

PRECIZON PRESBYOPIC AND PRESBYOPIC TORIC



Presbyopia and astigmatism correction reinvented.

BY JAVIER MENDICUTE, MD, PHD

In 2020, amidst the COVID-19 pandemic, I began implanting the Precizon Presbyopic Toric IOL (Ophtec; Figure 1). At that time, I had already amassed 2 years' worth of excellent experience with the company's Precizon Presbyopic NVA multifocal IOL, and I was encouraged by the results patients achieved with that lens. I am happy to report that the Precizon Presbyopic Toric lens is equally impressive. It was clear from the first time I implanted it that the Precizon Presbyopic Toric is a disruptive technology, both due to the multifocal platform design and its concept for the correction of astigmatism. Simply stated, there is no similar IOL in the market today.

LENS DESIGN

All Precizon IOLs are designed with Continuous Transitional Focus (CTF) technology (scan the QR code for a related video). In short, these IOLs incorporate a multisegmented optic to generate a wide range of foci. Clinically, the use of segments instead of concentric rings translates into natural vision at all distances, a smooth transition from far to near, and a reduction of photic phenomena such as halos, starbursts, and glare compared to multifocal IOLs with a diffractive design. The lens design also promotes a constant defocus between the two sharp focal points to deliver excellent intermediate vision.

In addition to CTF technology, the Precizon Presbyopic Toric IOL is designed with Transitional Conic Toric (TCT) technology, whereby different conic

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Figure 1. The Precizon Presbyopic Toric IOL.

constants are calculated on the horizontal and vertical axes and between 0° and 90° (scan the QR code for a related video). The TCT technology enhances the lens' ability to tolerate decentration and misalignment and patients' ability to benefit from good near and far vision. The segmented zones of the lens balance far and near light distribution in a consistent optical platform. Further, the broader toric meridian of the Precizon Presbyopic Toric IOL is designed to be more tolerant of misalignment.

In my opinion, the inclusion of CTF and TCT technologies is just one aspect that sets the Precizon Presbyopic Toric IOL apart from other toric presbyopia-correcting IOLs on the market.

The other reasons this lens design is so spectacular are detailed below.

ANGLE KAPPA

The Precizon Presbyopic Toric is a one-piece, aberration-negative (-0.11 μm) IOL with three segments. The light distribution is 40% and 60% for near and far, respectively. The central far zone (1.4 mm) is larger than most other multifocal IOLs, allowing better tolerance to kappa angle. The Precizon, therefore, is a great lens choice for patients with high angle kappas. Ideally, any optic should be centered in relation to the pupil and visual axis. All IOLs perform better when they are well-centered, but the Precizon is more tolerant of decentration or tilt because the visual axis passes through the wider central segment of the optic; this avoids visual disturbances. On the other hand, in eyes with small alpha and kappa angles—which presupposes that the optical center, the

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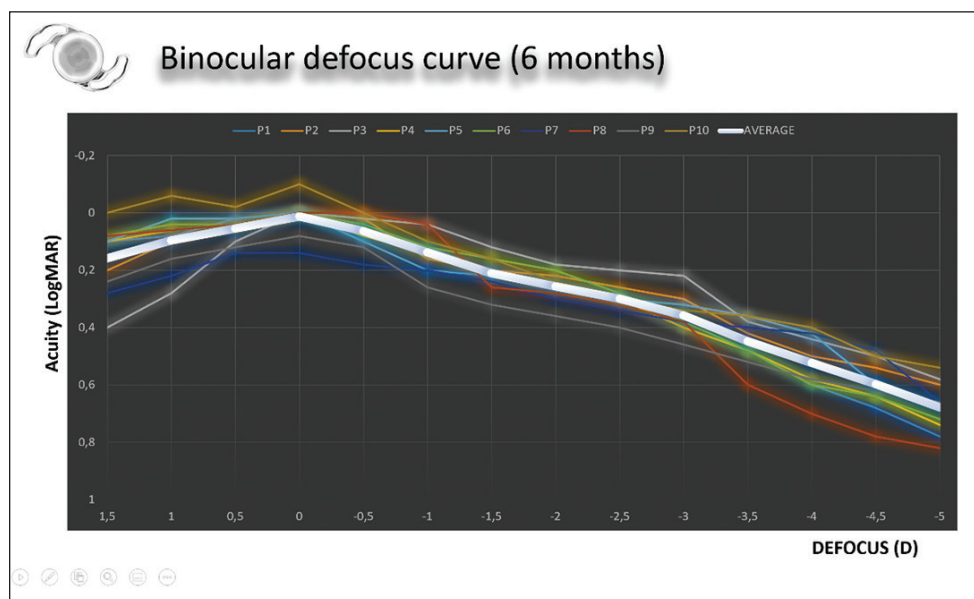


Figure 2. Dr. Mendicute's 6-month binocular defocus curve for the Precizon Presbyopic Toric IOL.

