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GUIDE TO CATARACT SURGERY

According to Prevent Blindness America's *Vision Problems in the U.S.* report, nearly 20.5 million Americans age 40 and older have cataracts. By age 80, more than half of all Americans will have a cataract. Every year in the U.S., more than one million cataract surgeries are performed. Cataract surgeries are performed without complication in 95% of cases.

Why do cataracts form?

Cataracts are probably caused by changes related to aging. Throughout our lives, our bodies replace old cells with new ones. As we grow older, the old cells in our eye's lens build up and block light as it tries to pass through. The end result is cloudy vision.

Besides getting older, other factors may cause cataracts to form. Eye infections, some medicines (such as steroids), injuries or exposure to intense heat or radiation may cause cataracts. Too much exposure to non-visible sunlight (called UV or ultraviolet light) and various diseases, such as glaucoma, diabetes or metabolic disorders may also contribute to cataracts forming.

What are the types of cataracts?

Age-related – About 95% of cataracts are age-related, usually after age 40.

Congenital – These are present at birth, usually caused by infection or inflammation during pregnancy; possibly inherited.

Traumatic – Lens damage from a hard blow, cut, puncture, intense heat or chemical burn causes these.

Secondary – Some medicines, eye disease, eye infection, or diseases such as diabetes cause these cataracts. They may also form after cataract surgery if the remaining lens becomes cloudy.

How can the eye doctor tell if I have a cataract?

Everyone who gets a cataract experiences it differently. But a person with a cataract often has cloudy or blurry vision and sensitivity to light. Some lights may seem too dim, and others too bright. It may be hard to read or drive, especially at night. If you have a cataract, you may see halos around lights, such as car

Founded in 1908, Prevent Blindness America is the nation's leading volunteer eye health and safety organization dedicated to fighting blindness and saving sight. Focused on promoting a continuum of vision care, Prevent Blindness America touches the lives of millions of people each year through public and professional education, advocacy, certified vision screening training, community and patient service programs and research.

headlights, that make it hard to focus clearly. Colors may not seem as bright as they used to be. Or you may have to change your eyeglass prescription often.

To find out if you have cataracts, your eye doctor will want to:

- Find out your general medical history
- Find out your specific eye history, including problems and symptoms
- Test your vision (visual acuity)
- Test your side vision (peripheral vision)
- Test your eye movement
- Test you for glaucoma (by measuring the eye's internal pressure)
- Do a microscopic exam of the front of the eye (using something called a slit lamp) to assess the density of the cataract and how it interferes with light passing through the lens
- Widen (dilate) the pupils of your eyes to examine the retina, the optic nerve (which carries visual messages from the retina to the brain) and the macula (responsible for the best part of central vision)
- Test you to see how glare affects your vision

Should I have cataract surgery?

You must decide whether to have cataract surgery. A cataract at the outer edge of your lens may hardly affect your vision. However, a cataract at the center of your lens may greatly affect your sight. Only you can decide if a change in your vision keeps you from doing all the things you want or need to do.

Note: If a cataract keeps your eye doctor from viewing the inside of your eye, he or she may suggest surgery. Your eye doctor needs to be able to view the inside of your eye to check for eye diseases such as glaucoma and problems of the retina.

When can I avoid cataract surgery?

Prevent Blindness America recommends that

individuals do not have cataract surgery if:

- Cataracts have not affected your lifestyle or kept you from doing all the things you want and need to do
- Your vision will not improve with surgery because of other eye problems
- Glasses or contact lenses can provide satisfactory vision
- You are not well enough/fit enough for the surgery
- You do not want surgery

What kind of lens will replace my cataract lens?

When the eye surgeon removes the lens with the cataract, you will need something to replace it, so that you can focus and see clearly. You have three choices to replace your own lens:

- **Intraocular lenses (IOLs)**
- **Contact lenses**
- **Cataract glasses**

Intraocular lenses

IOLs have become the most popular choice for replacing cataract lenses. Unlike contact lenses, these lenses are implanted inside the eye and are meant to be permanent. They do not require replacement or cleaning.

The eye surgeon implants the IOL in about the same place as your natural lens, so that it comes closest to your natural vision. For people who feel that cataract glasses are too bulky or do not want to fuss with contact lenses, IOLs may be the perfect answer. However, if you are very nearsighted or have certain other eye diseases, you may not be able to have lens implants. You and your eye doctor will need to discuss whether any restrictions may apply.

If you and your eye doctor decide on an implant, your eye doctor will measure the length of your eye before your surgery using a

painless sound wave (ultrasound) test to see what strength you will need for your IOL. He or she will check the health of your retina and cornea and give you an estimate of the level of vision you can expect after surgery.

Contact lenses

Contact lenses provide the same clear vision as cataract glasses, but do not act as magnifying lenses to make things appear larger.

By wearing a contact lens on your operated eye, you will be able to see about as well as you did before the cataract developed. These lenses cannot cure all your vision problems. You may still need glasses for close-up work.

