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Purpose: Reduced macular pigment optical density (MPOD) has been associated with age-related macular degeneration (ARMD). MP spatial profiles tend to follow either an exponential curve or exhibit a secondary peak up to 2° eccentricity in 40% to 50% of Caucasian subjects. A higher incidence of secondary peak profiles has been reported in ethnicities with low ARMD prevalence using fundus autofluorescence image analysis. The aim of this study was to investigate the distribution of MP spatial profiles in healthy Asian subjects.

Methods: MP spatial profiles were measured using heterochromatic flicker photometry (Ophthalmic Physiol Opt. 30:470-483,2010) in 55 Asian subjects (mean age 21 ± 3 years). Secondary peak classification was based on the MPOD at 0.8° or at 1.8° being 0.10 log units (the average within subject standard deviation at each location) greater than the value predicted by the exponential fit. The remaining subjects were allocated to the single peak subgroup. The average blue light transmittance (Tav) and the average MPOD (ODav) between 0° and 1.8° were calculated.

Results: According to our criterion, 25 subjects (45%) had secondary peak spatial profiles. Mean MPOD at 0.8° was significantly higher in subjects with a secondary peak (0.52 ± 0.12 log units) when compared to the single peak subgroup (0.41 ± 0.12 log units; t = -3.53, p = 0.001), but not at 0° (0.61 ± 0.13 log units versus 0.53 ± 0.19 log units; t = -1.79, p = 0.08, respectively). Percentage Tav was significantly Abstract Print View 07/01/2015 13:40 http://www.abstractsonline.com/Plan/AbstractPrintView.aspx?mID…ac-84e1-16d2b30126d4&cKey=993b1a7a-895d-4049-b8fd-0bfb18b9d371 Page 2 of 2 decreased in subjects with secondary peak profiles (40 ± 8%) compared to those with single peak profiles (46 ± 10%; t = 2.31, p = 0.03). ODav was significantly greater in subjects with secondary (0.41 ± 0.09) versus single peak profiles (0.35 ± 0.10; t = -2.29, p = 0.03).

Conclusions: Significant differences in blue light transmittance and average MPOD up to 1.8° were found between exponential and secondary peak MP profiles. Subjects exhibiting a secondary peak were better protected against the damaging effects of blue light. However, the incidence of secondary peak MP profiles in Asian subjects was similar to that previously recorded in Caucasians, suggesting that factors other than racial differences in secondary peak frequency may explain the ethnic influence on ARMD prevalence.