



2023

**Complete
Patient Guide To**

**Lens Implants For
Cataract Surgery**



BestCataractSurgeons.com

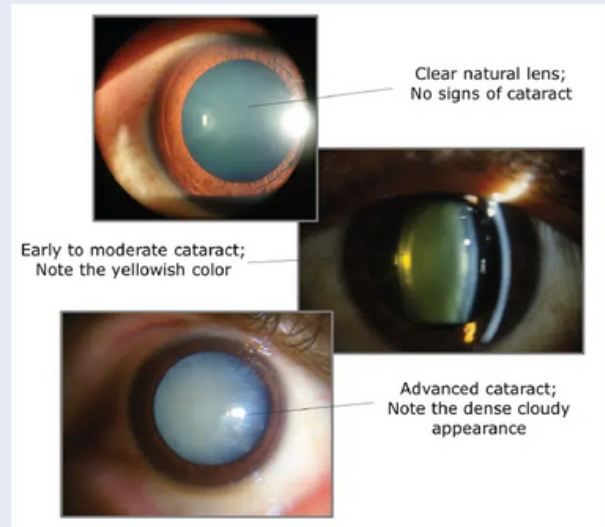
Table of Contents

- **Cataracts 101**
 - What Are Cataracts?
 - How Are Cataracts Treated
 - What Steps Are There Before Having Surgery?
- **Choosing a Lens Implant**
 - Do I Have To Choose a Lens Implant?
 - What Should I Consider When Selecting a Lens Implant?
- **Lens Implant Options**
 - Multifocal Lens Implants
 - Sample Multifocal Lens: PanOptix
 - Extended Range of Vision Implants
 - Sample Extended Range Lens: Vivity
 - Light Adjustable Lens
 - Toric Lens Implants
 - Monofocal Lens Implants

What are Cataracts?

We're all born with a natural lens inside our eyes. When we're younger, that lens is crystal clear. As we age, our natural lens first becomes stiff and later becomes cloudy.

When the lens stiffens, we first start to lose our "range" of vision. This is the reason that people begin to need reading glasses or bifocals around the age of 50.



Next, our natural lens starts to become cloudy. At first, this affects the quality of our vision in certain lighting situations, such as while driving at nighttime or trying to read in dim lighting.

Finally, the entire lens becomes more and more cloudy, impairing vision in virtually all situations. Instead of looking through the crystal clear lens we were born with, our vision begins to look like we're trying to see through a dirty window, which makes common tasks like driving, reading, and watching television difficult.

Cataracts are a normal part of "having birthdays"... Which is our nice way of saying that cataracts are a normal part of the aging process of our eyes.

Essentially everyone over the age of 60 has at least the early stages of cataracts.

How Are Cataracts Treated?

Cataracts are fixed with cataract surgery! There aren't any eye drops or medicines that can do the job.

Simply put... In cataract surgery, the cloudy cataract is removed, and a crystal clear new lens implant is put in its place. The entire procedure can take only 10-15 minutes in the hands of an experienced surgeon.



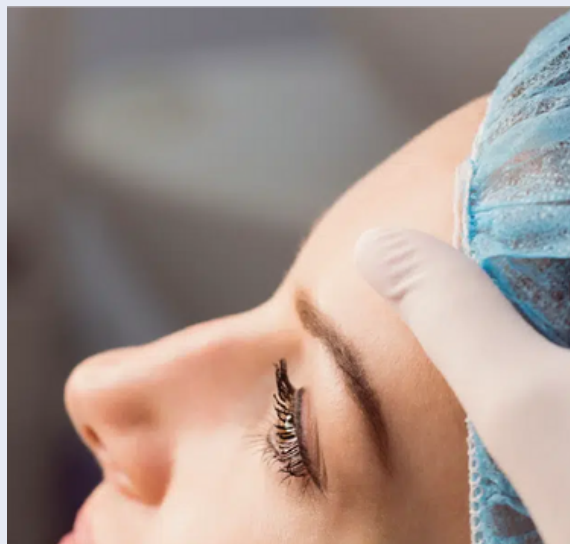
In Modern Cataract Surgery, everyone gets a lens implant... and the lens implants used can correct your need for glasses and contacts lenses. Even better... because the growth of cataracts is the main reason that most peoples' glasses prescription changes as they age... once your cataracts are removed your prescription typically remains stable for the rest of your life.

That means if your surgeon gets you freedom from glasses during your cataract surgery... you may be glasses-free for the rest of your life!

