



Meibomian Gland Atrophy Rate in Pre-presbyopic Contact Lens and Non-Contact Lens Wearers

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Abstract

Purpose: To determine the rate of meibomian gland (MG) atrophy in a matched-pair sample of contact lens (CL) and non-contact-lens (NCL) wearers.

Methods: CL wearers with a minimum of five years of CL use and NCL wearers who were age- and gender-matched were recruited across five study sites from three countries (USA, Canada and Germany). Lower and upper eyelids of all participants were everted and MGs were imaged using the Keratograph 5M infrared camera (OCULUS). MG atrophy (percent) was determined by analyzing the mean gland loss of the upper and lower eyelids in the most affected eye. Digital analyses of the images were conducted using ImageJ software. General linear regression models were used to determine MG atrophy rates in CL and NCL wearers to account for the matched design.

Results: A total of 118 participants were included in the analysis. Mean \pm SD age was 28.4 ± 9.9 yrs; 41F and 18M pairs were collected. Mean MG atrophy in the CL group was 25.8% and 24.0% in the NCL group ($p=0.41$). Neither age ($p=0.39$) nor gender ($p=0.43$) was significantly associated with MG atrophy in this cohort. No significant differences were found for different age groups

(<20, 20-24, 25-29, 30+ years; $p=0.40$). There was a 0.19 % increase per year in MG atrophy in CL wearers compared with a 0.003% increase per year in NCL wearers. Number of years of CL wear was also not significantly associated with MG atrophy ($p=0.50$).

Conclusions: MG atrophy rates in CL and NCL wearers were similar in this cohort of pre-presbyopic participants. It was also noted that age, gender and years of CL wear were not associated with MG atrophy.

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