There are two types of contact lenses: daily wear and extended wear. You must remove daily wear contact lenses before you go to sleep. You can wear extended wear contact lenses for longer periods of time. Extended wear contacts are usually prescribed for people who would have trouble inserting and removing daily wear contacts (for example, people with severe arthritis).

Cataract glasses

Cataract glasses are safe and fairly inexpensive, but they may take some getting used to after surgery. The lenses in cataract glasses are different from regular eyeglasses, so you will see things in a different way. Objects will look larger (by about 25%) and may seem to appear suddenly in your side vision (peripheral field of vision). Vertical lines may appear curved, and it may be hard to judge distances.

If you have cataracts in both eyes but have had only one surgery, your eyes won't be able to work together when you wear cataract glasses. The lens for your treated eye makes things appear larger, while your other eye will view images as they truly are. Your brain won't be able to put the two images together for normal (binocular) vision. You will have this condition,

called monocular aphakia (eye without a lens) until after your second cataract operation.

Choosing an eye surgeon

In addition to a doctor's skill, experience and manner, referrals often are helpful in choosing an eye surgeon. Ask trusted friends or contact a university with a medical school or hospital for names and references.

If an eye doctor has recommended surgery, you may want to get a second opinion. Make an appointment to see an eye doctor who does not work with, and was not referred by, your regular doctor. You do not have to tell this doctor that someone else has already recommended surgery. Let this doctor come to his or her own conclusions about whether you need cataract surgery.

Here are some points you may want to bring up with your doctor.

- Do I really need surgery? What will I gain by having it?
- What are the risks?
- What is surgery like? Will it hurt? What will I be able to see?
- Will any other problems like glaucoma or diabetes affect my cataracts or my surgery?
- How long will it take to recover from the surgery?
- Will I need glasses after surgery? If I wear contacts, can I wear them again after surgery?
- Are there some things I won't be able to do after surgery? If so, for how long?
- Will I have to stay in the hospital overnight?
- Will someone have to take care of me after surgery? If so, for how long?
- Will the medicines I take for other illnesses interfere with surgery or my recovery?
- How experienced is the doctor? Is he or she board certified?
- Is a payment plan available?

Getting ready for surgery

On the day of your surgery, or a few days ahead of time, you may need to see your doctor for a few tests, such as for blood and urine. Because you will be given some form of anesthesia, your doctor will probably ask you not to eat or drink anything after midnight the day before the surgery. If you take medicines or have diabetes, ask your doctor whether different guidelines apply.

Removing the cataract and inserting an intraocular lens usually takes the surgeon less than an hour. The entire process, from arriving at the hospital or surgical center to going home, takes about half a day. Only 10% of surgeries require an overnight hospital stay.

On the day of your surgery, you will be given some eye drops to widen (dilate) your pupils. You may be given a mild sedative to help you relax. A healthcare worker will take you into the operating room where an anesthesiologist or nurse anesthetist will give you a local or an intravenous anesthetic. He or she will monitor your condition.

You will not feel or see the surgery because the anesthetic puts your optic nerve to sleep during the operation. You may seem some lights or vague shapes, but that is all.

Your surgeon will use a special microscope, which magnifies and lights the area of the procedure as he or she removes your cataract.

You may not remember much about the operation after it is over. You may feel a little drowsy afterward, but as the anesthetic wears off, you will be encouraged to walk around a bit. Your doctor will monitor your condition for a while, explain how to care for your eye at home, and schedule a follow-up appointment.

Once you're fully recovered, you will be allowed to go home. But it's a good idea to have

a friend or relative drive you. You may feel tired after surgery, so try to relax the rest of the day.

At home, you should not have much discomfort. Some people describe the feeling as if there is an eyelash or a cinder in their eye—slightly uncomfortable, but not painful. You will need to wear a bandage and apply eye drops or ointment as your doctor prescribes, and you will learn to rely on your untreated eye during this time.

Three kinds of cataract removal

During the cataract operation your surgeon will remove the clouded lens. (If you choose to have lens implants, your doctor most likely will perform this procedure right after removing the lens with the cataract.) There are three methods for removing the clouded lens:

- Extracapsular
- Phacoemulsification
- Intracapsular

The **extracapsular** procedure removes only the inside of the lens but leaves the capsular bag that holds the lens in place. Leaving the capsular bag adds to the structural strength of the eye and promotes easier healing.

In this procedure, the eye surgeon will make a cut (incision) in the cornea and remove the largest part of the lens in one piece. After the lens is removed, the capsular bag is cleaned. If a patient chooses to have a lens implant, the implant is positioned in the capsular bag and is held in place by its loops.

The **phacoemulsification** procedure requires a smaller incision in the cornea. The surgeon uses sound waves (an ultrasonic device) to break the lens into small pieces, and then suctions the tiny pieces out through the same incision. Next, the doctor will make the incision slightly larger in order to insert the lens into place. Again, the

capsular bag will remain to strengthen the eye. Some of the new IOLs are foldable, so they can be inserted through the same small incision, and the opening is closed with either one or a few stitches, or sometimes none at all.

