

# Pearls for success with presbyopic IOLs

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It is common knowledge that cataract surgery is now considered a highly refined refractive procedure.

For a refractive surgeon who shares a similar practice distribution to mine—approximately 60% laser refractive surgery and 40% cataract surgery—it is an automatic transition whenever evaluating, executing preoperative measurements, performing surgery, and following the patient postoperatively, to focus on the main goal of achieving a successful and **safe** cataract procedure.

Part of this process is a thorough evaluation of the multiple eye functions and measurements:

The refractive aspect of cataract surgery has become a crucial point and, inevitably, a means by which the patient judges the clinical outcome. It plays a major role in the patient's overall satisfaction.

I feel that –regrettably- most patients will encounter the refractive aspect of cataract surgery as a consumer product and probably your services as well.

I try and have a clear differentiation in my patient discussions of the cataract and refractive component of cataract surgery

Have routinely employed several tools to optimize refractive outcomes in cataract surgery over the past 10 years, which I think have become a great advantage, not only for patients to realize the formality with which we approach the issue of refractive correction, but as something that is reinforced by our excellent results. In our preoperative evaluation, one important measurement is to understand **how is the patient currently functioning**—whether it be with glasses, contact lenses, or no correction at all. It is also important to know whether the patient is a driver and if they will drive at night.

In hyperopic patients, we tend to aim mainly toward ametropia; in myopic patients, we shy away from ametropia and lean toward 0.50 D of myopia. My clinical experience indicates that hyperopes never like to be myopic and myopes never like to be hyperopic postoperatively. To avoid such refractive surprises, we treat the two groups as different patient populations. 2-mm incision, it has been rewarding in eliminating postop cylinder and has proven to be a valuable tool toward achieving emmetropia, and of course, greater patient satisfaction.

After we discuss all the options, if the patient has high astigmatism (ie, more than 1.00 D), we compare keratometry measurements among the autorefractor, IOLMaster, Biograph, and Pentacam. We again lean toward using a toric IOL. If the patient does not have significant keratometric astigmatism and does not desire a specialty multifocal accommodating IOL, we go with a monofocal option, targeting ametropia in the dominant eye and approximately 0.50 D of myopia in the nondominant eye to aid with animated vision. If the patient desires correction of distance and intermediate and some near vision, we proceed with informed consent for both the Crystalens and the Restor

## **EXPLAIN THE REFRACTIVE CORRECTION**

**As far as the refractive side of cataract surgery, we discuss several options with the patient. We offer a standard option, which for us is the aspheric AcrySof IQ IOL (Alcon Laboratories, Inc.). In general, we aim for ametropia or the Acrysof toric when K cyl is significant. We also offer multifocal IOLs, our top choice being the aspheric AcrySof IQ Restor IOL +3.0 D, and accommodating IOLs, with our top choice being the Crystalens (Bausch & Lomb, Rochester, New York).**

## PREOPERATIVE ASSESSMENT

Our preoperative cataract surgery evaluation **is similar to our evaluation of refractive surgery patients**. It includes a dry refraction, after one drop of Mydriacyl (Alcon Laboratories, Inc., Fort Worth, Texas); autorefraction with the Speedy-K (Right Medical, Virginia Beach, Virginia); a Pentacam (Oculus Optgeräte GmbH, Wetzlar, Germany) map, showing the anterior and posterior corneal curvatures and cataract density; and, importantly, a reminder of the AC **angle depths** just in case this was missed during the clinician's exam.



Epithelial cell counts on all patients as a screening tool before the procedure.- **How helpful can a presby IOL be in patient that develops PBK?**

Additionally, IOLMaster (Carl Zeiss Meditec, Jena, Germany) measurements and a Biograph, which is the interferometry measurement by WaveLight AG (Erlangen, Germany). **Sensitive to foveola changes**

In cases in which retinal pathology is also present, we perform ocular coherence tomography (OCT) and a PAM

