

Correcting Low Astigmatism During Cataract Surgery Is Unnecessary for Optimal Visual Outcomes

Correcting even minimal astigmatism during cataract surgery is crucial for enhancing patients' visual acuity, maximizing satisfaction, and fully using modern surgical technologies.

MYTH



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From diagnostic devices to phaco machines to IOLs—technological improvements are helping surgeons deliver superior outcomes to patients. Despite these advances, the myth that correcting low levels of astigmatism during cataract surgery is unnecessary persists. This article discusses why addressing even minimal astigmatism is essential for achieving optimal visual results.

PREOPERATIVE CONSIDERATIONS AND SURGICAL PRECISION

Before cataract surgery, a refraction is performed to optimize the patient's BCVA with glasses, contact lenses, or refractive surgery. During the preoperative evaluation, biometry is performed, and ocular surface disease must be managed to ensure reliable measurements. Intraoperatively, surgeons' attention to detail and optimization of all controllable factors facilitate excellent surgical results.

Astigmatism is one such factor. Even a low amount of residual astigmatism can significantly affect a patient's UCVA and quality of life, especially when they are executing tasks requiring precision, such as reading or driving at night.



MYTH: It is unnecessary to correct low levels of astigmatism during cataract surgery.



REALITY: Even less than 1.00 D of astigmatism can have a significant impact on patients' visual acuity and quality of life, leading to postoperative dissatisfaction. Correcting low astigmatism improves patients' visual outcomes and reduces their need for glasses or contact lenses after cataract surgery.

In this article, less than 1.00 D of astigmatism is classified as low, 1.00 to 2.00 D as moderate, and greater than 2.00 D as high.

Data indicate that 47.4% of patients have between 0.00 and 0.75 D of corneal astigmatism before cataract surgery and 62.2% have between 0.00 and 1.00 D.¹ Many patients who present to an ophthalmology practice therefore have low astigmatism.¹

THE IMPACT OF RESIDUAL ASTIGMATISM Patients' Visual Acuity and Level of Satisfaction

Research has demonstrated that even minimal residual astigmatism (eg. 0.50 D) decreases patients' visual acuity and can leave them dissatisfied after cataract surgery. Studies have shown that patients with uncorrected astigmatism are less satisfied with their visual quality than those whose astigmatism was corrected during cataract surgery.² With advances in surgical techniques and IOL technology, most patients expect excellent postoperative vision. Uncorrected astigmatism often leads to residual refractive errors that may require correction with glasses or contact lenses.³

Technological Advances in IOLs

The introduction of toric IOLs has revolutionized cataract surgery by providing an effective means of correcting astigmatism. Studies have shown that toric IOLs not only improve patients' visual outcomes but also reduce their postoperative reliance on corrective eyewear, even among patients with low amounts of astigmatism.

WHY CORRECTING LOW ASTIGMATISM IS NECESSARY

Enhanced Surgical Precision

Femtosecond lasers and improved IOL calculation formulas have increased the precision of cataract surgery. These and other innovations improve measurement accuracy and facilitate the correction of even low levels of astigmatism, thereby reducing the risk of residual refractive errors. By addressing low astigmatism, surgeons can fully leverage modern technologies to deliver the best possible visual outcomes.

Cost-Effectiveness and Long-Term Benefits

Although toric IOLs and limbal relaxing incisions may involve a higher up-front cost compared to standard monofocal IOLs, the long-term benefits often justify the investment. Patients whose astigmatism is corrected are less likely to need postoperative corrective measures, the cost of which can accumulate over time. Additionally, improved visual outcomes enhance patients' independence and quality of life, potentially reducing their need for further medical intervention.

Consistency in Surgical Outcomes

Correcting astigmatism during cataract surgery leads to more consistent and predictable visual outcomes. These enhance patient satisfaction and their confidence in the surgical process. A meta-analysis published in the *British Journal of Ophthalmology* found that patients whose astigmatism was corrected during surgery reported significantly higher satisfaction and better overall visual quality compared to those with uncorrected astigmatism.⁴

WAYS TO CORRECT LOW LEVELS OF ASTIGMATISM

Technological advances have provided surgeons with multiple options for correcting low levels of astigmatism. A key factor in addressing low astigmatism is surgeons' improved understanding of the optical system, including the role of posterior corneal astigmatism, which has led to more accurate IOL calculation formulas.

Astigmatism-Correcting IOLs

Astigmatism-correcting IOLs, including toric IOLs and the Light Adjustable Lens (RxSight), are among the most common methods used to correct astigmatism. These lenses are highly accurate and can be utilized by all cataract surgeons. Modern IOL calculation formulas now recommend toric IOLs for low levels of anterior corneal astigmatism. With the Light Adjustable Lens, surgeons

can fine-tune even small amounts of astigmatism postoperatively.

Corneal Relaxing Incisions

Corneal relaxing incisions, including limbal relaxing and arcuate incisions, offer a precise way to correct low amounts of astigmatism. Various nomograms are available to aid with determining the most appropriate treatment for each patient.

Excimer Laser Refinements

Excimer laser procedures such as LASIK can be performed to address residual astigmatism after cataract surgery. The accuracy and predictability of LASIK in pseudophakic patients are comparable to those in younger phakic patients.

DEBUNKING THE MYTH

The belief that correcting low levels of astigmatism in cataract patients is unnecessary is not supported by current evidence or expert opinion. Correcting even minimal astigmatism during cataract surgery is essential for optimizing patients' visual acuity, improving their satisfaction, and maximizing the benefits of modern surgical technologies. A comprehensive approach to cataract surgery that addresses all refractive errors to provide patients with the best possible vision and quality of life is crucial. ■

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- Financial disclosure: None