

New prospects

PRESBYOND Laser Blended Vision

Our eyesight is the most valuable of all our senses. We take in the world around us primarily with our eyes. Seeing provides us with information, puts things into perspective and forms our views. In short, it gives our lives meaning.

As we grow older, bodily functions like our eyesight start to decline. Presbyopia is a common eye condition that affects many people over the age of 40. Thereby, the natural lens starts to lose its ability to shift focus, causing difficulty when focusing on close objects and blurriness when reading. However, thanks to pioneering medical and technological research within recent years, new treatment options are now available.

In developing PRESBYOND® Laser Blended Vision, ZEISS applied latest advancements to give patients the results they desire. It offers several advantages over conventional vision correction methods, particularly with respect to the customized treatment, clear sight at all distances and immediate impact it provides.



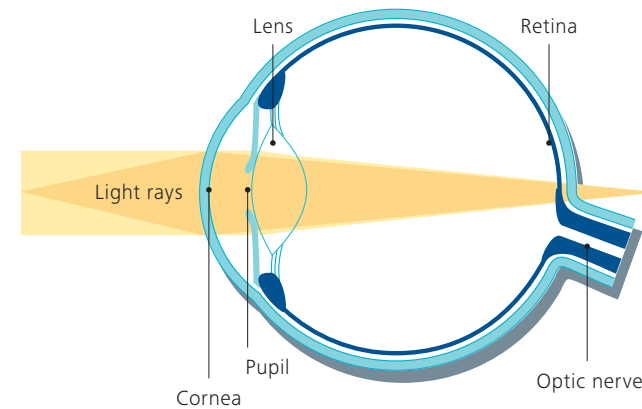
Bringing it into focus

Types of refractive errors

Similar to a camera lens, the cornea and lens of the human eye bundle the light rays and focus them at a focal point on the retina, resulting in a sharp image that is transmitted to the brain. The lens of the eye can change shape to focus on objects at different distances. As we age, however, the lens becomes less flexible and starts losing its ability to change shape and to adjust its focus. As a result, we have difficulty seeing sharply at all distances and eventually require reading glasses or contact lenses. This medical condition is called “presbyopia.”

Presbyopia

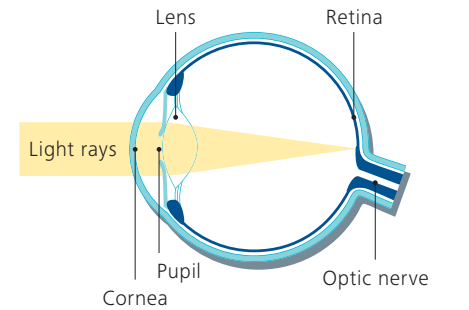
Through the increasing inflexibility of the lens, the light rays cannot be focused on the focal point of the retina. As a result, objects appear out of focus.



Presbyopia can occur in conjunction with near-sightedness, farsightedness, astigmatism and even normal vision.

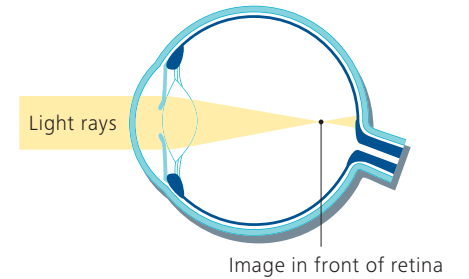
Normal vision (emmetropia):

Light rays are refracted by the cornea and the lens in such a way that the focal point is directly on the retina. Objects both near and far appear in sharp focus. Nevertheless, even people with normal vision can experience the effects of presbyopia. They normally have difficulty focusing on objects at near range.



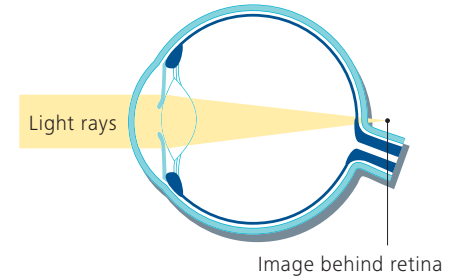
Nearsightedness (myopia):

Light rays are refracted by the cornea and the lens in such a way that the focal point is in front of the retina. Distant objects appear out of focus. Depending on the degree of myopia, near objects appear in sharp focus.