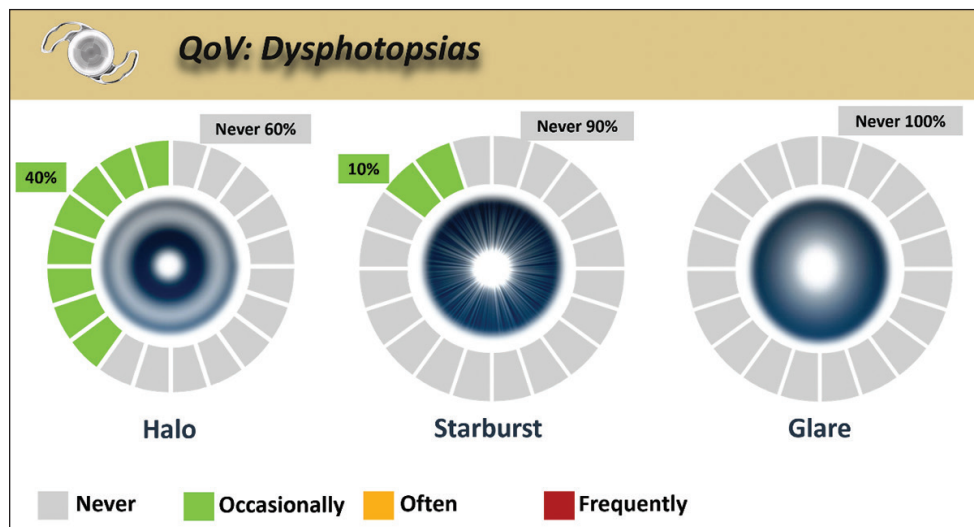


Figure 3. There was a low incidence of glare, starbursts, and halos with the Precizon Presbyopic Toric IOL.

center of the pupil, and the visual axis are in a minimal area—diffractive lenses may be used.

The Precizon Presbyopic Toric lens design alternates segments for far and near within the same ring to balance far and near light distribution. This makes the IOL less sensitive to slight offsets, and the specific toric design also makes it more tolerant of slight misalignments.

The clinical impact of IOL decentration depends on its dioptric power and asphericity and on the optical design of

the lens. Typically with multifocal IOLs, the closer the optic is to the center of the visual axis, the better the visual outcomes. The relatively large central far zone of the Precizon Presbyopic Toric IOL, however, ensures that patients with high angle kappas are less likely to notice visual disturbances because of suboptimal alignment between the visual axis and IOL.

EARLY EXPERIENCE

I have implanted 20 Precizon Presbyopic and six Precizon Presbyopic Toric IOLs

to date. Even the first of my patients to receive the lens had excellent outcomes, supporting the idea that there is minimal to no learning curve. What I immediately found surprising compared to other toric IOL platforms was the high tolerance of the IOL to small rotations with respect to the objective axis. This is owed to its TCT design.

Patients have experienced excellent UCVA at far and intermediate distances and functional near-distance vision, a binocular balanced continuous defocus curve (Figure 2), and a contrast sensitivity function comparable to other multifocal designs. In my experience, patients also are more tolerant to residual refractive errors in the range of ± 0.75 D. In our practice, fewer than 10% of patients need some type of glasses for a specific activity.

The biggest advantage of the Precizon Presbyopic Toric IOL compared to diffractive lenses is the low incidence of dysphotopsias (halos, starbursts, and glare). In a series of 10 bilaterally implanted patients, not one experienced glare, 10% experienced starburst, and only 40% experienced occasional low-intensity halos (Figure 3).

CONCLUSION

Precise alignment is crucial with toric IOLs. I have had positive results with the Precizon Presbyopic Toric lens, and I believe in the ability of this lens to accurately correct astigmatism at the time of cataract surgery. Further, patients experience natural vision at all distances and a smooth transition from far to near with a low incidence of photic phenomena. ■

JAVIER MENDICUTE, MD, PHD

- Medical Director, Miranza Begitek, San Sebastián, Spain
- Head of the Ophthalmology Department, Donostia University Hospital, San Sebastián, Spain
- Vice President, Spanish Society of Refractive and Implant Ocular Surgery
- javier.mendicutedelbarrio@osakidetza.eus
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