
Multifocal Intraocular Lenses

What is a multifocal lens?

Traditional monofocal lenses, including lens implants, focus light to only one point in space. A multifocal lens has more than one point of focus.

What is the benefit of a multifocal lens implant?

A multifocal lens implant focuses light from distance and near simultaneously. This feature addresses both distant and near vision and makes the recipient less dependent on glasses or contact lenses.

What are the different multifocal lenses now available?

There are three different types of multifocal lenses currently available:

1. Diffractive multifocal IOL (e.g. Zeiss AT-LISA trifocal lens, ReSTOR® lens by Alcon)
2. Diffractive extended depth of focus (EDOF) IOL (e.g. Ziess AT LARA)
3. Refractive multifocal IOL (e.g. LENTIS Mplus IOL by Topcon)

All of these lenses provides both distance and near vision but each has its own set of advantages and disadvantages.

What are the advantages and disadvantages of the diffractive multifocal IOL?

The diffractive multifocal lens implant provides excellent reading vision and very good distance vision. The intermediate vision is acceptable but some patients who do lots of computer work find they need to sit closer to the computer, make the font size larger on the screen, or get a pair of intermediate vision spectacles to make intermediate work more comfortable. In addition, 25% of patients note glare and haloes around lights at night with the diffractive multifocal IOL, a feature that is inherent to multifocal lenses. These effects may interfere with your ability to drive comfortably at night. However, most patients find that they get used to this phenomenon with time and the glare and haloes become less obvious. Night driving spectacles may assist in reducing this phenomenon. You should know that approximately 7-8% of patients implanted with monofocal lenses also notice glare and halos.

Who will benefit from EDOF IOL's:

For patients who wish for a high degree of spectacle independence, but are also more sensitive to visual side effects and are willing to accept reading glasses. One has to keep in mind that even the EDOF lens is a diffractive IOL and hence some degree of haloes and glare is to be expected.

What are the advantages and disadvantages of the refractive multifocal IOL?

The refractive multifocal lens implant provides excellent intermediate and distance vision. The near vision is typically adequate but may not be sufficient to see very small print, such as stock quotes, phonebook entries or medicine labels. In addition, patients who read for prolonged periods of time or in poor lighting may experience eye fatigue. One can always get a pair of near vision spectacles for those near tasks that are difficult. In addition, 25% of patients note glare and haloes around lights at night with the refractive multifocal IOL, a feature that is inherent to multifocal lenses. These effects may interfere with your ability to drive comfortably at night. However, most patients find that they get used to this phenomenon with time and the glare and haloes become less obvious. Night driving spectacles may assist in reducing this phenomenon. You should know that approximately 7-8% of patients implanted with standard monofocal lenses also notice glare and halos.

Are there any alternatives to multifocal lenses?

The primary alternative to multifocal lens implantation is monofocal lens implantation. If you request a monofocal lens, you will have to decide whether you want distance vision lens implants in both eyes or whether you want a distance vision implant in one eye and a near vision implant in the other eye. This latter arrangement, called monovision, provides adequate distance and near vision and is best suited for patients who have tried monovision with contact lens previously and like the effect.

Are there any risks or side effects to multifocal lens implant surgery?

Implantation of a multifocal lens is associated with all the risks and side effects of cataract surgery.

Will I see 20/20 after surgery?

We hope so, but we can't guarantee it. You are paying for the service and the implant, not a guaranteed result. If the eye is otherwise healthy, the vast majority of patients can achieve 20/20 vision with glasses, contact lenses or refractive surgery.

Will I need glasses after surgery?

If you opt to receive a monofocal lens implanted in both eyes for distance vision, you will definitely need reading glasses after surgery. If you receive a multifocal lens there is a good chance you won't need glasses. 75 - 80% of patients implanted with the diffractive and refractive lenses in their respective clinical trials did not need glasses after surgery for distance or near vision. Of course, not every patient in the trial was spectacle independent. The odds of becoming free of spectacles are better if your corneal astigmatism is low and your eyes are healthy.

Is a multifocal lens recommended for every patient?

No. It is recommended for most patients, but not for patients who have problems with their retina (e.g. significant macular degeneration, epiretinal membrane, macular pucker, macular holes, significant diabetic retinopathy, history of severe retinal detachment, retinal dystrophies or degenerations, retinal vascular occlusions), advanced glaucoma affecting central vision, irregular corneal astigmatism, corneal scarring, keratoconus, corneal dystrophies or optic neuropathy. Patients with a history of corneal refractive surgery (CK, RK, PRK, LASIK, etc.) may require additional refractive surgery following implantation of a multifocal lens to optimize its performance. In addition, your doctor will discuss the advantages and disadvantages of a multifocal lens as it pertains to your individual lifestyle and expectations. Patients with unrealistic expectations may not be appropriate for multifocal lenses.

What if I don't see 20/20 without glasses after surgery?

Due to inherent error rate in the calculations we use for implantation, we know from studies that some will need glasses to optimize vision. This is the case for any intraocular lens implant. You may also elect to wear contact lenses.

Will I need multifocal lenses in both eyes?

It is our current feeling that a multifocal lens should be implanted in both eyes ultimately to realize the full benefit of the technology.

Will it take longer for my eye to recover from surgery?

Recovery from cataract surgery is the same whether you receive a monofocal lens or a multifocal lens. The brain must adjust, however, to the new optical system created with the multifocal lens. This neural adaptation takes from weeks to months to occur.