

Cataract Surgery—information and options

WHAT IS A CATARACT?

The lens in the eye can become cloudy—a condition known as a cataract. Cataracts can develop from normal aging, injury to the eye, or from some medications. Cataracts may cause blurred or dulled vision, sensitivity to light and glare, and/or ghost images. If the cataract diminishes your vision and interferes with your daily life, the cataract may need to be removed. Surgery is the only way to treat a cataract. Should you choose to not remove a cataract, it will continue to progress and lead to further loss of vision.

HOW WILL REMOVING THE CATARACT AFFECT MY VISION?

The goal of cataract surgery is to correct the decreased vision that was caused by the cataract. During the surgery, the ophthalmologist (eye surgeon) removes the cataract and puts in an artificial lens called an intraocular lens or IOL. The IOL will be left in the eye permanently. Cataract surgery will not correct other causes of decreased vision, such as glaucoma, diabetes, or age-related macular degeneration. Most people still need to wear glasses or contact lens after cataract surgery for either near and/or distance vision and to correct astigmatism.

EXAMINATIONS PRIOR TO SURGERY

As part of the evaluation of your eyes, you will undergo a complete eye examination by your surgeon. This may include an examination to determine your eyeglass prescription (refraction), measurement of your vision with and without glasses (visual acuity), measurement of the eye pressure (tonometry), measurement of the curvature of your cornea (keratometry), ultrasonic measurement of the length of your eye (axial length), intraocular lens calculation (biometry) to determine the best estimate of the proper power of the implanted IOL, microscopic examination of the front part of your eye (slit-lamp examination), and examination of the retina of your eye with your pupils dilated.

MORE INFORMATION ABOUT EYE MEASUREMENTS

While the method used to calculate the power of the IOL is usually very accurate, the final result may vary from what you and your surgeon planned. As the eye heals, the IOL can shift very slightly toward the front or the back of the eye. The amount of this shift is not the same in everyone, and it may cause different vision than predicted. If the eye's visual power after surgery is considerably different than what was planned, surgical replacement of the IOL might be considered. Patients who are highly nearsighted or highly farsighted have the greatest risk of differences between planned and actual outcomes. Patients who have had LASIK or other refractive surgeries are especially difficult to measure precisely.

PRESBYOPIA AND ALTERNATIVES FOR NEAR VISION AFTER SURGERY

Everyone will eventually develop presbyopia, a condition wherein your eye loses its ability to shift from distance to near vision. Presbyopia is the reason that reading glasses become necessary, typically after age 40, even for people who have excellent distance and near vision without glasses. Presbyopic individuals require bifocals or separate (different prescription) reading glasses in order to see clearly at

close range. Standard cataract surgery does not correct presbyopia. However, there are several options available to you to achieve distance and near vision after cataract surgery. This is probably the most important decision you need to make about your cataract surgery, so please take the time to review your options and ask questions.

- **GLASSES.** You can choose to have a monofocal (single focus) IOL implanted for distance vision and wear separate reading glasses, or have the IOL implanted for near vision and wear separate glasses for distance.
- **MONOVISION.** The ophthalmologist could implant IOLs with two different powers, one for near vision in one eye, and one for distance vision in the other eye. This combination of a distance eye and a reading eye is called monovision. It can allow you to read without glasses. Many patients who wear contacts or who have had refractive surgery have monovision and are happy with it.
- **MULTIFOCAL IOL.** The ophthalmologist could implant a multifocal IOL. This is a newer, “premium” type of IOL that can provide good vision at multiple distances without wearing glasses. It corrects for both distance vision and other ranges, such as near or intermediate. Choosing this option will usually lead to higher out-of-pocket expenses since most insurance companies only pay for a monofocal (single focus) lens.