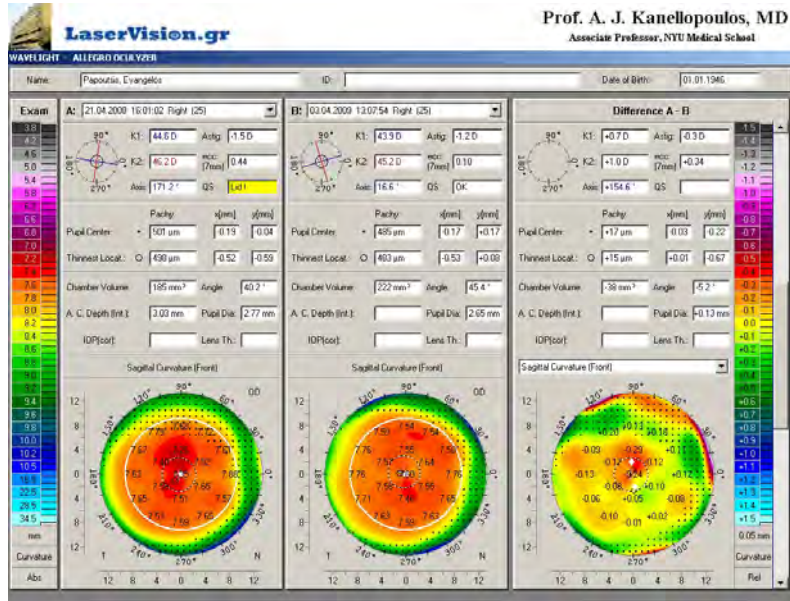
Examination of the cornea, anterior segment, lens, and zonular stability (by tapping gently on the temporal bone) are also performed. A thorough fundus evaluation with a 78° lens or occasionally a three-mirror lens is used to evaluate the peripheral retina.

Preoperative evaluation of **retinal pathologies** is necessary because poor visual results postoperatively may be caused not by the surgery but by preexisting retinal pathology.

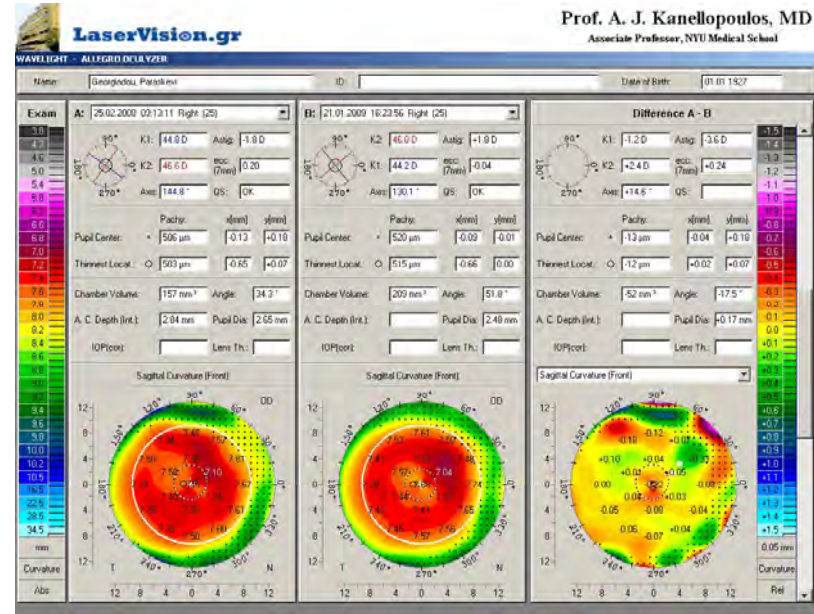
## INTRAOPERATIVE TIPS

During the procedure, I always take special care identifying the steepest axis of the eye. Even if the patient does not have significant keratometric astigmatism, I always like to enter with my 2.75-mm incision on the steep axis if it is between  $80^{\circ}$  and  $180^{\circ}$  (I am right-handed). If the axis of astigmatism is more than  $180^{\circ}$  or between  $0^{\circ}$  and  $80^{\circ}$ , it is difficult for me to accommodate rotation on the eye to perform such an incision. In these cases, I defer to my favorite technique, which is performing an incision at the 10-o'clock position, at approximately  $130^{\circ}$ .

