



# Factors Associated with Meibomian Gland Atrophy in Daily Contact Lens Wearers

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## Abstract

**Purpose:** To determine factors associated with contact lens related meibomian gland atrophy in a matched pair sample.

**Methods:** Contact lens wearers (case) and age- and gender-matched non-contact lens wearers with no significant history of contact lens use (control) were recruited across five study sites in three countries. All subjects were administered an Ocular Surface Disease Index (OSDI) questionnaire, and tear meniscus height, non-invasive tear break-up time, tear osmolarity, lid wiper epitheliopathy, lid parallel conjunctival folds, line of Marx, conjunctival staining, upper eyelid meibomian gland expressibility, Schirmer's test, and meibomian gland atrophy were assessed. Univariate conditional logistic regression was then used to determine relationships between meibomian gland atrophy and clinical signs and symptoms.

**Results:** Subjects included 118 adults (59 matched pairs). Mean  $\pm$  SD age was  $28.4 \pm 9.9$  years; 69% of the subjects were female. No significant associations were found between meibomian gland atrophy and the following variables: OSDI ( $P = 0.55$ ), tear meniscus height ( $P = 0.85$ ), non-invasive tear break-up

time ( $P = 0.58$ ), tear osmolarity ( $P = 0.56$ ), lid wiper epitheliopathy ( $P = 0.34$ ), lid parallel conjunctival folds ( $P = 0.42$ ), line of Marx ( $P = 0.32$ ), conjunctival staining ( $P = 0.36$ ), Schirmer's test ( $P = 0.05$ ), and meibomian gland expressibility ( $P = 0.81$ ). Unpaired analysis comparing subject age and meibomian gland atrophy also found no association.

**Conclusions:** These data indicate that there are no significant differences between contact lens wearers and non-contact lens wearers in this cohort of relatively young lens wearers, when comparing meibomian gland atrophy to clinical dry eye signs and symptoms. No association between meibomian gland atrophy and age was found, which is in contrast to past studies.

## Details

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