



Control/Tracking Number : 04-A-2266-ARVO

Activity : Abstract

Current Date/Time : 12/4/2003 9:17:05 AM

AGING AND MESOPIC PUPIL DIAMETER IN DRIVERS

M.J. Perez-Carrasco, Sanchez-Ramos C, Puell-Marin C, Langa-Moraga A; Pérez-Pérez JM. Optics, Escuela Univ de Optica, Madrid, Spain.

Purpose: Under mesopic conditions, to determine the aging effect on pupil diameter, visual acuity and contrast sensitivity on a large sample of adults-drivers (n=101) ranging in age from 20 to 85 years old.

Methods: The population was divided into three age categories: group A: 20-50 years (n=20); group B: 51-70 years (n=45); group C: 71-85 years (n=36). All observers were free from significant ocular pathology. The measurements were evaluated in right eyes with habitual optical correction.

After a 5 minutes adaptation to the high mesopic luminance level (3cd/m^2), the changes due to age in mesopic pupil

diameter were measured using Colvard pupillometer mod 401. The OPTEC 3500 Vision Tester (Stereo Opticas Co. Inc., USA) was used to conduct tests of sensitivity to contrast. The background mesopic illumination was $3\pm 1\text{cd/m}^2$.

Results: Under low illumination condition the pupil diameter of young and middle aged (group A) was $4.37\pm 0.75\text{mm}$; group B was $4.16\pm 0.85\text{mm}$, and in the older subjects (group C) was $3.68\pm 1.04\text{mm}$.

Mesopic pupil diameter reduced with age significantly ($P=0.01$). The mesopic decimal visual acuity results were: 1.24 ± 0.26 (group A); 0.80 ± 0.14 (group B) and 0.68 ± 0.15 (group C) being the differences between groups statistically significant. Mesopic contrast sensitivity decreased significantly with age at all spatial frequencies.

When the three variables results were analysed between male and female, the differences were not significant.

Conclusions: In drivers under mesopic conditions, the pupil diameter, the visual acuity and the contrast sensitivity for stationary gratings of low, medium and higher spatial frequency decreased with age.

Author Disclosure Block: M.J. Perez-Carrasco, None.

Reviewing Codes (Complete): 308 visual psychophysics – VI

Keyword, Presentation, Grant ID and Clinical Trial (Complete):

(1) : 412 aging

(2) : 643 pupil

(3) : 473 contrast sensitivity

Presentation Preference : Poster Only

Human Clinical Trial : Yes

Status: Complete