Phacoemulsification, with its smaller incision, offers faster healing and recovery time, less or little discomfort, and less chance of uneven focus (astigmatism) or distorted vision.

During the **intracapsular** procedure, your eye surgeon removes the lens and the entire capsular bag that holds it. Your doctor will make an incision in the cornea, use a special tool to freeze the lens, and remove it through the incision. He or she then implants the IOL in front of the iris where its loops hold it in place. This procedure is not performed much anymore since it requires the removal of the entire capsule, and there is a slightly greater chance of complications such as swelling or retinal detachment.

Cost of surgery

Basic charges you can expect for cataract surgery include fees for the hospital/surgical center, the doctor, the anesthesiologist, basic tests before surgery (such as blood and urine, if needed), medicine after surgery and follow-up visits with your doctor. Ask your doctor to estimate each of the costs. You may also need new glasses or contact lenses after surgery.

If you have private health insurance or Medicare, it usually will pay for a part of most costs. Try to find out what your health insurance will cover before the surgery. Extra insurance (secondary supplemental insurance) also may cover 80% of the amount not covered by your primary insurance. You may have to pay 20% of the balance. Ask your doctor about his or her billing and payment methods.

Some hospitals and surgical centers may be able to help you with financial planning. This may

include putting together a payment plan or filing claims to your insurance company. Filling out insurance forms can be hard, so be sure to ask questions ahead of time.

Possible complications from surgery

Less than 5% of patients experience complications from cataract surgery, but you should discuss possible problems with your doctor. Here are three areas of complications:

Problems during surgery, called operative complications, such as heavy bleeding, happen to only one out of 300 patients. About 3% percent of patients lose the gel-like substance that fills the inside of the eye (vitreous humor) during surgery.

Problems soon after surgery, called early post-operative complications, can include leaking from the wound, bleeding or infections.

Problems after healing, called late post-operative complications include retinal detachment (this requires surgery to correct, but happens in only one out of every 100 patients), swelling of the cornea (common with IOLs), or swelling of the retina (called cystoid macular edema). Severe bleeding or infection is a rare complication. It happens in fewer than one in every 1,000 patients, but it may cause severe vision loss.

Remember, the risk of severe problems or blindness from cataract surgery is very low. Less than 5% of patients experience any of these complications. Still, it may ease your mind to talk about your concerns with your doctor before surgery.

Sometimes after the extracapsular or phacoemulsification procedure, the capsular bag that remains in your eye can become cloudy. This is called secondary cataract. If this happens, your doctor may suggest laser

surgery to make a tiny hole through the cloudy lens capsule, to help you see clearly again.

Your recovery

After surgery, most of the healing takes place in the first few days. But it will take four to 10 weeks for your eye to fully heal. For the first week or two, or as your doctor recommends, you should minimize vigorous physical activity. You should restrict any lifting or deep bending, which causes increased eye pressure. If you experience severe pain, loss of vision, sudden increased redness, or swelling in your operated eye, call your eye doctor right away.

Other do's and don'ts

- Do use your medication as directed.
- Do sit down and lift your feet to put on your shoes.
- Do try to sleep on your back or on the unoperated side.
- Do have someone else drive while your eye is healing.
- Do wear sunglasses in bright light.
- Do keep follow-up appointments with your doctor.
- Do limit reading (back and forth motion can disturb healing). TV is fine.
- Do keep moderately active.
- Don't rub or press your eye.
- Don't bend over to pick things up; kneel instead.
- Don't get soap, shampoo or other irritants in your eye.

Caring for your eye

Here are some pointers that can help you recover more quickly:

Applying ointment

Use the eye drops or ointment that your doctor prescribed to help your eye heal. This medicine protects against infection and helps decrease swelling.

How to apply eye drops or ointment

Tilt your head back. Pull your lower eyelid down to create a "cup" that holds the drops or ointment. Put in the prescribed amount of medicine and close your eye to distribute it evenly. If you have trouble doing this, ask a friend or relative for help. Start with a fresh bottle of medicine after surgery so germs don't get transferred.

Using and changing bandages

Your doctor may want you to use a bandage to protect your eye from injury, to keep it clean, and to keep out bright light. You can use an eye shield while sleeping to protect your eye. Remove the old dressing. Gently and carefully clean your eye with a fresh, clean washcloth dipped in warm water only (no soap). Apply a fresh bandage in the same position and tape diagonally to hold the bandage in place. Do not press or rub your eye while doing this. If using an eye shield, place the eye shield gently over the bandage. Use one or two more strips of tape diagonally to hold the shield in place.

Follow-up care

Your doctor will suggest a schedule for follow-up visits—the first, the day after your surgery. It is important to keep these appointments to find out whether your eye is healing well. You will also be able to ask your doctor any questions you have about medicine or your activities (such as heavy lifting or exercising).

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