How Myopia and Glaucoma Influence the Biomechanical Susceptibility of the Optic Nerve Head

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PURPOSE: The purpose of this study was to assess optic nerve head (ONH) deformations following acute intraocular pressure (IOP) elevations and horizontal eye movements in control eyes, highly myopic (HM) eyes, HM eyes with glaucoma (HMG), and eyes with pathologic myopia (PM) alone or PM with staphyloma (PM + S).

METHODS: We studied 282 eyes, comprising of 99 controls (between +2.75 and -2.75 diopters), 51 HM (RESULTS: Under IOP elevation, we found that HM eyes exhibited significantly lower strains (3.9 ± 2.4%) than PM eyes (6.9 ± 5.0%, P CONCLUSIONS: Our study revealed that eyes with HMG experienced significantly greater strains under IOP compared to eyes with HM. Furthermore, eyes with PM + S had the highest strains on the ONH of all groups.


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