



# Biometry, Corneal Topography and Premium IOLs

## Combining Corneal Topography with Optical Biometry



**W**hen it comes to modern-day IOL calculations, optical biometry and keratometry are critical. Corneal topography is used routinely for most of our patients. It's not just

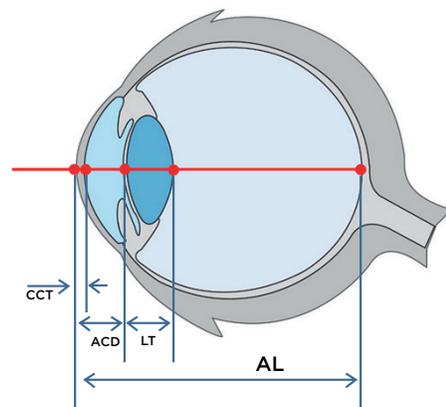
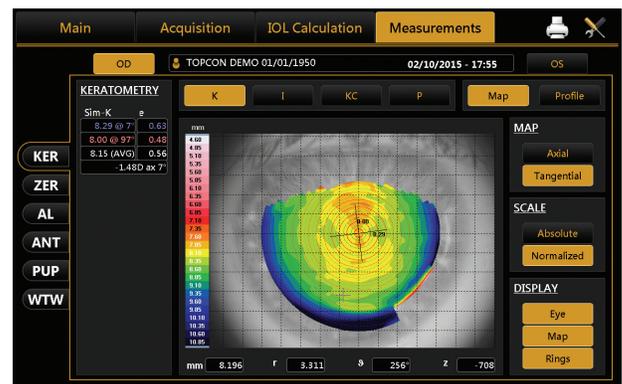
about IOL calculations, it's also about assessing the corneal shape. It's about assessing for other corneal abnormalities, and it certainly is an essential tool for toric IOLs. This usually requires multiple measurements over multiple instruments. The ability to combine corneal topography with an optical biometer is of immense value as far as workflow and convenience. Having all the measurements in one platform, having a printout that can give you all information about the cornea, about the corneal aberrations and corneal topography, and of course, the essential optical axial lens makes a device like that essential and very helpful in a busy cataract practice.

### The Advantage of Pupillometry

We use corneal topography along with pupillometry routinely when considering premium IOLs and there are many reasons why. Obviously, when measuring the cornea it is important to look for any irregularities. Look for incipient keratoconus, irregular cylinder and other abnormalities in the corneal map. This may give us an indication this patient may not be a great candidate, for example, for a presbyopic lens, or in fact will give us an indication to talk to the patient about his or her expectations and make them understand that the outcome may not be exactly 20/20.

*“The entire picture, including corneal topography is the ultimate tool in terms of IOL and patient selection.”*

*—Ike Ahmed, MD*



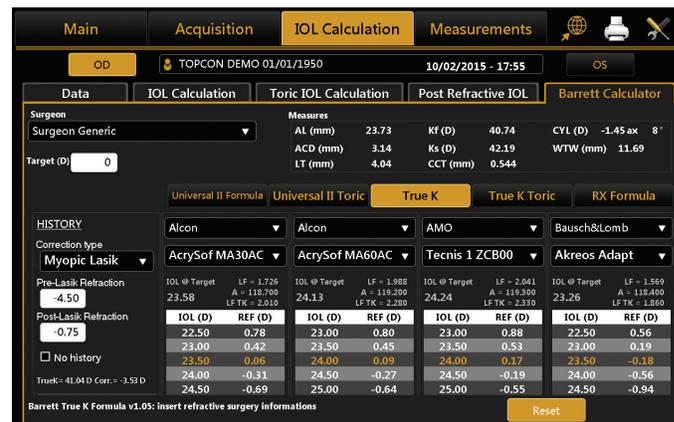
### The Benefits of an Onboard Toric IOL Calculator

The combination of biometry and corneal topography is essential when contemplating toric IOL implantation. Having clear information on the cylinder axis is critical for correction of the astigmatism. Pupillometry is also becoming

increasingly important for several reasons. One of the reasons, of course, is assessing corneal aberrations. In patients with larger pupils, we pay more attention to spherical aberration, which we measure on the topography map as well. Looking at certain multifocal lenses is important to assess if there is risk for an inadequate performance based on the way that the multifocality is developed. Visual axis, centration of lenses and angle Kappa are all important variables in terms of looking at the relationship between pupil, visual axis and cornea as well. Unfortunately, keratometry alone doesn't give us enough information. The entire picture, including corneal topography is the ultimate tool in terms of IOL selection and patient selection. We try to get a complete picture of the anterior segment and the visual axis.

One of the most time-consuming tasks we do routinely is entering measurements manually on a website, calculator or other software. Mistakes happen, workflow slows down, and the outcome may be compromised. It is very useful when calculators and formula are built onto the platform. This makes the process much easier, reduces errors and gives us one stop measurements and one stop calculations and printouts. Of the many conveniences of having one platform performing all the measurements and calculations, that alone is the one we appreciate most.

## The Barrett IOL Formula Calculation Suite



It is evident that we are in the beginning of a new modern generation of IOL formulae. We've come a long way from the two initial variable formulas and multi-variable formulas are the current choice for most surgeons. At this point in time our preferred formula is the Barrett. Not only for toric lenses but just for conventional IOL calculations as well, the Barrett formula is one of the most reliable. There's no axial adjustment needed for long eyes, it's effective in shorter eyes and we find that it offers the broadest range of applications.

## The ALADDIN vs. Other Optical Biometers

We advanced from the importance of only the axial length, which indeed, is important, to the combined use of biometers and topographers. We've had a lot of experience with the Topcon Aladdin Biometer and find the measurements to be very consistent even when compared side to side with the most trusted biometers currently in use. The shift has been more towards the cornea, looking for accurate keratometry and looking at corneal topography. We think that those areas are the center of the present concerns as far as the variables and the avoidance of some of the errors that could happen with the use of multiple instruments.

## The Key Benefits of the Topcon ALADDIN Biometer

The ability to have all readings on one platform, sort of a one-stop shop, point and click is advantageous for our technicians as well. It is a very attractive workflow solution. We see a trend on combining features from different platforms onto one instrument, with different technologies such as the Aladdin's capability of providing all those measurements with the latest software and everything done in a very automated fashion. It has been a very good experience for us, and I think this is the trend we're seeing with these different platforms. We've had experience with a variety of optical biometers from a variety of different companies. I think optical biometry has come a long way. All the instruments have numerous benefits compared, for example, to ultrasound A scan. We have found the Aladdin measurements to be consistent in a large series of patients when compared to the latest model of a stand-alone biometer. We found that the measurements were not only in agreement but the ability to get through dense cataracts was quite similar and so we felt confident that we were able to get accurate axial length readings.



### The Aladdin Biometer with Corneal Topography:

A step ahead of traditional biometry



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