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Information for Patients Considering Cataract Surgery



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The chances for successful lens replacement surgery are, in general, excellent. Successful surgery results from careful attention to detail by both doctor and patient. Please read the following advice and instructions so that together we can work to restore your vision.

We want your experience to be as comfortable and pleasant as possible.

Our mission is to provide you with the best possible vision.

WHAT ARE OUR VISUAL NEEDS?

In our daily lives, we need to be able to see at three focusing distances to perform our visual tasks:

1. The first is the “far” distance. This includes visual tasks such as driving, reading street signs, watching television from across the room, recognizing faces, etc.
2. The second visual distance is “intermediate.” Intermediate vision generally extends from approximately 2 feet to 6 feet away and is the visual range that allows people to use a computer, to read labels on the store shelf, work at a countertop or workbench, and read name tags.
3. The third distance is “near,” and this is the visual distance at which most people read books, newspapers, medicine labels, etc. This is actually quite close vision and is anywhere from 1½ to 3 feet away. (There actually is a fourth distance—very close vision such as is used for reading the phone book. Patients rarely request this type of correction.)

When considering which vision correction option is best for you, you should take into consideration how important each of the above visual tasks is to you. How much time do you spend doing **distance** tasks such as driving, playing golf, or other outdoor sports; **intermediate** tasks such as computer work, shopping, cooking, or working at a workbench; and **near** tasks such as reading fine print, etc.?

WILL REDUCING MY NEED FOR GLASSES INCREASE THE COST OF MY LENS REPLACEMENT SURGERY?

In general, lens implants fall into 2 categories: 1) **standard, monofocal (single-focus) IOL** that provide clear, crisp vision at one distance, and 2) **advanced IOLs** that have additional functions, such as correcting astigmatism (**toric IOLs**), or providing increased range of vision that includes some combination of distance, intermediate, and near vision (**multifocal** and **accommodating IOLs**). Medicare and insurance companies pay 80 to 100% of the cost for standard IOLs (depending on copays, deductibles, Medigap policies, etc.), whereas the patient is responsible for much of the cost for the advanced IOLs. Another aspect of surgery not covered by insurance is placement of corneal incisions to treat astigmatism.

WHAT IS ASTIGMATISM AND HOW DO WE CORRECT IT?

Astigmatism occurs when the cornea has different curvatures in different directions. The cornea is the front part of the eye, similar to a watch crystal. The cornea provides 2/3 of the focusing power of the eye. A cornea without astigmatism is equally curved in all directions like a basketball. A cornea with astigmatism has a

steeper curvature in one direction and a flatter curvature in the opposite direction—like an American football. Astigmatism prevents the eye from obtaining crisp vision without glasses or contact lenses. Astigmatism can be corrected with glasses or contact lenses, or we can attempt to correct it (or at least significantly reduce it) during cataract surgery.

There are two options for correcting astigmatism during cataract surgery: 1) we can make small incisions in the cornea or 2) we can implant an advanced IOL called a **toric** IOL; the toric IOL has the same design as standard IOLs except that its focusing element can correct astigmatism. For low amounts of astigmatism, results are similar with either approach, but, with higher amounts, we typically achieve greater accuracy with the toric implant compared to the corneal incisions. There is higher out-of-pocket cost with the toric lens compared with incisions because the manufacturer charges more for this implant.

WHAT OPTIONS DO I HAVE FOR SELECTING THE IOL?

For your lens replacement surgery, you have at least 5 options for correcting your vision after surgery:

1) Aim for **distance vision in each eye** using monofocal (standard single-focus) IOLs.

This is a popular option that is selected by many patients. It uses the “tried and true” technology of monofocal IOLs that has been developed with great success for over 50 years. If there is little or no astigmatism in the eye, well over 90% of our patients with otherwise healthy eyes will achieve vision without glasses that is 20/40 or better – good enough to pass a drivers’ license test in any state in the country. Patients with monofocal lenses and good distance vision generally require reading glasses or bifocals to see up close. Reading glasses have the virtue of being inexpensive (generally around \$20) and readily available without a prescription.



2) Aim for **monovision** using a monofocal (standard single-focus IOL)

This is another popular option. With monovision, we typically aim for distance vision in the dominant eye and set the nondominant eye to focus for either intermediate (computer distance) or reading vision. Having one eye set for distance and one eye

set for near increases the number of activities that you can do without glasses. Monovision after cataract surgery or refractive lens exchange works especially well in patients who have previously worn contact lenses for monovision.

