

Factors That Influence Automated Perimetry

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Perimetry is perhaps the most important test that patients with glaucoma perform as they are followed over time. Visual fields provide information as the clinician determines if the person's glaucoma is stable. The curse of fields is that they are not a photograph or scan in which a picture is compared against another, but a psychophysical test in which a subject's performance along with other factors determines the usefulness of the data. Visual fields differ (or vary) at least slightly from one test administration to the other. This challenges the clinician as he/she decides if the most recent test is worse is due to a change in the condition or external factors. The paper by Junoy Montolio et al.¹ looks at "other factors" that may influence test results. In this study, technician experience, the time of day, the season when the test was taken, and false-positive (FP) reliability trials were found to influence test results significantly. The authors found that for each 10% increase in FP responses, the mean deviation (MD) increases by 1 dB. The manufacturer recommends a cutoff of 15% for false-positive responses. This paper makes the argument that this rate may be too high and that clinicians should be wary of how fields are used when even a FP rate less than this occurs. Other factors such as technician experience or time of day may also affect test results; and while the impact is relatively mild (0.2 dB MD reduction), it is enough that clinicians should be aware of these variables and aim to control them if possible. Thus time of day should be consistent from one test to the other, and when a new technician starts testing, that technician's initial fields may vary from previous ones.

References

1. Junoy Montolio FG, Wesselink C, Gordijn M, Jansonius NM. Factors that influence standard automated perimetry test results in glaucoma: test reliability, technician experience, time of day, and season. *Invest Ophthalmol Vis Sci.* 2012;53:7010-7017.