

## 14 Tips to Maximize Your Cataract Surgery Outcomes

Cataract surgery may be the most frequently performed surgery in the world, but like any surgery, it can always be done better. Here, with that in mind, are 15 specific things any cataract surgeon can do to come as close as possible to the desired visual target, while avoiding common complications.

### Performing the Exam

**1. Remember that just because a cataract is present doesn't mean it has to be removed.** The prime directive that we all agreed to when we became physicians is: first, do no harm. Not every cataract needs to be removed. Listen to your patients and hear their complaints or lack of them.

**2. Look for ocular surface disease and treat it before finalizing your measurements.** Patients often have ocular surface disease. About 80 percent of patients evaluated for cataract surgery have preexisting dry eye; signs include a rapid tear breakup time and ocular surface staining, which will affect topography and result in poor measurements. Treating the condition will result in more accurate measurements and thus better intraocular lens calculations. Anterior basement dystrophy can also impact the measured shape of the cornea, and it can therefore impact the postoperative results. Identifying the condition and talking with the patient about whether to treat it beforehand is critical. If a patient has irregularity, enough that you feel it requires treatment, you can perform an epithelial debridement to smooth the corneal surface. In severe cases phototherapeutic keratectomy may be helpful.

**3. Perform a careful preoperative retinal exam and take steps to minimize the risk of cystoid macular edema.** The best way to prevent CME is a thorough preoperative retinal examination. Patients who are at increased risk of developing CME, include patients with various retinal conditions such as epiretinal membranes, a history of retinal vascular occlusions, diabetic retinopathy or uveitis. The key to managing the risk of CME is prevention. Using topical "nonsteroidals" for three days prior to cataract surgery appears to reduce the risk of developing CME, and combining therapy with a topical corticosteroid can also help. These anti-inflammatory medications are often used for four weeks postoperatively, and in some cases may be prescribed for an additional month or two.

### Choosing the IOL

**4. If multiple technologies are used to measure astigmatism, make sure they agree.** If one device suggests there is 1 D of astigmatism at 85 degrees and a second device says there is 1.8 D of astigmatism at 95 degrees, consider initiating a treatment for ocular surface disease. Then bring the patient back for repeat measurements.

**5. Use aspheric lenses.** Aspheric lenses correct the spherical aberration in the cornea. That translates to improved vision. Studies have shown that aspherical IOLs improve vision by about one line and improve contrast sensitivity by about 30 percent.

**6. Don't use a two-variable formula when calculating lens power.** The formulas that use two variables are mostly older ones. The Haigis formula, for example, uses axial length and anterior chamber depth, while SRK/T, Hoffer Q and Holladay I use axial length and Ks. Two-variable formula puts about 60 percent of cases within 0.5 D of the target refraction. There are three formulas that use up to seven variables: The Holladay II, the Olsen II and the Universal II formula from Graham Barrett. Those formulas use axial length, K-reading, horizontal white-to-white distance, anterior chamber depth, lens thickness, refraction and age of the patient. Using any of these formulas will result in 70 to 75 percent of your cases being within 0.5 D of your target.

### Planning Your Approach

**7. Aim for less than 0.5 D of residual astigmatism.** To accomplish this one needs to know how much astigmatism your surgical technique will induce. In addition, with astigmatism of less than 1.0 -1.5 D try to place the main incision on axis and if necessary place an additional incision 180 degrees away. In cases of with-the-rule astigmatism limbal relaxing incisions can be placed. With greater astigmatism toric lenses may be utilized. Toric lenses come in step sizes that are 0.75 D, which converts to about 0.5 D at the corneal plane. If used properly, the farthest one can be from the perfect astigmatic correction is about 0.25 D. To get the very best result from a toric lens, intraoperative aberrometry is ideal, since it narrows the alignment error far more than manually marking the eye can.

### Performing the Surgery

**8. Before surgery, verify that the patient data is correct—multiple times.** "Make sure your system protocol and pre-surgical checklist incorporate a series of checks and balances to verify that the patient's data is correct; that the data you are using is the data belonging to the patient you are about to operate on; take nothing for granted. Verify, verify, verify."

**9. Make sure your anterior capsulorhexis is the correct size.** Getting the size of your anterior capsulorhexis right helps with IOL centration and stability. Make an indentation on the corneal surface marking the edge of a 6-mm optical zone with calipers. Using that as a visual guide, stay just inside that mark to fashion a 5- to 5.5-mm anterior

capsulotomy. It's easier to size the capsulotomy accurately with that as a reference point.

