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**Effect of cycloplegia on axial length and corneal curvatures: A novel comparative analysis between myopes, hyperopes and emmetropes**Fatima Iqbal<sup>1,2</sup><sup>1</sup>The University of Faisalabad, Pakistan<sup>2</sup>Abdullah Memorial Hospital, Pakistan

**Statement of the Problem:** Assessment of corneal curvature and axial length has prime importance in performing various ocular procedures such as planning corneal and refractive surgery, cataract surgery and overall corneal health evaluation. Cycloplegics paralyze the ciliary muscle and pupillary sphincters thus suspend the accommodation and induce pupil dilatation. These agents also cause some changes in corneal curvature and axial length of the eye. Purpose of the study is to observe the effect of cycloplegia on Corneal Curvature (CC) and Axial Length (AL) and to compare this effect in myopes, emmetropes and hypermetropes.

**Methodology:** Study was conducted in Ophthalmology Department of Madina Teaching Hospital, Faisalabad. Changes in both meridians of CC and AL were analyzed using NIDEK Auto Ref-Keratometer and Alcon A-Scan respectively. Both eyes of 150 subjects of either sex with ages ranging from 15 years to 30 years were included in study. The subjects were categorized according to refractive status into three groups as myopes, emmetropes and hypermetropes.

**Results:** A significant association was observed between pre- and post-cycloplegia AL ( $r=0.00$ ,  $p<0.005$ ). There is also a statistically significant association between pre- and post-cycloplegia horizontal meridian of CC ( $r=0.22$ ,  $p<0.005$ ). However, there is no significant change in vertical meridian of corneal curvature post-cycloplegically ( $r=0.441$ ,  $p<0.005$ ). These variations are more obvious in myopes than emmetropes and hypermetropes.

**Conclusion & Significance:** Cycloplegia induced decrease in axial length and increase in horizontal meridian of corneal curvature. Eye care professional must be aware of this cycloplegia-induced change in order to optimize better surgical plans and thus attaining better refractive status.

**Biography**

Fatima Iqbal has her expertise in cornea, low vision and pediatric care. She is working as full time Faculty at School of Optometry, The University of Faisalabad and private practice at Abdullah Memorial Hospital. She is also a Global Ambassador of TFOS (Tear Film and Ocular Surface Society). Her interest in cornea and tear film led her to conduct this study to evaluate pre and post-cycloplegic effects on axial length and corneal curvatures. Her study also unveiled role of accommodation on described ocular structures. Her best academic skills and competency in research awarded her with Gold Medal twice in optometry conferences. Her passion is to travel and explore new aspects in optometry.

**Notes:**