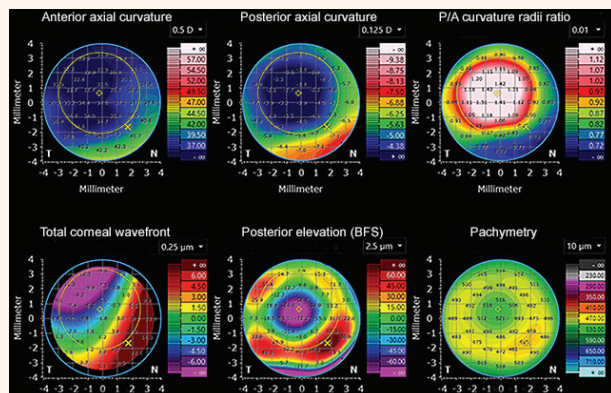


TRUE MEASUREMENTS, FEWER ASSUMPTIONS

Advanced technologies for intelligent IOL power calculations – even in challenging eyes



Figure 1. ANTERION swept-source OCT image of a healthy eye.



It's all in the image

ANTERION® from Heidelberg Engineering is a comprehensive device for optical biometry and IOL power calculations. It provides spectacular, informative images of the anterior segment by combining swept-source OCT technology with eye tracking. The resulting images enable precise measurements for optimal cataract and anterior segment surgery.

Make the difference in challenging eyes

An increasing number of patients present with irregular eye geometries, which can make calculating predictable refractive outcomes a modern challenge. Among these difficult cases are patients with previous laser vision correction, short eyes, or eyes with complex corneal shapes and pathologies. ANTERION helps clinicians cope with these cases by providing unique cornea data, precise preoperative measurements, various IOL calculation methods, and image-based lens assessment.

Unique cornea data to assess complex geometries

ANTERION's corneal measurements are derived from tomography, pachymetry, and wavefront analysis. Cornea data is based on 16,640 A-scans over an 8 mm zone and details both anterior and posterior corneal surfaces. The image-based measurements can help identify irregular corneas and pathologies and facilitate optimal IOL power calculation.

Figure 2. Corneal maps detailing the anterior and posterior corneal surfaces after refractive surgery.

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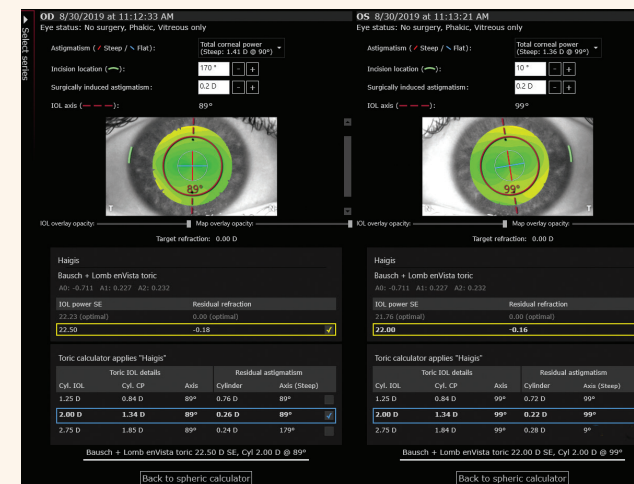


Figure 3. OU toric IOL calculator accounting for corneal astigmatism, incision location, and surgically induced astigmatism.

Precise measurements based on high-resolution images
ANTERION's clear SS-OCT images are fundamental to predictable refractive outcomes. High-resolution imaging allows precise OCT segmentation of the corneal surfaces and facilitates highly accurate preoperative measurements. Within one acquisition, all relevant biometric measurements are captured: full and central corneal analysis, anterior chamber depth, lens thickness, axial length, and many more.

Advanced methods for IOL power calculation

ANTERION's spheric and toric IOL calculator library includes established IOL formulas as well as an interface to the OKULIX ray tracing application. This method utilizes corneal tomographic measurements and considers anterior chamber depth as well as lens thickness to calculate IOL power based on ray tracing the pseudophakic eye with the selected IOL model in position. Ray tracing calculations populated with ANTERION data have been shown to provide excellent outcomes in eyes with previous laser refractive surgery (1).

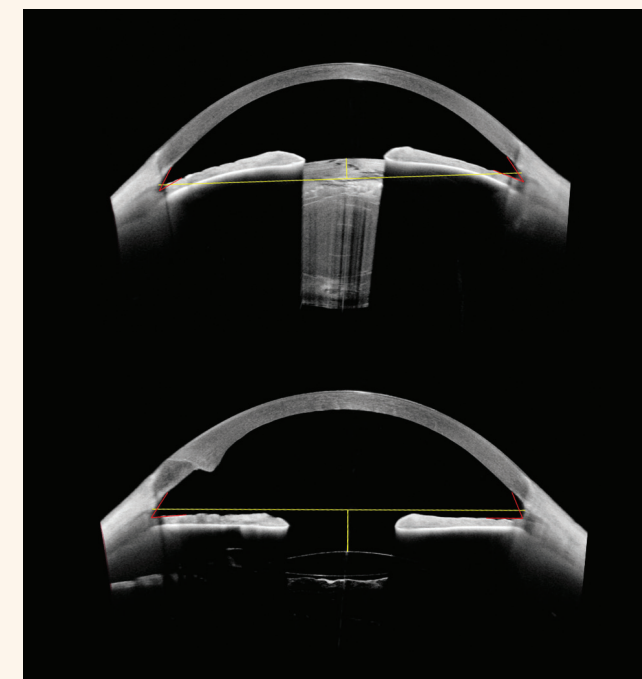


Figure 4. Evaluation of the same eye before and after cataract surgery, including selected measurement overlays for anterior chamber angles, spur-to-spur distance, and lens vault.

Assessment of lens position

ANTERION provides additional information for surgical planning and follow-up. Lens vault can be assessed and the visualization and location of phakic lenses, IOLs, ICLs, and previous surgical procedures can be reviewed in great detail. Furthermore, accurate and reproducible angle measurements can be generated to provide full analysis of anterior chamber geometry.

More than biometry

ANTERION is more than a high-end biometer for cataract surgery. It is a multidisciplinary imaging and measurement device that can grow to meet practice needs. Cornea and refractive surgeons, glaucoma specialists, and general ophthalmic practitioners can benefit from four available apps.

Reference

1. B Gjerdrum et al., "Refractive precision of ray tracing IOL calculations based on OCT data versus traditional IOL calculation formulas based on reflectometry in patients with a history of laser vision correction for myopia," *Clin Ophthalmol*, 15, 845 (2021). PMID: 33664562.