HUNTJENS, B. and CTORI, I. (2014), **Variations and repeatability of macular pigment and its spatial profiles in south Asian and white subjects.** Acta Ophthalmologica, 92: 0. doi:10.1111/j.1755-3768.2014.1663.x

Abstract

Purpose To investigate variations in macular pigment optical density (MPOD) between south Asian and white subjects and explore the repeatability of the MPOD spatial profile.

Methods MPOD was measured by heterochromatic flicker photometry in 77 south Asian and 60 white healthy volunteers aged 18 to 39 years, and repeated at a second visit in 24 subjects. The MPOD spatial profile was classified as typical exponential, or atypical ring-like or central dip (IOVS 2014;55:1440-1446).

Results We report excellent MPOD spatial profile repeatability (96%) between visits. Our findings showed 67% of all subjects with atypical ring-like or central dip profiles were south Asian. Average integrated MPOD up to 1.8° (MPODav0-1.8) was increased in subjects with atypical profiles ($P < 0.0005$). Half peak MPOD value occurred at an average 1.8 ± 0.7° for the typical profile group, which was significantly broader than that for the atypical ring-like (1.5 ± 0.3°) or central dip profiles (1.4 ± 0.3°, $P = 0.01$). South Asian subjects had greater MPODav0-1.8 (0.39 ± 0.13) compared to whites (0.32 ± 0.13 log units, $P = 0.01$) after controlling for age. White subjects with dark eyes had higher MPODav0-1.8 than those with light eyes ($P = 0.012$).

Conclusion Classification of the MPOD spatial profile was highly repeatable. Since half peak MPOD value occurred within 1.8° eccentricity, the spatial profile and MPODav0-1.8 together best describe the distribution of MPOD over the central area where macular pigment has its maximum

effect. Further, atypical MPOD profiles offer increased MPOD over a more concentrated area centred on the fovea. Both parameters showed significant variations between the two ethnic groups.