What Steps Are There Before Having Surgery?

1.) Have an Eye Exam.

First, you'll need an eye exam to confirm that cataracts are the cause of your blurry vision symptoms and not some other eye condition. There are many other causes of blurry vision such as glaucoma and macular degeneration, and before choosing to have cataract surgery, it's important to make sure that cataracts are the cause of your vision symptoms.



2.) Get Measurements Taken.

After your cataracts are diagnosed, you'll have a series of measurements taken on your eyes to help select the best lens implant.

These measurements are performed with a variety of specialized cameras in your doctor's office and are basically like having pictures taken. The devices typically have chin rests where you're positioned with the assistance of your doctor's staff. They typically instruct you to look at a light or a target while the pictures and measurements are taken.

These measurements will help your surgeon decide which lens implant is right for you.

3.) Your big decision — Choosing your new vision.

Modern cataract surgery has advanced tremendously over the past 30 years to give patients a variety of options for how they'd like their vision to look after surgery. That's right... you get to choose what your vision looks like after surgery.



**First — Let's discuss what you should not worry about...

When it comes to lens implants, don't focus on the technology... instead... you should focus on the outcome, or your 'goal' for your vision after surgery.

There are many, many different types of lens implants, made by many different companies. This variety is a good thing, and in-depth knowledge of the many options is what makes your surgeon an expert. However, it can be impractical, and even misleading for most patients to try to understand the advanced optics and engineering features that make one lens model different from another. Instead, what you should be concerned about and what you should discuss in detail with your surgeon, is how your vision will look after surgery and how independent you'll be from glasses.

Modern cataract surgeons have this variety of options to choose from so that they can customize your surgery to your eyes to reach your vision goals. So while you shouldn't worry about which brand of lens you get, or whether its a monofocal, multifocal, toric, or the engineering specifications of the lens... You should have a discussion with your surgeon about how your vision will look after surgery and whether you'll be free from glasses afterward.

Next let's discuss the different options most patients will have for their new vision after modern cataract surgery...

Choosing a Lens Implant

As we mentioned in the last section, in Modern Cataract Surgery most patients can choose how they want their vision to look after surgery, and they can customize their vision to their lifestyle to have independence from glasses.

Here are the options that patients considering cataract surgery have to choose from:

- 1.) Best Distance Vision in Both Eyes
- 2.) Best Near Vision in Both Eyes
- 3.) “Monovision” or “Blended Vision”
- 4.) Multifocal Vision

Let’s review each of these options in detail so you can make the best decision to suit your lifestyle:

1.) Best Distance Vision in Both Eyes

Just like the name sounds... If you choose to have the “Best Distance Vision in Both Eyes”, then your surgeon will choose a modern lens implant and surgical plan to give you the best distance vision in both eyes!

This means that you should expect to be free from glasses for ‘distance vision activities like driving, watching television, seeing faces across the room, seeing a golf ball far away, and other outdoor activities.

However, you should expect to need reading glasses for your near range activities... but these will typically only need to be inexpensive, over-the-counter, reading glasses (a.k.a. “cheaters”). The activities you may need them for include reading books or a cell phone, and possibly using a desktop computer may require a weak pair of “computer glasses”.

If your doctor is able to get you great distance vision and freedom from prescription glasses, this can often be for the rest of your life, saving you thousands of dollars on expensive bifocals and trifocals that end up having to be replaced every 2-3 years.

2.) Best Near Vision in Both Eyes

Just like the name sounds once again... in this option, your doctor will work with you to set your vision in both eyes for near range activities. Some patients prefer their near vision to be set for the computer screen range, while others may want it to be set for closer.

If you choose this option, then you should expect to need glasses for distance vision activities such as driving.

Only a small number of patients tend to choose this option, as most patients prioritize freedom from glasses for distance vision activities (like driving), and are able to easily use inexpensive over-the-counter reading glasses as-needed.

3.) “Monovision” or “Blended Vision”

With “Monovision” or “Blended Vision” patients can expect to have independence from glasses for both distance and near range vision.

In this option, one eye is set for distance vision, and the other is set for a near or intermediate range vision. Even though one eye is better for distance, and the other for near... when both eyes are open... your brain will blend the two eyes together to give patients a range of vision.

Many patients get used to this over the years with contact lenses or LASIK, and know they like it before cataract surgery. But many patients experience blended vision for the first time after cataract surgery, and enjoy a life free from glasses for a larger range of activities.

