

# Prediction of glaucomatous visual field loss by extrapolation of linear trends

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**OBJECTIVE:** To investigate how well short-term progression rates can predict long-term visual field outcomes in patients with glaucoma.

**METHODS:** We calculated visual field rates of progression using linear regression analysis of the Visual Field Index (VFI) for 100 consecutive patients with glaucoma having 10 or more Swedish Interactive Thresholding Algorithm standard field tests. Final VFI was predicted on the basis of linear extrapolation of the slope defined by the initial 5 field test results. Final VFI also was estimated using linear regression of all qualifying examination results for each patient. Primary outcome measures were the absolute difference and the correlation between predicted and estimated final VFI values.

**RESULTS:** Patient follow-up averaged 8.2 years and 11 field examinations. Median VFI progression rate was -1.1% per year both for the initial 5 test results and also for the complete series. Seventy percent of patients had a predicted final VFI within +/-10% of the estimated final VFI, and the 2 VFI calculations had a correlation coefficient of 0.84.

**CONCLUSION:** Linear extrapolation based on 5 initial visual field test results was a reliable predictor of future field loss in most patients. Patients in whom linear regression analysis suggests dangerously rapid rates of visual field progression may be candidates for significant alterations in therapy.

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<http://archopht.ama-assn.org/cgi/content/abstract/127/12/1610>