

Clinical evaluation of the MacuScope™ macular pigment densitometer

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ABSTRACT

Background/aims

The MacuScope™ uses a psychophysical technique called heterochromic flicker photometry to measure macular pigment optical density (MPOD). Our aim was to determine the measurement variability (noise) of the MacuScope™.

Methods

Thirty-eight normally sighted participants who ranged in age from 19 to 46 years (25.7 ± 7.6 years) were recruited from staff and students of Aston University. Data were collected by two operators, HB and JA, in two sessions separated by one week in order to assess test repeatability and reproducibility.

Results

The overall mean MPOD for the cohort was 0.47 ± 0.14 . There was a significant negative correlation between MacuScope™ MPOD readings and age ($r = -0.368$, $p = 0.023$). Coefficients were 0.45 and 0.58 for repeatability, and 0.49 and 0.36 for reproducibility. For each pair of results, there was a significant positive correlation between mean and difference MPOD values.

Conclusions

If MPOD is being monitored over time then any change less than 0.58 units should not be considered clinically significant as it is very likely to be due to instrument noise. The size of the coefficient appears to be positively correlated with MPOD.