

# A Comprehensive Overview of Astigmatism in the Rear Portion of the Eye: A Review Article

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**Abstract:** Corneal astigmatism, which may originate from either or both sides of the cornea, is present in the majority of human eyes to some extent. It is not possible to determine the posterior surface's toricity just from the anterior corneal surface's form. The posterior corneal surface's astigmatism ranged from  $-0.26$  to  $-0.78$  diopter on average in the earlier investigations. The anterior corneal surface's radius is greater than the posterior corneal surface's radius. The majority of research has shown a distinct relationship between the anterior and posterior corneal asphericities, and the posterior surface's asphericity is unaffected by gender, refractive error, or the vertex radius of curvature. The posterior corneal surface's asphericity varies significantly across meridians, in contrast to that of the anterior corneal surface. Both the anterior and posterior corneal surfaces have major meridians that are roughly parallel to each other, and they are often flatter in the horizontal meridian than the vertical one. This is particularly true for greater degrees of corneal astigmatism, when an astigmatism originating from the posterior corneal surface neutralizes about 10% of any anterior corneal astigmatism. Even though the second corneal surface only makes up 10% of the eye's total refractive power, its morphology must be precisely understood in order to accurately diagnose corneal diseases, track their progression, and plan surgical interventions. In many cases, failing to measure the posterior corneal surface can result in significant variations from the estimated amount of corneal astigmatism. The posterior corneal surface's form, toricity, and age-related changes have all been discussed in this article. By ignoring the posterior corneal surface measurement, we examined the contribution of posterior corneal astigmatism to the overall corneal astigmatism and assessed the precision of corneal astigmatism estimate.

**Keywords:** cornea, posterior corneal astigmatism, corneal toricity.

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