This is a great option for many patients to achieve freedom from both distance and reading glasses.

4.) Multifocal Vision

“Multifocal Vision” means that both of your eyes are able to see clearly at distance and near ranges. This is achieved by your surgeon implanting a lens implant that acts like a bifocal or trifocal inside your eyes. With this type of lens implant both of your eyes should have excellent distance vision without glasses... AND... both of your eyes should have excellent near vision without glasses.

Sounds like the best option... right?

While these lenses are outstanding... they're not perfect.

To achieve “Multifocal Vision” your surgeon will use a “Multifocal Implant”. There are many different brands and types of Multifocal Implants on the market, and they all function slightly different from one another.

Some provide better near vision, while others provide better intermediate range vision. Some of these lenses can cause symptoms such as glare and halos after surgery and are not suitable for all patients, especially those with other eye conditions such as advanced glaucoma or macular degeneration.

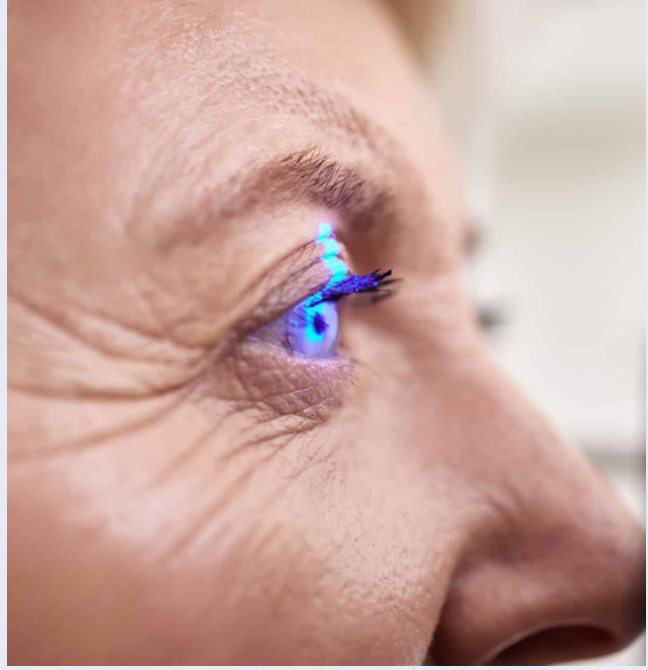
These are amazing lenses when used in patients who are good candidates for them in the hands of experienced surgeons... If you're a good candidate, they can help you achieve excellent glasses-free vision at all ranges. If you're considering “Multifocal Vision” it's even more important for you to choose an expert surgeon who has experience with these lenses.

Multifocal Lens Implants

What is the PanOptix Lens Implant?

The PanOptix intraocular lens (IOL) is the first trifocal lens implant in the United States approved by the FDA in August 2019.

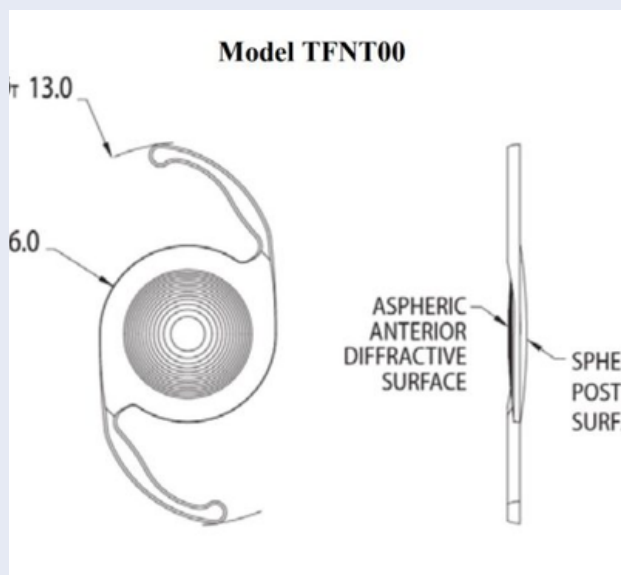
The implant is made of a biocompatible material and is designed to mimic the natural focusing abilities of the eye. It is inserted through a small incision in the front of the eye and placed in the same position as the natural lens.



The Panoptix lens implant has three focal points: one for distance vision, one for intermediate vision, and one for near vision. This allows it to provide a more natural range of vision and reduces the need for glasses or contact lenses after surgery.