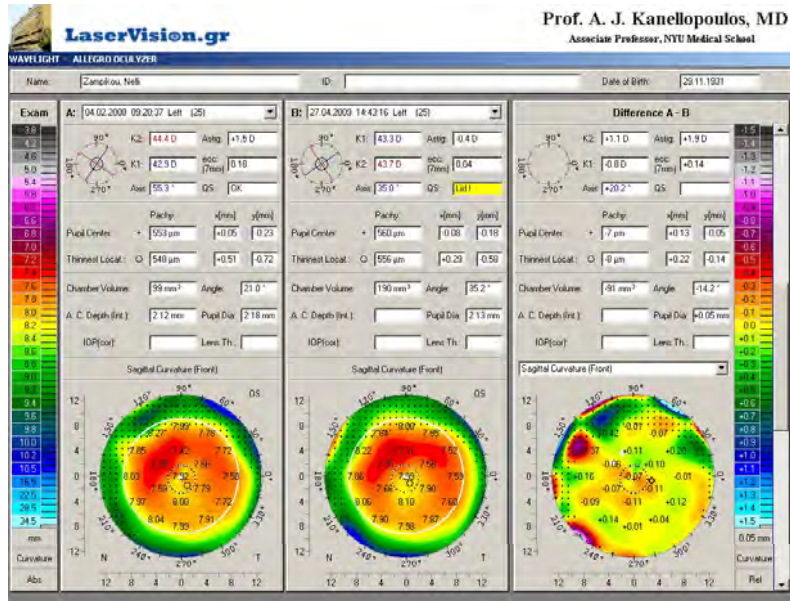
The attempt to reduce the astigmatism with a toric IOL: Incision placement is crucial, as a limbal, clear corneal incision may shift cornea cyl. For a with-the-rule incision, I expect approximately 0.50 D recession in astigmatism from my incision. If the incision is against the rule, meaning between 160° and 180°, there is usually no astigmatic change ( the incision is far from the center of the cornea in the long radius). In multifocals I incise the anterior capsule rim in a small rhexis to avoid phimosis and IOL subluxation. Retro-IOL viscoelastic! Thorough removal.



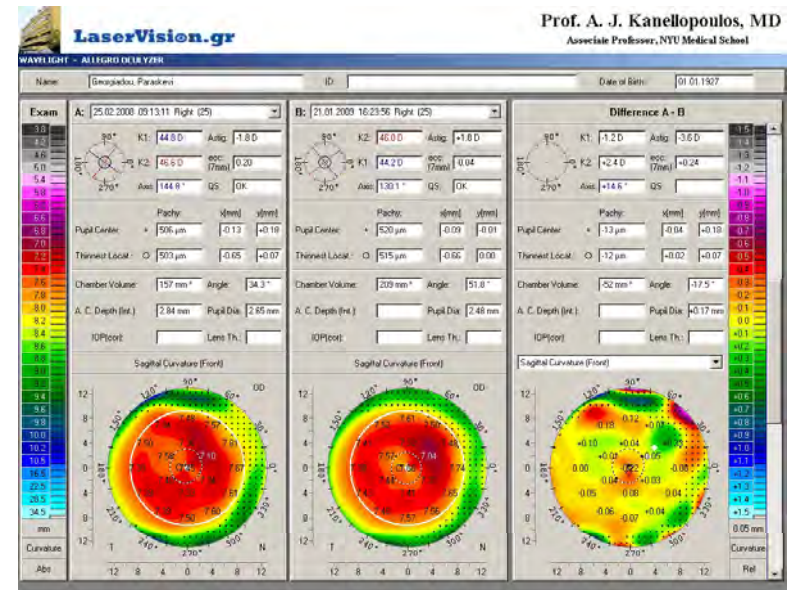
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Many times, patients do not realize that most procedures focus on the removal of a difficult lens or stabilizing zonules with, for example, capsular tension rings. The patient achieves a plano refraction a few months later—and we all realize how effective this major effort has been in accomplishing this goal.

When this is the case, patients tend to express strong disappointment; they would much rather have had this information **beforehand**. We find it crucial to perform retinal evaluations pre-operatively and inform the patient accordingly whether there is an epiretinal membrane, macular degeneration, or signs of diabetic retinopathy—the almost-routine use of OCT in all preop cataract cases has been very enlightening. It is also important to inform the patient if there is any suspicion of the presence of glaucoma.

Every cataract surgeon today, according to their means and equipment evaluation, can play a significant role in treating cataract procedures as refractive procedures. The tools that I mentioned can greatly enhance the visual performance of these patients postoperatively, which is the greatest practice enhancer that I have encountered to date.



**Thank you**

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