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## Correlation between ocular densitometry and contrast sensitivity

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The objective of the present studies was to assess whether there was the predictable relationship between ocular densitometry and L contrast sensitivity. We used Pentacam for assessing ocular densitometry and MATLAB R2014b Psycho-toolbox for measuring contrast sensitivity. Corneal density at central, peripheral (nasal and temporal), central corneal thickness and lens density were objectively assessed for ocular densitometry measurements. The data were assessed in 60 healthy eyes. Subjects were from three different ethnicities- Caucasian (n=31), Asian (n=21) and African (n=8). The mean age of the Asian subjects was  $25.24 \pm 3.9$  years with the range from 22 to 33 years. The mean age for Caucasian subjects was  $24.29 \pm 5.04$  years, with the range from 18 to 38 years. The mean age of African subjects was 26.13 ±4.76 years, with a range from 18 to 32 years. Using Pentacam from dominant eyes, the mean Central Corneal Densitometry(CCD) value for Asian subjects was (CCD) 14.61 ±1.77 GSU (Grey Scale Unit), the mean Temporal Peripheral Corneal Density (TPCD) value for Asian subject was 10.97 ±0.9 GSU, the mean Nasal peripheral corneal density (NPCD) value was 13.14 ±2.38 GSU. The mean TPCD value for a Caucasian subject was 11.48 ±1.03 GSU, the mean CCD value was 15.20 ±1.82 GSU, the mean NPCD value was 14.11 ±3.98 GSU (Figure 15). The mean TPCD value for African subject was 10.89 ±1.01 GSU, the mean CCD value was 14.48 ±1.96 GSU, the mean NPCD value was 13.25 ±1.72 GSU. The mean CCD value of any ethnicity was not obviously dependent on contrast sensitivity values ( $p \ge 0.08 \le 0.2$ ). The mean Lens Density (LD) value was also independent on contrast sensitivity (p  $\ge 0.2 \le 0.6$ ). The contrast sensitivity value was observed better among Asian groups (2.76 cpd as compared to Caucasian (2.61 cpd) and African groups (2.20 cpd). There was no significant relationship observed between CCD and Central Corneal Thickness (CCT) in any ethnicity (p  $\ge$  0.5  $\le$  0.7). The peripheral nasal density and the temporal density was assessed and we observed that nasal density is higher than the temporal density in three ethnicities. In conclusion, no predictable relationship between ocular densitometry measures and contrast sensitivity measures was found irrespective of ethnicity. However, the reliability of Pentacam measurements was observed and compared with previous studies.

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