MORE INFORMATION ABOUT MONOVISION

In order to have good depth perception, your eyes need to be corrected for any refractive problems such as nearsightedness or farsightedness, and "balanced" for distance. Eye care professionals refer to this as binocular vision. Monovision or “blended” vision can impair depth perception to some extent, because the eyes are not focused together at the same distance. Most patients who choose monovision will choose to have their dominant eye corrected to see things at a distance and their non-dominant eye corrected to see things that are closer. Most monovision patients will be more comfortable wearing glasses to balance their vision for prolonged reading tasks or for driving (especially at night) and for sports like tennis or golf. You may still need to wear glasses even with monovision. If you have successfully worn contacts lenses for monovision, you will likely be happy with this option after cataract surgery. Although many patients will adjust well to monovision, some may find it uncomfortable. For those patients, the monovision can usually be reversed by elective laser vision correction—although this surgery will not be covered by your medical insurance.

INFORMATION ABOUT TREATING ASTIGMATISM

In addition to nearsightedness and farsightedness, many patients also have astigmatism. Astigmatism is caused by an irregularly shaped cornea; instead of being round like a basketball, the cornea is shaped like a football. This change in shape can make your vision blurry. There are several treatment options for astigmatism: 1) you can have an IOL for near or distance vision and continue to wear glasses or contact lens for the astigmatism; 2) you can have an astigmatism correcting **Toric IOL** placed in your eye, 3) you can have refractive surgery called LASIK or PRK, or 4) your surgeon can perform a procedure before, during, or after cataract surgery called a limbal relaxing incision. A limbal relaxing incision (LRI) is a small cut or incision the ophthalmologist makes into your cornea to make its shape rounder. More than one incision may be required. Most insurance companies will not pay the additional cost of astigmatism correcting options such as refractive surgery, toric IOLs, or limbal relaxing incisions.

ANESTHESIA, PROCEDURE, AND POSTOPERATIVE CARE

The ophthalmologist or the anesthesiologist/nurse anesthetist will make your eye numb with either drops or an injection (local anesthesia). You may also undergo light sedation administered by an anesthesiologist or nurse anesthetist, or elect to have the surgery with only local anesthesia. There are risks associated with anesthesia and sedation. These include injury to the eye, heart and breathing problems, and in very rare cases, death.

An incision, or opening, is then made in the eye. This is at times self-sealing but it may require closure with very fine stitches (sutures). The natural lens in your eye will then be removed. There are several ways to remove the lens; the most common technique is called phacoemulsification, which uses a vibrating probe to break the lens up into small pieces. These pieces are gently suctioned out of your eye. After your natural lens is removed, the IOL is placed inside your eye. In rare cases, it may not be possible to implant the IOL you have chosen or any IOL at all.

Your eye will be examined the day after surgery and at intervals determined by your surgeon. During the immediate recovery period, you will place drops in your eyes for about 1 to 4 weeks, depending on your individual rate of healing. If you have chosen monovision or a multifocal IOL to reduce your dependency on glasses or contacts, they may still be required either for further improvement in your distance vision, reading vision, or both. You should be able to resume your normal activities within 2 or 3 days, and your eye will usually be stable within 3 to 6 weeks, at which time glasses or contact lenses could be prescribed.

RISKS OF CATARACT SURGERY

The major risks of cataract surgery with implantation of an IOL include, but are not limited to:

1. Mild discomfort. Cataract surgery is usually quite comfortable. Mild discomfort for the first 24 hours is typical but severe pain is extremely unusual and should be reported immediately to the surgeon.
2. Complications of removing the natural lens may include bleeding (hemorrhage); rupture of the capsule that supports the IOL; perforation of the eye; clouding of the normally clear outer layer of the eye called the cornea (a condition known as corneal edema), which can usually be treated with a corneal transplant; swelling in the central area of the retina (called cystoid macular edema), which usually improves with time; retained pieces of lens in the eye, which may need to be removed surgically; infection; detachment of the retina, which is definitely an increased risk for highly nearsighted patients, but which can usually be repaired; uncomfortable or painful eye; droopy eyelid; increased astigmatism; glaucoma; and double vision. These and other complications may occur whether or not an IOL is implanted and may result in poor vision, total loss of vision, or even loss of the eye in rare situations. **Additional surgery may be required to treat these complications. The cost for this additional surgery is not included with the cataract surgery.**
3. Complications associated with the IOL may include increased night glare and/or halos, double or ghost images, and dislocation of the IOL. Multifocal IOLs may increase the likelihood of these problems and you should think carefully about how these problems might affect your job, your hobbies, and your daily life. In some instances, corrective lenses or surgical replacement of the IOL may be necessary for adequate visual function following cataract surgery.
4. Complications associated with limbal relaxing incisions include damage to the cornea, infection, and fluctuating vision while the incision heals. They can also lead to under- and over-correction; if this occurs, another surgery, glasses, or contact lenses may be required.