How Does the PanOptix Multifocal Lens Differ from Other Multifocal Implants?

The PanOptix is the first trifocal lens implant in the United States. Bifocal lens implants only provide patients with two focal points. With bifocal lens implants, some patients would notice that they had good distance and near vision, but were lacking in the intermediate range. This intermediate range vision can be quite important for many people. Intermediate range vision includes the computer range, dashboard of the car, and kitchen countertop.



How Does the PanOptix IOL Work?

The PanOptix lens works by diffracting light rays to different focal points so that patients can achieve vision at three different distances – distance, intermediate, and near.

The lens is manufactured with an array of concentric rings that split up incoming light rays to result in the trifocal effect.

The rings simultaneously present the eye with three focal points. Therefore, unlike a pair of bifocal glasses, patients with PanOptix lenses are not required to look up or down when choosing distance or near vision.

When placed and centered within a patient's capsular bag the lens is designed to stay for a lifetime.

Extended Range of Vision Implants

What Does “Extended Depth of Focus” Mean?

“Extended depth of focus IOL’s” are designed to give patients a broader range of vision than “monofocal” implants that have a single focal point, and are typically aimed for either distance or near vision. “Multifocal implants” have multiple focal points, and can be thought of as bifocal or trifocal implants.

As an example, consider a bifocal implant, such as the ZMB00 Multifocal implant made by Johnson & Johnson. The ZMB00 is designed to give excellent distance vision, and excellent reading vision at approximately 13 inches. However, intermediate-range vision, which is typically where a computer monitor or the dashboard in the car sits, may be blurry. The “sweet spots” of vision with this type of lens do not have a large range. For example, a patient with the ZMB00 may have excellent reading vision at 13 inches, but when they move the object just a few inches forward or backward, it quickly becomes blurry.

“Extended depth of focus” means that instead of having a relatively small sweet spot of clear vision, the lens is designed to ideally give patients a larger range of useful vision.

What Makes The Design Of The Vivity IOL Different?

One of the side effects of many Multifocal IOL’s (MFIOL’s) is glare and halo symptoms. The benefit of many Multifocal IOL’s is achieved by “diffracting” light. Essentially this means “scattering light” in a controlled way.



As light enters the eye “diffractive MFIOL’s” split this light into the distance and near focal points for distance and near vision. As a side effect, some of this scattered light is perceived as glare, halos, and a reduction in the sharpness of vision. Different MFIOL’s cause different amounts of glare and halo symptoms. If you are interested in MFIOL’s, this is a conversation to have with your surgeon.

The Vivity was designed to reduce glare and halo symptoms as much as possible compared to other MFIOL’s on the market. This lens may be an option for diabetics with cataracts, however, this should be based on a discussion with your surgeon, since there is a broad spectrum of severity of diabetic eye diseases.

As a trade-off, the Vivity does not provide as close of near vision as some other MFIOL’s. The Vivity is targeted more for the “intermediate” range of vision (approximately 26 inches), which would be more suited for computer and dashboard range vision than the near reading of small print.

Overall Summary Of The Vivity IOL

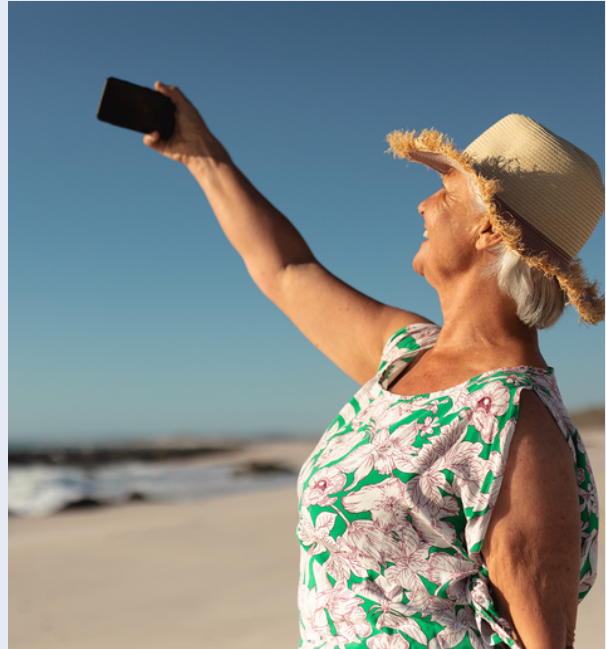
The Vivity is an excellent lens and will make for a lot of happy patients... However, you’ll hear us say this a lot when it comes to implants.... There is no “best” or “one-size-fits-all” lens implant option. All IOL’s come with a different profile of trade-offs, or risks & benefits. While the Vivity performed better than the Monofocal IOL for Intermediate range vision, it was not 100% effective in achieving complete independence from glasses at this range. There also was a slight worsening of distance vision with the Vivity compared to the Monofocal IOL. This can be thought of as a trade-off of being willing to give up a slight amount of distance vision (which many patients may not even notice) for the benefit of gaining intermediate range vision.