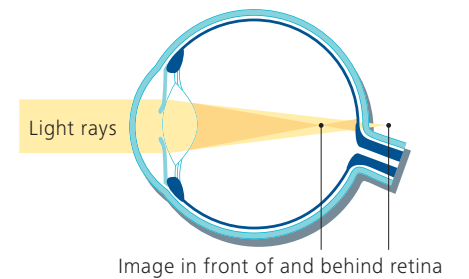
Farsightedness (hyperopia):

Light rays are refracted by the cornea and the lens in such a way that the focal point is behind the retina. Depending on the extent of the farsightedness, objects which are close, and even distant ones in some cases, appear out of focus.



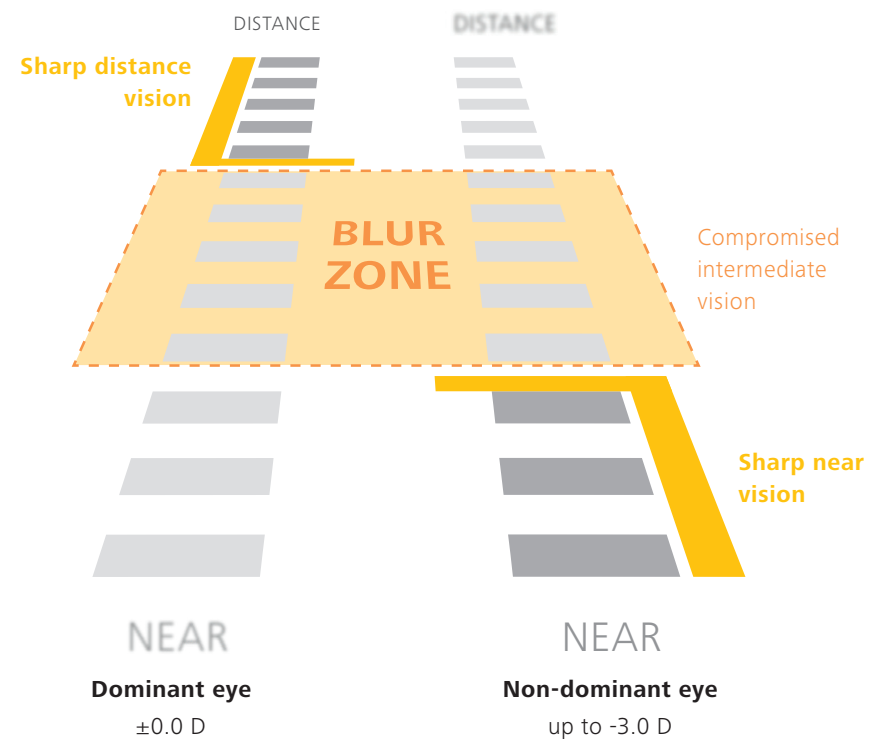
Astigmatism

The irregular curvature of the cornea causes the light rays to be refracted into multiple focal points and not just one. Depending on the extent of the astigmatism, objects both near and far appear skewed and distorted.



Conventional monovision

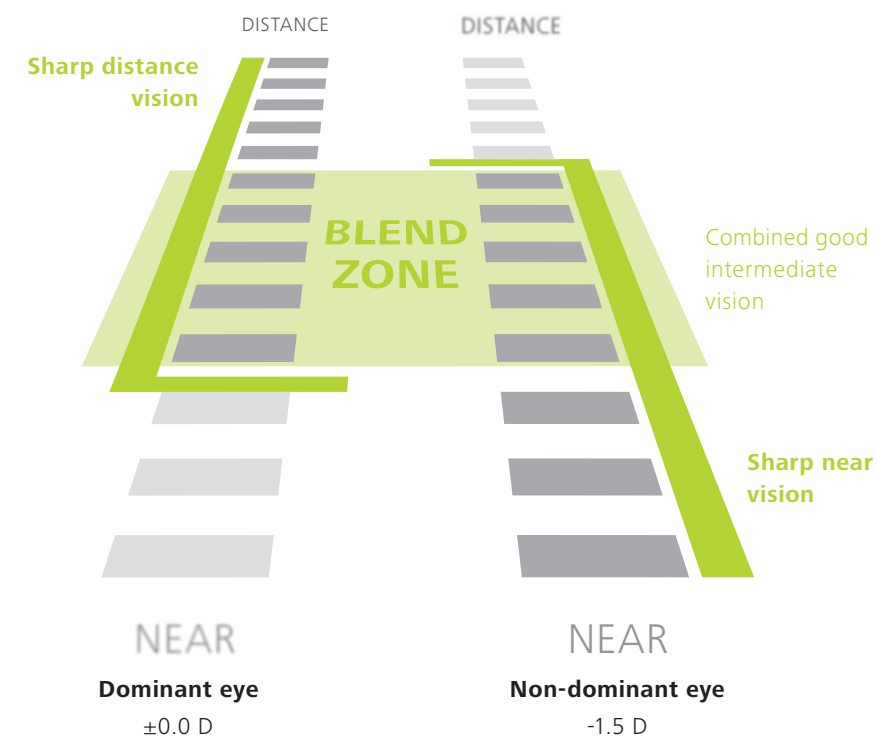
A variety of methods have been developed for treating people with presbyopia. Here are some of the basic characteristics of conventional treatments.



