THE EFFECT OF CHRONIC SMOKING ON THE PUPIL SIZE AND PHOTOSTRESS RECOVERY TIME

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Purpose: To determine the effect of chronic smoking on the pupil and photostress recovery time.

Methods: Macular adaptation to photostress condition, and mesopic and photopic pupillary responses were measured using automated perimetry (Humphrey), and OPD device (Nidek), respectively. Forty heavy smokers (smoking ≥1 box /day for the past 5 years at least), and 40 age- and sex-matched nonsmokers were enrolled. All the subjects had full vision and no ocular problems.

Results: Baseline foveal threshold value (FTV) before photostress was similar in both groups (p=0.75). Although photostress recovery times (PRTs; 7.1± 1.1min and 7.4±1.3min) were similar in smokers and nonsmokers (p=0.30), FTV measured at the 1st minute after photostress was statistically higher in smokers (36.5±0.99dB) than nonsmokers (34.7±1.03dB) (p=0.018). Scotopic pupil sizes in smokers (6.73±0.82mm) and nonsmokers (6.55±0.62mm) were similar (p=0.28); however, photopic pupil size in smokers (5.36±0.73mm) was different from nonsmokers (4.73±0.58mm) (p=0.001).

Conclusions: Chronic smoking may dilate pupil, and increases macular FTV immediately after photostress.