### Managing Complications

**10. Take steps to prevent incision leakage.** Make an incision that is as square as possible. Hydrate the wound at the end of the case. Check for leaks with a sponge.

**11. Reposition the IOL if it ends up misplaced.** Make sure that the IOL is not upside down. Also make sure that both haptics are in the bag to avoid pigmentary dispersion and glaucoma.

**12. Positioning the IOL if the capsule bag is compromised.** If only the anterior capsule has a rent, in-the-bag placement of a one-piece IOL may still be safe. If the posterior capsule is compromised, perform a thorough anterior vitrectomy and cortical clean up. Then insert a three-piece IOL into the sulcus and capture the optic through the anterior capsule opening for proper fixation.

**13. Look out for elevated intraocular pressure following surgery.** A pressure rise can be caused by inflammation, lens particles that are liberated during the surgery or retained viscoelastic. The key to preventing a serious problem is prompt diagnosis. One option is to see patients the same day instead of waiting for them to come back the next day.

**14. Be aware of the possibility of cystoid macular edema.** As noted earlier, the best treatment for CME is prevention, starting with a careful preoperative retinal exam to detect retinal problems such as maculopathy, vitreoretinal degeneration, an epiretinal membrane or a retinal tear or hole. The risk also goes up if your patient has vitreous loss during cataract surgery. If CME occurs despite precautions, either restart or increase your anti-inflammatory therapy. Referring the patient to a retina specialist for further treatment may also be helpful."

**15. If something does go wrong, admit it and be straightforward about it.** If you want to end up with a happy patient, you have to recognize when things don't go according to plan and immediately address it. If you can't figure out what happened, seek out someone else who can. A patient will not fault you if you make every effort to help him; but if you fail to recognize a problem, ignore the patient's complaints or fail to seek out the help the patient needs, it will come back to haunt you. No doctor is perfect and neither is any procedure. If you make that clear to the patient before surgery, you won't have any backpedaling to do.

Reference: Review of Ophthalmology 4 March 2016.

By: Joern B. Soltau, MD

To schedule an appointment at the Kentucky Lions Eye Center, please call 502-588-0588.

## Providing the Highest Level of Care for your Patients

Eye Specialists of Louisville/University of Louisville Ophthalmology has been a center of excellence for clinical eye care, treating a broad range of eye disorders from pediatric eye diseases to age-related macular degeneration. As the largest multi-specialty team of ophthalmologists in Louisville, we are at the forefront of leading-edge treatments and research in subspecialties including Retina, Uveitis, Glaucoma, Oculoplastics, Pediatrics, Cornea, Neuro-Ophthalmology and Low Vision.

## Office Locations:

**Kentucky Lions Eye Center**  
University of Louisville  
301 E. Muhammad Ali Blvd.  
Louisville, KY 40202  
Referring Physician Line  
(502) 588-0588

**The Springs Medical Center**  
6400 Dutchmans Parkway, Suite 310  
Louisville, KY 40205  
Referring Physician Line  
(502) 588-0588

**Old Brownsboro Crossing  
Medical Plaza II  
(Pediatric Only)**  
9880 Angies Way, Suite 330  
Louisville, KY 40241  
Referring Physician Line  
(502) 588-0588

## Meet the Doctors



**HOSSIEN ASGHARI, MD**

*Cornea & Refractive  
Surgery*



**CHRISTOPHER  
COMPTON, MD**

*Oculofacial Plastic  
& Orbital Surgery*



**THONG PHAM, MD**

*Neuro-Ophthalmology*



**DOUGLAS SIGFERD,  
MD**

*Retina & Vitreous*



**CHARLES BARR, MD**

*Retina & Vitreous*



**HENRY KAPLAN,  
MD, FACS**

*Retina, Vitreous  
and Uveitis*



**APARNA  
RAMASUBRAMANIAN,  
MD**

*Pediatrics / Ocular  
Oncology*



**ANDREA SMITH, OD**

*Low Vision / Optometry*



**RAHUL BHOLA, MD**

*Pediatric Ophthalmology  
& Adult Strabismus*



**JUDITH MOHAY, MD**

*Glaucoma/Cataract*



**HARPAL SANDHU, MD**

*Retina & Vitreous*



**JOERN SOLTAU, MD**

*Glaucoma/Cataract*



**JEREMY CLARK, MD**

*Oculofacial Plastic  
& Orbital Surgery*



**WILLIAM NUNERY,  
MD, FACS**

*Oculofacial Plastic  
& Orbital Surgery*



**PATRICK SCOTT,  
OD, PhD**

*Optometry*



**HARRY  
STEPHENSON, MD**

*Comprehensive  
Ophthalmology*