With most conventional monovision treatment methods (surgical or contact lens), one eye is corrected for distance and the other eye for near vision. The brain must adjust to seeing two images corrected for different distances. Unfortunately, a number of patients are unable to tolerate the procedure. According to scientific studies, only about 59–67% of them can successfully merge the two images. Patients frequently experience an area of compromised vision in the intermediate range – the “Blur Zone.” Those patients that are able to tolerate the procedure often require a long time to adjust to their new eyesight. In addition to the fuzzy image, contrast sensitivity, depth of field and the sharpness range for fine details near the point of focus can also be diminished.

PRESBYOND Laser Blended Vision

By comparison, PRESBYOND® Laser Blended Vision offers a variety of advantages – specifically, customized treatments that result in clear sight at all distances.



PRESBYOND Laser Blended Vision represents the next stage in eye care excellence. Similar to conventional monovision methods, one eye is primarily corrected for distance vision, while the other eye is corrected for near vision. But there is a significant difference: It fine-tunes the depth of field of each eye individually, creating a customized fusion of the two images in the intermediate zone – the “Blend Zone.” The unique Blend Zone makes it easier for the brain to merge the images of the two eyes, as shown in the simulated picture above. Most patients experience an immediate improvement. They are able to adapt much faster to their new eyesight. In addition, the procedure is tolerated by more patients – up to 97%² as compared to only 59–67%¹ for conventional monovision.

PRESBYOND Laser Blended Vision

Age-optimized treatment for presbyopic patients

For years, Carl Zeiss has been actively involved in research and studies regarding refractive laser-based treatments for presbyopic patients. PRESBYOND® Laser Blended Vision is a further development of Laser Blended Vision, which was first introduced in 2009. As a proven treatment method, the success of Laser Blended Vision has been documented in several studies. The laser treatment itself generally takes less than two minutes per eye and offers a number of advantages over conventional monovision methods.

MEL 80 and PRESBYOND Laser Blended Vision – Combining forces for clear sight at all distances

- True binocular vision thanks to the Blend Zone
- Clear vision at every distance: near, far and even intermediate
- Virtually no loss of contrast sensitivity
- High patient tolerance
- Effective for treating a wide range of errors (-8.0 D to +2.0 D), and therefore suitable for most presbyopic patients
- Appropriate for treating myopic, hyperopic and even emmetropic presbyopic patients – with or without astigmatism
- Fast, active eyetracker eliminates the risk of misguided treatment
- Natural yet tailored treatment approach to fine-tune each eye individually
- Truly customized solution for every eye
- Most patients can read the very same day without glasses
- Proven treatment method
- Immediate improvement and new quality of life
- Opportunity for freedom from wearing glasses
- Re-adjustable treatment

MEL 80 excimer laser

Enhancing the patient experience

Generally speaking, the faster the treatment, the more comfortable the patient experience. As a high precision instrument, the MEL® 80 excimer laser from Carl Zeiss is ideally suited for fast PRESBYOND Laser Blended Vision treatments. It allows highly accurate and smooth corneal corrections of exceptional quality. Advanced ZEISS optics ensure minimal energy exposure to the eye, thereby safeguarding surrounding corneal tissue.

The system's eyetracker provides exact laser positioning throughout the treatment. If necessary, it automatically compensates for any pupil shifts. Also, treatments can be performed without pupil-dilating medication, adding to the patient experience. Most importantly, patients only need to concentrate on the fixation light for a few seconds. With the MEL 80, the treatment is performed quickly and efficiently.

