

# Intraocular pressure magnitude and variability as predictors of rates of structural change in non-human primate experimental glaucoma

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The purpose of this study is to determine the effects of intraocular pressure (IOP) mean, maximum and variability on the rate of structural change in experimental glaucoma. Data were taken retrospectively from 59 non-human primates involved in ongoing studies of experimental glaucoma. IOP was measured by tonometry every 1-3 weeks, and these readings split into non-overlapping fixed-length windows.

First, different characterizations of IOP variability were tested to find the one that was least correlated with the mean IOP within the same window. Next, the rates of change of the Mean Position of the Disc (MPD) from confocal scanning laser tomography, and Retinal Nerve Fiber Layer Thickness (RNFLT) from spectral domain ocular coherence tomography, were calculated over each window.

Mixed effects models were formed to predict these rates based on the characterizations of IOP. Normalized root mean squared residual (RMSR) from the trend of IOP during windows of five IOP measurements provided a characterization of variability showing lowest correlation with mean IOP (r <http://www.ncbi.nlm.nih.gov/pubmed/22960316>)