



## City Research Online

### City, University of London Institutional Repository

---

**Citation:** Ctori, I. & Huntjens, B. (2014). Does foveal anatomy influence macular pigment and its spatial profile? A bi-racial study. *Acta Ophthalmologica*, 92(s253), doi: 10.1111/j.1755-3768.2014.1665.x

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

---

**Permanent repository link:** <https://openaccess.city.ac.uk/id/eprint/16517/>

**Link to published version:** <https://doi.org/10.1111/j.1755-3768.2014.1665.x>

**Copyright:** City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

**Reuse:** Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

---

---

---

City Research Online:

<http://openaccess.city.ac.uk/>

[publications@city.ac.uk](mailto:publications@city.ac.uk)

---

CTORI, I. and HUNTJENS, B. (2014), **Does foveal anatomy influence macular pigment and its spatial profile? A bi-racial study.** Acta Ophthalmologica, 92: 0.  
doi:10.1111/j.1755-3768.2014.1665.x

Abstract

**Purpose** To investigate the relationship of foveal architecture with macular pigment optical density (MPOD) and its spatial profile in south Asian and white females.

**Methods** Foveal anatomy measurements, obtained using optical coherence tomography (Spectralis OCT; Heidelberg), were collected from 46 south Asian (age  $21 \pm 3$  years) and 38 white healthy females (age  $26 \pm 5$  years). Spatial distribution of MPOD, measured by heterochromatic flicker photometry, was classified as a typical exponential or an atypical profile.

**Results** South Asian compared to white females had thinner central retinas ( $220 \pm 14\mu\text{m}$  vs.  $228 \pm 19\mu\text{m}$ ;  $P = 0.02$ ), wider foveas ( $2526 \pm 247\mu\text{m}$  vs.  $2296 \pm 228\mu\text{m}$ ;  $P < 0.0005$ ) and higher central MPOD ( $0.56 \pm 0.18$  vs.  $0.44 \pm 0.23$ ;  $P = 0.001$ ), after controlling for age. Central MPOD was greater in those with an atypical ( $0.61 \pm 0.21$ ) compared to a typical MPOD profile ( $0.47 \pm 0.17$ ,  $P < 0.005$ ). Only white females presenting a typical MPOD profile showed a significant correlation between central MPOD and central retinal thickness ( $\rho = 0.403$ ,  $P = 0.03$ ) and between the foveal pit and MPOD profile slope gradients from  $0$  to  $0.8^\circ$  ( $r = -0.522$ ,  $P = 0.004$ ). We found no association between foveal width and central MPOD in either ethnicity regardless of MPOD profile type ( $P = 0.90$ ).

**Conclusion** Our findings show that there are significant differences in retinal morphology and central MPOD between south Asian and white females. However, foveal anatomy seems to correlate with central MPOD only in white females with typical MPOD profiles. We hypothesize

that higher central MPOD associated with atypical MPOD profiles and south Asian ethnicity is not related to central foveal anatomy, but a feature of an individual's congenital constitution.