Of course, monovision does create a difference in the vision in the two eyes. Most patients, realizing the advantage of increased freedom from glasses and contacts, tolerate this disparity extremely well. A small percentage of patients are uncomfortable with the imbalance between the two eyes; fortunately, in almost all patients this can be corrected with glasses or even with corneal laser surgery.

While successful monovision correction will allow most patients to perform most tasks (including driving) without glasses, the Texas Department of Public Safety (DPS) has determined that, even if monovision patients have good distance vision in one eye, they will still be required to have a glasses restriction on their driver's license unless their vision without glasses in their near eye is 20/40 or better.

This means that monovision patients are required by the DPS to wear glasses to drive if the distance vision without correction in the near eye is less than 20/40. However, many monovision patients actually prefer to wear distance glasses for their near eye while driving at night or in poorer visibility conditions such as rain, fog, or snow. A simple solution used by many of our monovision patients is to keep a pair of distance glasses in the car to use when they drive.

3) Aim for **near vision in each eye** using a monofocal (standard single-focus) IOL

This option, while uncommonly used, is sometimes selected by those who have been nearsighted for most or all of their lives. This allows you to read and do other near tasks such as sewing without glasses. Obviously, you will require glasses for distance activities such as driving and watching television.

For any of the above 3 options, clarity of vision without glasses requires that you have little or no astigmatism in each eye. Therefore, any significant astigmatism will require correction with either a toric lens implant or small incisions in your cornea. As noted above, since Medicare and most private insurers do not cover the costs of surgery for astigmatism, this represents an additional expense to you that you will be asked to pay for prior to the surgery.

4) Aim for **both near and distance vision in each eye** with **multifocal lenses** (**advanced IOL**)

Multifocal lenses are sometimes excellent options for reducing your dependence on glasses and contact lenses after cataract surgery or refractive lens exchange. Multifocal lenses work by providing simultaneous near and distance vision in each eye, thus allowing both eyes to work together for both distance and near. We use the following multifocal lens:

- The **Restor** lens, manufactured by Alcon, tends to provide excellent distance and reading vision, although reading in low light is sometimes difficult. Intermediate vision with the Restor (computer screens, etc.) is acceptable (especially after both eyes are done) but not quite as sharp as the distance and reading vision typically most patients enjoy with this implant.

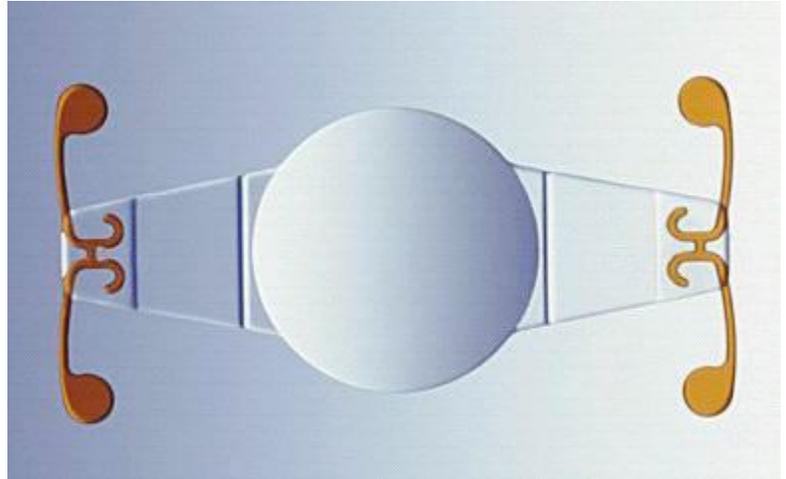
Multifocal lenses are not for everyone. The keys to success include careful patient selection, patient education, and accurate results. It is important that your eyes are perfectly healthy (other than your cataract) and that you understand both the advantages and limitations of multifocal lenses. If you are interested in this option, we will perform additional testing to insure that you are a good candidate for this type of lens.

Weaknesses inherent in all multifocal IOL designs include more glare and halos around lights, especially at night, than typically occur with monofocal lenses. In the FDA studies, about 1 in 20 patients described the glare and halos with multifocal lenses as “severe,” although most in even this group were still pleased with their overall results. Also, vision may be slightly less crisp than with monofocal lenses, but the benefit of course is the chance to read without glasses.

