

The Impact of Scleral Lenses on Meibomian Gland Atrophy as Compared to Soft Contact Lenses

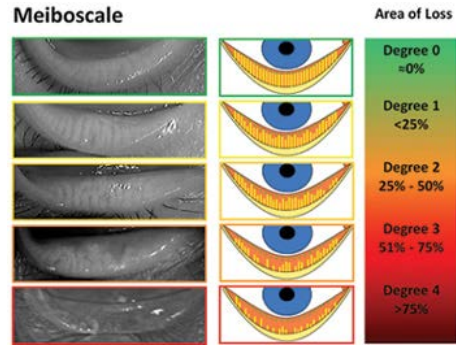
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Introduction

Scleral lenses have traditionally been used as a treatment measure for dry eye patients. However, it is important to understand the interaction between scleral contact lens wear and meibomian gland (MG) atrophy. In assessing MG atrophy, practitioners may better understand the impact scleral lenses may have on dry eye by altering the structure of the meibomian glands.

This study sought to assess the differences in meibomian gland atrophy in scleral lens wearers as compared to soft contact lens wearers.



Heiko Pult Meiboscale

Methods & Materials

Meibography scans were taken on both eyes of 17 patients who were habitual scleral lens wearers, for a total 34 eyes. 89% of scleral wearing patients had keratoconus, and none of the soft contact lens wearers were keratoconic. The mean age at the time of the scan was 45 (range 24-70 years old). Meibography was performed with TearScience LipiView II and graded using the Heiko Pult Meiboscale grading (0: no gland loss, 1: 0-25% gland loss, 2:26-50% gland loss, 3:51-75% gland loss, 4:75% gland loss). These subjects were age-matched to a soft contact lens wearers group (average age 46, ranging from 14-69 years old). Meibography scores were graded by the same practitioner for consistency among scans.

Results

Using the LipiView II device to measure meibomian gland atrophy, the mean meibomian gland atrophy in scleral wearers is 1.87, as compared to 1.33 in soft contact lens wearers. This showed a 28.88% increase in atrophy in scleral contact lens wearers as opposed to soft contact lens wearers.

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Conclusion

This study aimed to assess the impact on meibomian gland loss from scleral contact lenses as compared to soft contact lenses. While there has been evidence in the literature that soft contact lenses impact the structure and functionality of the meibomian glands (Reiko, A. et al.), the effects of scleral contact lens wear on meibomian glands has limited research. This study suggests that scleral lenses have an impact on meibomian gland structure.

Conclusion cont.

It is important to keep in mind that 89% of patients in this study wearing scleral lenses are keratoconic. Jafri, B. et al. shows that atopy may play a role in the pathogenesis of keratoconus, which could further lead to MG loss. While our study suggests that patients wearing scleral lenses have an increased amount of MG atrophy, there should be more investigation done to determine if scleral lens wearing keratoconic patients have increased atrophy from the scleral lenses themselves, or if it is due other confounding factors, such as atopy. Further, more studies should investigate the relationship of MG loss of keratoconic patients wearing scleral contact lenses versus not wearing any lenses.

Acknowledgements

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Resources

1. Contact Lens Wear Is Associated with Decrease of Meibomian Glands; Reiko, A et al.
2. Asymmetric Keratoconus Attributed to Eye Rubbing; Jafri, B.

Contact Information

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