

Hormonal Influence on Neuro-Optic Function during menstrual cycle

Author: Banty Mondal^a

^aDepartment of Optometry, Dr. B.C. Roy Academy of Professional Courses, Durgapur, West Bengal, India-713206

Abstract:

Aim – Hormonal fluctuations during the menstrual cycle cause ocular changes, but their impact on eye health remains underexplored. This review highlights the impact of menstrual hormonal fluctuations on ocular health.

Methods – 16 relevant articles were sourced from PubMed, Google Scholar and Research Gate.

Discussion – Fluctuations in estrogen and progesterone influence central corneal thickness (CCT), contrast sensitivity, intraocular pressure, corneal curvature and neural processing of vision, leading to cyclic changes in ocular health. Studies on women (13–57 years) show CCT fluctuations, averaging 535 μ m in the early follicular phase, rising to 542 μ m at ovulation, and peaking at 543 μ m in the late luteal phase. Corneal sensitivity showed a reduction during the ovulation phase. Similarly, IOP values of Right Eye in Menstrual phase, Proliferative phase, Secretory phase were 13.851, 15.549 and 15.961 respectively. and their sd. were 3.729, 2.582 and 3.071 respectively indicating significant changes in IOP. Elevated IOP correlates with reduced corneal sensitivity. In premenopausal women, mean horizontal and vertical corneal curvatures were $43.5 \pm 1.25D$ and $44.1 \pm 1.53D$, respectively, while in postmenopausal women, they were $43.9 \pm 1.4D$ and $44.6 \pm 1.3D$, respectively. In P100 latency significantly decreased ($P < 0.01$) and amplitude increased ($P < 0.05$) in the luteal phase compared to the follicular phase.

Conclusion – Hormonal Fluctuations during the menstrual cycle trigger ocular changes including neuro-optic, glaucoma, contrast sensitivity and vision in contact lens wearers. Advancements in hormone-responsive eye care may enable personalized vision treatments.