Multifocal lenses function best when both eyes are working together; therefore, you will not get the full effect and best benefit of multifocal vision until you have had surgery on your second eye.

5) Use **an accommodating lens**: the **Crystalens (an advanced IOL)**

A final possibility is the Crystalens. This is a flexible lens that in many patients provides both distance and intermediate vision; it accomplishes this by “vaulting” or “moving” or “flexing” within the eye when one focuses at near objects. Like the multifocal lenses, the Crystalens works best when present in both eyes, and it often provides excellent distance and intermediate vision.



The Crystalens can also be used to provide better reading vision if one eye is made slightly nearsighted; this is in effect a very mild form of monovision and has the big advantage of better quality of *distance* vision in the slightly nearsighted eye, compared to the monovision with standard lenses. This is our preference for some patients receiving this lens. *Thus a major advantage of the Crystalens over standard monovision is that the distance vision of the near eye can be left at around 20/40 while still providing acceptable near vision. If this occurs, glasses will not be required by the Texas DPS for driving.*

There are, however, three other factors to consider with regard to the Crystalens: 1) In around 20% of patients, it does not provide as much intermediate or near vision as desired, and we do not know how to select those for whom it is guaranteed to be successful; 2) the focusing zone is slightly smaller than most lenses, so there is a slightly increased chance of some glare at night; fortunately, this is uncommon, and 3) the accuracy of the correction with the Crystalens is not as good as with other IOLs, so laser corneal surgery is slightly more likely to be required to get best vision without glasses.

One precaution: because the Crystalens filters less ultraviolet light than the standard lens implant, we recommend that, when outdoors in midday with bright sunlight, patients wear sunglasses that filter ultraviolet light (which is a good idea with all implants).

As noted previously, multifocal IOLs and the Crystalens are **advanced** IOLs, and Medicare and private insurance companies consider them a “luxury technology” that is not essential for good vision. The extra cost associated with using these is **not** covered by Medicare and insurance, and you will be asked to pay for them before your surgery.

A FEW WORDS REGARDING THE ACCURACY OF LENS IMPLANT POWER CALCULATIONS

We make every effort to ensure that our patients' vision without glasses is as sharp as possible. To select the lens implant, we use sophisticated technology to measure the eye, along with advanced formulas to calculate lens powers. Although these techniques that we use to measure the eye and calculate the power of lens implants are "state-of-the-art", they are not perfect. There are some inherent limitations of these technologies, and, more importantly, *the healing process varies from patient to patient*. As a result, a small percentage of patients may have an unpredictable outcome and will not see as well without glasses as they and we expected. *This problem is especially common in patients who have had prior refractive surgery, such as RK, LASIK, or PRK.*

Regardless of the option you choose for rehabilitating your vision after lens replacement surgery, please understand that further surgery such as PRK or LASIK (laser surgery of the cornea) may be required to obtain good vision without glasses. Fortunately, these procedures have a high success rate and low risk of complications, and they are now frequently used to help patients who desire better vision without glasses following cataract surgery.

Please also remember that all of the options presented above represent efforts to reduce your dependence upon glasses and contact lenses. None of these options can guarantee that you will be able to "throw your glasses away." We look forward to talking with you about which of these options might be best for you. We want you to be as satisfied as possible with your lens implant choice.

****SPECIAL NOTE TO PATIENTS WHO HAVE LARGE AMOUNTS OF NEARSIGHTEDNESS AND FARSIGHTEDNESS****

If you have a large amount of nearsightedness or farsightedness, then cataract surgery offers the opportunity to significantly reduce or even eliminate this. This is accomplished by implanting a lens with the appropriate power to reduce your nearsightedness or farsightedness.

However, implanting a lens in one eye only to give good distance vision without glasses creates an imbalance between the two eyes. Unfortunately, you cannot simply insert a clear lens in your glasses for the newly operated eye.

The thick lens on the side of the un-operated eye either makes the image larger or smaller, and this difference in magnification can be very disorienting in the interval between your first eye surgery and your second eye surgery. Temporary solutions are to use the new eye without glasses or wear the glasses as is to use the un-operated eye. Long-term solutions are to remove the cataract in the other eye or wear a contact lens in it.

CONCLUSION

We hope that this information is helpful for you, and we look forward to discussing any of these matters further with you. If you have questions, please call us at 979-297-4042