

## Intraocular Lens Options during Cataract Surgery

Schedule: 303-440-3055

Understanding the different lens options available during cataract surgery is an important decision you have to make during your preoperative visit. Your overall eye health (dry eyes, corneal irregularity, previous LASIK or macular degeneration) and prescription, as well as the amount of corneal astigmatism that you have, play a big part in determining which lenses will give you the best results.

The decision that you need to make is what type of vision you would like to have after surgery.

- 1) **Good Distance Vision** - but wear reading glasses
- 2) **Good Reading Vision** - but wear distance glasses
- 3) **Good Distance, Computer, and Reading Vision** – glasses may still improve vision
- 4) **Monovision** - distance vision in one eye and reading vision in the other eye. I only recommend this option in patients that have done this previously with contact lenses, since many patients cannot tolerate monovision. Monovision limits depth perception, which can limit balance and increase the risk of falling.

The main types of intraocular lenses available:

- 1) **Single Vision** (enVista, Eyhance) – can be calculated to be used for **either** distance vision **OR** reading vision. If you choose distance vision, you would need to wear glasses for reading, and if you choose reading vision, you would need to wear glasses for distance. This lens does not correct for astigmatism, so if you have corneal astigmatism, you will likely see better wearing bifocal or progressive glasses to correct for the astigmatism. This is the only type of lens that is covered by Medicare and insurance, so there is no extra out of pocket expense for this lens.
- 2) **Toric** (enVista Toric, Eyhance Toric) – this lens is similar to the single vision lens, but decreases astigmatism. This allows patients with astigmatism to see well in the distance **OR** near, and then wear glasses for the other one. Insurance, Medicare, or secondary insurance, do not cover this lens, so there is an out of pocket expense for this lens.
- 3) **Extended Depth-of-Focus** (Vivity) – gives good distance to computer, and decreases astigmatism. Most patients will put on reading glasses for near tasks. Patients with mild corneal or retinal disease can often still do well with these lenses. There is an out of pocket expense for this lens.
- 4) **Trifocal** (Panoptix, Synergy) – gives good distance, computer, and reading vision, and also decreases astigmatism. Some patients may see halos or starbursts in certain light conditions. Patients with corneal or retinal disease may not do as well with these lenses. There is an out of pocket expense for this lens.

Hopefully this will help to simplify the options available. I'm happy to discuss the options further at your next visit. Please call 303-440-3055 to schedule your surgery.

-Ken Kreidl, MD

## Questionnaire Before Cataract Surgery

1. Are you interested in not having to wear glasses after cataract surgery?

Yes  No

2. Are you interested in seeing well at distance (driving, golf, skiing, tennis) without glasses after surgery?

Prefer no distance glasses

I wouldn't mind wearing distance glasses

3. Are you interested in seeing well at mid-range (computer, cooking, grocery shopping) without glasses after surgery?

Prefer no mid-range glasses

I wouldn't mind wearing mid-range glasses

4. Are you interested in seeing well at near (reading, sewing) without glasses after surgery?

Prefer no reading glasses

I wouldn't mind wearing reading glasses

5. If you had to wear glasses after surgery for one activity, for which activity would you be **MOST WILLING** to use glasses?

Reading fine print  Computer  Driving

6. If you could have **good distance**, **computer** and **near** vision for reading without glasses, but the compromise was that you might see some **glare** and **halos** around lights at night, would you like that option?

Yes  No

7. Have you ever been told you have astigmatism?

Yes  No

8. Have you ever had monovision, either with contact lenses, LASIK, or naturally?

Yes  No

9. Have you ever had LASIK, PRK, RK or other surgery on your eyes?

Yes  No

10. Please place an "X" on the following scale to describe your personality as best as you can:

[-----|-----]  
Easy going Perfectionist

Name \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

# Vivity Extended Depth of Focus Intraocular Lens

-Ken Kreidl, MD



The Alcon Vivity intraocular lens (IOL) is the first non-diffractive extended depth of focus (EDOF) IOL available in the United States. The definition of diffraction is “the spreading of waves around obstacles.” The proprietary non-diffractive technology uses two smooth surface transition elements on the anterior surface of the IOL that work simultaneously to create continuous, extended vision rather than separate focal points. The first extended depth of focus, multifocal and trifocal IOLs used diffractive technology to achieve their range of vision. Concentric rings within the central portion of the IOL allow the patient to have multiple focal points. The Vivity IOL is different in that it stretches the light for an extended depth of focus from distance to mid-range, rather than splitting the light to give focal points at distance, mid-range, and near.

The benefit of the non-diffractive technology is that it has a decreased incidence of visual disturbances, such as starbursts or halos, compared to multifocal IOLs. The non-diffractive technology also allows patients with mild corneal pathology, such as prior LASIK or PRK, guttata from Fuchs dystrophy, or dry eyes, to still experience the benefit of an EDOF IOL. Patients with mild macular disease, such as drusen or epiretinal membranes, can often do well with the Vivity IOL as well. I still recommend a single vision lens for those with moderate to severe ocular pathology, such as multiple LASIK procedures, macular degeneration, severe dry eyes, etc.

In my experience, the Alcon Vivity extended depth of focus intraocular lens is ideal for patients that may have mild corneal or macular disease, looking to have good distance to mid-range vision, but do not mind putting reading glasses on. The Vivity also excels in patients that prefer to have extended depth of focus from distance to mid-range with decreased risk of starbursts or halos, but again are not bothered by having to use reading glasses. The Vivity also has a toric model that decreases astigmatism.

# PanOptix Trifocal Intraocular Lens

-Ken Kreidl, MD



The first trifocal intraocular lens (IOL), the [Acrysof PanOptix](#), was approved for use in the United States in 2019. It has been implanted since 2015 in Europe and has been getting excellent reviews and stellar patient satisfaction. We have been implanting the PanOptix lens during cataract surgery since 2019, and patients have been very happy. What makes the PanOptix IOL different from the current lenses available in the United States, is its ability to offer 3 focal lengths -- distance, computer and reading vision. Multifocal intraocular lenses that became popular over ten years ago, limited patients to distance and reading vision, and had poor mid-range vision. Therefore, glasses were often needed for computer use. The older multifocal lenses also had a significant incidence of glare, halos, and starbursts, which limited patient satisfaction. The PanOptix trifocal intraocular lens has improved on these limitations by giving good computer vision, and decreases the incidence of glare, halos and starbursts. It also has a toric version to decrease the amount of astigmatism certain patients have. The PanOptix lens also gives patients the ability to perform most tasks without glasses, although wearing glasses may still enhance vision even more, and are an option after cataract surgery.

The way that the PanOptix technology gives 3 focal lengths is by placing concentric circles in the visual axis of the lens. The optical technology utilizes 88% of the available light, which is a significant improvement over older multifocal intraocular lenses. In a postoperative study of 129 patients by Alcon, 99% of patients would choose the PanOptix lens again, 98% would recommend it to friends and family, and 80% of patients reported that they never wear glasses.

Since the PanOptix intraocular lens is more complex than a single vision intraocular lens, patients with significant corneal disease (e.g., Fuch's dystrophy, keratoconus, severe dry eyes) or retinal disease (e.g., macular degeneration, epiretinal membrane, macular hole) may not have as good results with the PanOptix lens, and should probably choose a single vision lens.

In my opinion, the PanOptix offers the best intraocular lens option available in the United States for patients that prefer to limit their need for glasses, and achieve the best combination of distance, computer, and reading vision.