5. Complications associated with local anesthesia injections around the eye include a hole (perforation) of the eye, injury to the optic nerve, interference with the circulation of the retina, droopy eyelid, breathing problems, low blood pressure (hypotension), heart (cardiac) problems, and in rare situations, brain damage or death.
6. If a monofocal (single focus) IOL is implanted, either distance or reading glasses or contacts will be needed after cataract surgery for adequate vision.
7. Monovision may result in problems with impaired depth perception. Choosing the wrong eye for distance correction may result in difficulty with vision. Once surgery has been performed, it is not attempts to reverse what has been done may lead to some impairment of visual quality.
8. Multifocal (multiple focus) IOLs may reduce dependency on glasses but might also result in less sharp vision, which may become worse in dim light or fog. They may also cause some visual side effects such as rings or circles around lights at night. It may be difficult to distinguish an object from a dark background, which will be more noticeable in areas with less light. Driving at night may be affected. If you drive a lot at night, or perform delicate, detailed, “up-close” work requiring closer focus than just reading, a monofocal lens in conjunction with eyeglasses may be a better choice for you. If complications occur at the time of surgery, a monofocal IOL may need to be implanted instead of a multifocal IOL. Even with a multifocal lens implanted, you may find that your near or intermediate vision is not adequate without glasses. Additional treatment and/or surgery may be necessary.
9. If complications occur at the time of surgery, the doctor may decide not to implant an IOL in your eye even though you may have given prior permission to do so.
10. Other factors may affect the visual outcome of cataract surgery, including other eye diseases such as glaucoma, diabetic retinopathy, age-related macular degeneration; the power of the IOL; your individual healing ability; and, if certain IOLs are implanted, the function of the ciliary (focusing) muscles in your eyes.
11. Although your doctor will use highly technical equipment and formulas to select the best IOL for you, the result may differ from what was planned. You may need to wear glasses or contact lenses after surgery to obtain your best vision. Additional surgeries such as IOL exchange, placement of an additional IOL, or refractive laser surgery may be needed if you are not satisfied with your vision after cataract surgery.
12. Regardless of the IOL chosen, you may need laser surgery (a YAG capsulotomy) to correct clouding of vision. At some future time, the IOL implanted in your eye may have to be repositioned, removed surgically, or exchanged for another IOL.
13. If your ophthalmologist has informed you that you have a high degree of farsightedness and/or that the axial length of your eye is short, your risk for a complication known as choroidal effusion is increased. This complication could result in difficulties completing the surgery and implanting a lens, or even loss of the eye.
14. If your ophthalmologist has informed you that you have a high degree of nearsightedness and/or that the axial length of your eye is long, your risk for a complication called a retinal detachment is increased. Retinal detachments can usually be repaired but may lead to vision loss or blindness.
15. Since only one eye will undergo surgery at a time, you may experience a period of imbalance between the two eyes (anisometropia). This may persist until the second eye has undergone cataract surgery and the prescriptions are better matched. In the absence of complications, surgery in the second eye can usually be performed within 1 to 2 weeks.
16. There is no guarantee that cataract surgery will improve your vision. As a result of the surgery and/or anesthesia, it is possible that your vision could be made worse. In some cases, complications may occur weeks, months or even years later. These and other complications may result in poor vision, total loss of vision, or even loss of the eye in rare situations. You may need additional treatment or surgery to treat these complications.