

Authors' response: clinical evaluation of the MPS 9000 macular pigment screener

Bartlett, Hannah; Eperjesi, Frank

Author Information

Ophthalmic Research Group, School of Life and Health Sciences, Aston University, Birmingham, UK

Dr Hannah Bartlett, Vision Sciences Building, Aston University, Birmingham B4 7ET, UK;

h.e.bartlett@aston.ac.uk

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As a research group with no commercial interest in any macular pigment optical density (MPOD) measurement devices or nutritional supplements, we feel that we were well-placed to carry out an independent clinical assessment of the reliability of the MPS 9000 (Tinsley Precision Instruments, Redhill, Surrey, UK). Our study was prompted by the fact that we could not find any reported coefficient of repeatability value within the literature, and none was provided by the manufacturer. We had planned to use this instrument in our own research studies investigating the impact of nutritional supplementation on MPOD. For this purpose, we needed to know the level of MPOD change that could be considered clinically significant. We felt that this information would also be useful to other clinicians who had already purchased the instrument, or were thinking of doing so.

In our study MPOD measurements were obtained as per the manufacturer guidelines (MPOD Reference Guide and Technician Training). We were careful to follow these instructions in the same way as a clinician would in practice, as our aim was to assess the reliability of the MPS 9000 in a clinical environment. Dr Murray and colleagues have provided a coefficient of repeatability value in their letter. However, we would suggest that this low value has been achieved by using data screening methods that are not discussed in the operation manual that we were provided with. As such, this may not be a true reflection of the level of repeatability that would be achieved in ophthalmological or optometric practice, but may be more applicable to researchers working in this area.

We do not consider the reference that Dr Murray and colleagues make to the correlation between the MPS 9000 and other methods of MPOD measurement to be relevant. This is not what we set out to assess; we wanted to analyse the level of noise within MPOD measurements using the MPS 9000. To illustrate this point, we carried out correlation analysis on our repeat readings, and found that for all four comparisons the relationship between the two data sets was highly significant ($p < 0.001$). The variability between the two data sets ranged from 3% to 15%. The important point here is that there may be little variability between two data sets, and the two data sets may also be significantly correlated, but this does not mean that there is no instrument noise. The clinically significant change in MPOD over time could only be determined by

calculating the coefficient of repeatability.

The reference that Dr Murray and colleagues make to the measurement of repeatability reported by van der Veen et al. in 2009 is also irrelevant, as this group reported a correlation coefficient, mean test-retest variability and a percentage value calculated by dividing the mean of the differences by the mean value of the two estimates. None of these values can be directly compared with our coefficient of repeatability.

References

1. Bartlett H, Stainer L, Singh S, et al.. Clinical evaluation of the MPS 9000 macular pigment screener. *Br J Ophthalmol* 2010;94:753-6.
2. van der Veen RL, Berendschot TT, Hendrikse F, et al.. A new desktop instrument for measuring macular pigment optical density based on a novel technique for setting flicker thresholds. *Ophthalmic Physiol Opt* 2009;29:127-37.

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