



## Intraocular pressure is overestimated in eyes with a thick cornea

### **The Science behind the Tip**

Variability in central corneal thickness (CCT) is a potent confounder of Goldmann applanation tonometry (GAT)<sup>1</sup>. The thicker the cornea, the greater the force required to applanate. GAT most accurately reflects intraocular pressure (IOP) when CCT is 520  $\mu\text{m}$ <sup>1</sup>. At this time there is no accepted algorithm for correcting IOP measurements for deviations from this value, however, it is recognised that high CCT values can result in marked overestimation of IOP as measured with GAT. The other common applanation tonometry technique, the non-contact or air puff tonometry (NCT), is even more affected by CCT than GAT<sup>2,3</sup>. In a study, the change in measured IOP for a 10  $\mu\text{m}$  increase in CCT was 0.28 for GAT and 0.46 for NCT<sup>3</sup>. Discrepancies in GAT and NCT readings were more pronounced at higher IOP levels<sup>3</sup>.

Many individuals with thicker than average CCT are thus being misclassified as having ocular hypertension (OHT). Figures of OHT eyes that in various studies could be reclassified as normal after pachymetry, are between 30 and 65%<sup>4</sup>. Hence CCT is an essential parameter that should be measured in glaucoma practice and is of particular value in patients with ocular hypertension. Individuals with elevated GAT or NCT readings, but no other findings suggestive of glaucoma may have normal IOPs. They don't need therapy or even increased glaucoma surveillance.

### **References**

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