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EVALUATING SOURCES OF VARIABILITY FOR STANDARD AND SWAP VISUAL FIELDS IN GLAUCOMA PATIENTS, SUSPECTS AND NORMALS. E.Z. Blumenthal, P.A. Sample, C.C. Berry, A.C. Lee, C.A. Girkin, L. Zangwill, R.N. Weinreb. Glaucoma Center and Visual Function Laboratory, University of California, San Diego, La Jolla, CA 92093-0946.

Purpose: To identify and quantify which factors exert an effect on threshold variability in serial visual fields (VF). **Methods:** 86 subjects (41 normals, 10 suspects and 35 stable glaucoma patients) each performed 3 standard and 3 short-wavelength automated perimetry (SWAP) VFs within 6 months. LTV (test-retest variability), defined as the standard deviation of three threshold values from serial fields, was calculated for each individual at each 24-2 VF location. A multiple regression model, including 8 factors, was run separately for standard VF and SWAP. **Results:** Mean LTV (\pm SD) for the normal, suspect and glaucoma eyes, respectively, was: 1.28 ± 0.87 , 1.53 ± 1.04 and 2.20 ± 1.79 dB for standard VF, and 1.87 ± 1.35 , 1.86 ± 1.24 and 2.68 ± 1.85 dB for SWAP. The relative contribution of each factor to the model (for standard VF and SWAP, respectively) was: severity (total deviation) 10.4%, 6.2%; eccentricity 1.4%, 0.9%; diagnosis 1.6%, 5.3%; superior-inferior hemifield 0.4%, 2%; nasal temporal hemifield 0.06%, 0.06%; location (overall) 3.7%, 4.7%; one-versus-two thresholds 0.05%, 0.2%; between subject 8.1%, 12.5%; residual 76.0%, 69.6%. **Conclusions:** Most of the variability in LTV could not be attributed to any combination of the above factors. Of the 8 factors, severity and between subject differences exerted the largest effect on LTV. Identifying and quantifying independent sources of LTV and their relative impact on changes seen in serial visual fields may assist in analyzing fields for glaucomatous progression.

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