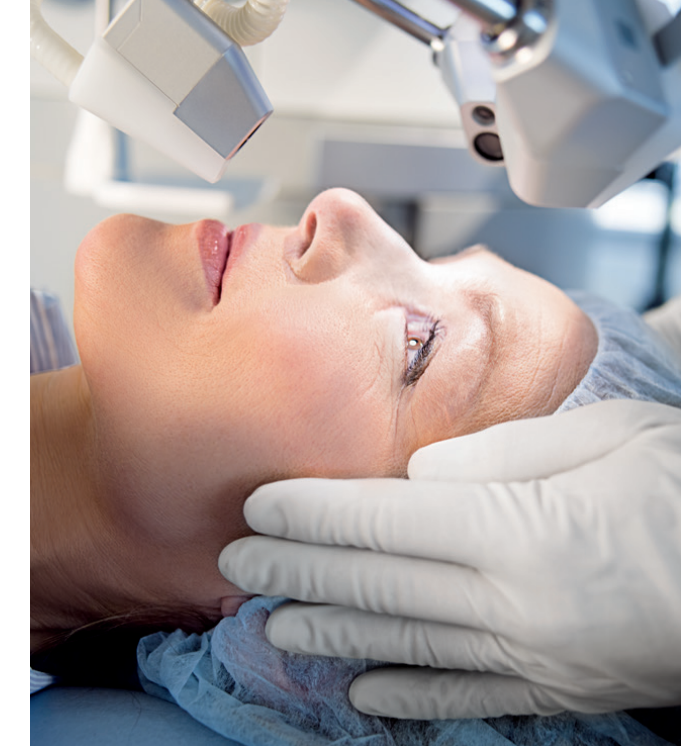
Is PRESBYOND Laser Blended Vision right for me?

If you are considering a refractive laser treatment such as LASIK, you will also want to consider PRESBYOND Laser Blended Vision – and how it can potentially benefit you. Ask your doctor for further information.

References

¹ Bruce J.W. Evans, *Ophthalmic and Physiological Optics*, Vol. 27, Issue 5, September 2007, pages 417–439

² Dan Z. Reinstein, *Journal of Refractive Surgery*, Vol. 27, Issue 1, January 2011, pages 23–37



Other things you might like to know about PRESBYOND Laser Blended Vision

PRESBYOND Laser Blended Vision is special. Why?

In principle, PRESBYOND® Laser Blended Vision is similar to conventional monovision. However, with PRESBYOND Laser Blended Vision, the treatment is customized for each eye. Thereby, an overlapping zone (“Blend Zone”) in the intermediate range is created. It makes it easier for the two eyes to merge the images, enabling clear sight at all distances.

How much experience has gone into developing the treatment?

ZEISS has stood for quality and precision in optics since 1846. It has over 100 years of experience in eye care. In 1986, the company unveiled the first excimer laser for correcting refractive errors of the eye. It has been at the forefront of advances in laser treatments to correct vision defects for over 25 years. Laser Blended Vision has been used to treat presbyopic patients since 2009.

How do I know if it is suitable for me?

Treatment eligibility is the same as for normal LASIK procedures, except that the therapy is customized for each presbyopic patient. You will first have to undergo a detailed eye examination. The nature and degree of the refractive error, curvature and thickness of the cornea, as well as many other factors play a role. Your tolerance level for monovision and ocular dominance will also be tested. Then, your ophthalmologist will personally advise you as to whether a treatment with PRESBYOND Laser Blended Vision is right for you.

How long will it take before I can see properly and can return to my normal routine?

Every healing process is different. In most cases, visual sharpness is already very good one or two days after the surgery. Your new vision normally stabilizes within two to three weeks. With alternative methods such as PRK or LASEK, by comparison, full recovery can take up to three months.

What is the time interval between surgery for each eye?

Usually, both eyes are treated the same day. In this way, patients can fully experience the benefits of the method.

What follow-up examinations may be necessary?

After surgery, you will be given drops and/or other medication. Your first checkup is usually the day after the surgery. Further examinations are generally conducted at regular intervals for the next weeks until your new vision has stabilized.

What are the risks?

As with all medical techniques and procedures, PRESBYOND Laser Blended Vision is not without side effects. Only your physician can explain the individual risks and possible side effects to you and decide whether PRESBYOND Laser Blended Vision is the right treatment option for you.





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We make it visible.