

# Horizontal Corneal Diameter Measurements Using Visante OCT, IOLMASTER, ATLAS Topography and Surgical Calipers for Optimal Sizing of Phakic Intraocular Lenses

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Aziz Jan Bashir<sup>1</sup>, Adnan Aslam Saleem<sup>1</sup>, Badr Al-Ahmadi<sup>2</sup>, Ashbala Khattak<sup>2</sup>

## ABSTRACT

**Purpose:** To assess the conformity among various modalities used to approximate the posterior chamber horizontal diameter for optimal sizing of phakic intraocular lenses (pIOL).

**Methods:** Three different devices that estimate the white to white (WTW) diameters of the eye were used to obtain the measurements in 102 eyes of 51 normal patients aged 22-47; *IOLMaster*, *Atlas* Corneal Topographer (all devices by *Carl Zeiss Meditec, Inc.*) and a surgical caliper. Angle to angle (ATA) and sulcus to sulcus (STS) was measured using *Visante* OCT.

**Results:** The mean WTW was  $12.09 \pm 0.43$ ,  $12.44 \pm 0.51$  and  $12.18 \pm 0.42$  mm with *IOLMaster*, *Atlas* topography and calipers respectively. Mean ATA and STS with *Visante* OCT were  $11.85 \pm 0.49$  and  $12.44 \pm 0.48$  mm respectively. All combination differences were significant among the four devices used to estimate the horizontal diameter of the sulcus. Repeated measure ANOVA was done by Greenhouse-Geisser test. Pair wise comparison was done and all the combination differences among the devices were statistically significant ( $p < 0.0001$ ).

**Conclusion:** The various available imaging modalities used to get the approximate horizontal diameter of the posterior chamber for a best fit phakic intraocular lens cannot be used interchangeably. *Al-Shifa Journal of Ophthalmology* 2016; 12(4): 207-212. © *Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan.*

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