

## Humphrey Visual Field Test, Progression Software and Relevance in Glaucoma Management

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**Introduction:** Glaucoma, the leading cause of irreversible blindness, is a chronic progressive optic neuropathy with characteristic optic nerve head changes and visual field defects<sup>[1]</sup>. The goal of glaucoma management is to prevent progressive loss of visual function as it relates to quality of life<sup>[2,7]</sup>. Visual function is usually assessed by visual field analysis (perimetry), more commonly using the standard automated perimetry (SAP)<sup>[7]</sup> and in glaucoma the central visual field is assessed. Accurate understanding and interpretation of baseline and subsequent follow-up perimetry is therefore key in the determination of stage of glaucoma at diagnosis and monitoring of progression of the disease<sup>[3]</sup>. Manual comparisons and interpretation of serial visual field tests is fraught with challenges of non-standardisation which Zeiss Meditec sought to reduce through the development of progression software for the Humphrey's visual field analyzer. Proper understanding and interpretation of the tests with all its indices and analysis results is of prime importance in its proper application in clinical management. This presentation seeks to highlight the meaning of the Humphrey's visual field test, the progression software packages and its use in glaucoma management.

**Methods:** Information was sourced mainly from published books and literature as well as journal articles from Google and Medline search engines. **Results/Discussion:** Humphrey visual field test for glaucoma has both qualitative and quantitative tests used for screening and clinical diagnosis/ follow-up respectively. Details of the different test strategies and best advisable to use is highlighted.

The 10-2 strategy could be advantageous in advanced glaucoma. The automated computerized analysis software package in Humphrey's field analyser is known as STATPAC.<sup>[6]</sup> STATPAC consists of different analysis packages in a single field analysis (SFA) namely: Total deviation maps, pattern deviation map, numerical threshold sensitivities, grayscale, the glaucoma hemifield test (GHT), visual field indices (MD,VFI,PSD) and the gaze tracking graph. The significance of each analysis and the advised pattern of interpreting a test result are discussed. Importance and principles guiding obtaining a good baseline are stated. Standardizing test strategy in a clinic is advisable for test-to-test comparability as well as the stimulus test size. Humphrey field machine 745i and 750i have an additional software progression software<sup>[6]</sup>. Presence and rate of progression are the main features watched out for in glaucoma care. The Humphrey's progression software entails the Event and Trend Analyses which are designed to detect progression (comparing follow-up fields with baseline fields) and rate of progression (by a linear progression analysis of a summary of VFI). Details of their presentation/symbols with their meaning are discussed as well as the advisable time to make therapeutic changes. Therapeutic decisions are taken based on risk to quality of life taking into cognizance the patient's age/estimated life expectancy, extent of existing field loss and rate of disease progression as determined by the visual field.

**Conclusion:** The mainstay of management of glaucoma is preservation of visual function adequate for the patient's need. Visual field analysis determines visual function and any worsening thereof. Proper understanding and interpretation of visual field analysis is an important skill for ophthalmologists managing glaucoma patients.

**References**

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