Overall, there are many nuances to selecting the right IOL for your lifestyle.

Light Adjustable Lens Implant?

The Light Adjustable Lens Implant is a monofocal lens implant that can be adjusted after it's already inside your eye. This adjustability allows it to be more accurate in achieving glasses-free vision for many patients.

There are some patients who are particularly difficult to hit the bullseye with traditional, non-adjustable lens implants. These patients include those with extremely long or short eyes, irregular corneal astigmatism, a history of laser vision correction or radial keratotomy, or corneal ectasia.



In these difficult patients, the light adjustable lens is an excellent option to achieve glasses-free vision.

The light adjustable lens comes with some trade-offs, mostly in the form of responsibilities for the patient after surgery.

Patients are required to have multiple additional visits with dilation of the eyes for the adjustment of the lens implant, and after the lens has been fully adjusted, additional visits are required to lock it in. During this adjustment period, which is typically 6-8 weeks after surgery, protective glasses must be worn at all times while awake so that light from the environment does not adjust the lens in an uncontrolled way.

Toric Lens Implants

Toric lens implants are designed to correct astigmatism. Management of astigmatism is necessary for every patient interested in having some amount of reduced dependence on glasses after their surgery.



Astigmatism can be corrected in a variety of ways during cataract surgery... but the first step is always measuring how much corneal astigmatism there is. Many patients commonly think that if they've never been diagnosed with astigmatism prior to cataract surgery that they won't need to have it managed during their cataract surgery.

This is incorrect!

Prior to cataract surgery, the astigmatism of the eye is a combination of astigmatism in the cornea, and astigmatism in the natural lens. These two natural lenses of the eye often can balance each other out to result in a lifetime of not needing astigmatism correction in glasses or contact lenses prior to your cataract surgery.

However, after your cataract is removed, any of this counterbalancing astigmatism in the natural lens is removed.

At this point, all that you're left with is the astigmatism in your cornea.

For this reason, your surgeon will take measurements on the shape of your cornea, because this will determine how to treat it at the time of surgery.

One option for treating your astigmatism is a toric lens implant, which has astigmatism correction built into the lens implant.

Most monofocal, multifocal, and EDOF lens implants come in toric and non-toric versions.

Monofocal Lens Implants

Monofocal lens implants have one focal point. This means that light entering the eye is focused on the retina for one working distance. This working distance can be customized. Some patients may prefer to have clear distance vision without glasses, while other patients may prefer to have better reading vision without glasses.

However, the important thing to note here is that you can only pick one. You can't have both in the same eye with a monofocal lens implant.

Some patients elect to keep each eye equal to each other so the two eyes work together, giving the best depth perception.

For example, a patient could choose for each eye to have clear distance vision. This would give excellent vision for driving or outdoor activities requiring excellent depth perception, like tennis. However, this patient would require reading glasses for near range activities.

Monofocal lenses can be mixed and matched between a patient's two eyes. For example, a patient may choose to have a monofocal lens for distance vision implanted in one eye, and a monofocal lens for near vision in the other. Many patients live like this for years with contact lenses or after LASIK. Having the eyes set in this way with lens implants is called monovision, or blended vision, and is very common.

These are lenses that have been designed to ensure that you get the best vision at once, and they are ideal for people who need to see items that are at a distance. For example, if you use reading glasses for near vision tasks, you need this type of lens so that you do not have to get prescription glasses after the surgery.

Resources:

<https://bestcataractsurgeons.com/resources/what-are-cataracts/>

<https://bestcataractsurgeons.com/panoptix-lens-review/>

<https://bestcataractsurgeons.com/light-adjustable-lenses-rxsight-implant-review/>

<https://bestcataractsurgeons.com/the-vivity-lens-implant/>

<https://bestcataractsurgeons.com/cataract-surgery-with-toric-lens/>



BEST CATARACT SURGEONS
IN AMERICA

BestCataractsSurgeons.com