

For a Better Understanding of Scleral Contact Lens–Related Pathophysiology

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Scleral contact lens technology had been applied for several years as part of the treatment of ocular surface diseases, as well as for compensation of corneal surface irregularities. In recent years, new scleral lens designs were developed to compensate for current refractive errors. Becoming more widely used, it is crucial to question the long-term effects of their presence on ocular health.

One of the key questions raised by the use of scleral lenses on normal corneas is their potential to induce corneal hypoxia, especially if they are fitted with a higher level of fluid-layer thickness.¹

This study by Compañ et al.² aims to address this particular issue by defining the theoretical oxygen tension behind modern scleral lenses. It also evaluates the presence of corneal edema, a clinical sign seen in the presence of hypoxia, as a result of scleral lens wear. This work is very important to consider, because it confirms, clinically, the conclusions of the theoretical model developed.¹ This study also confirms the importance of lens material permeability to oxygen, its thickness, and, more importantly, the fluid-layer thickness under scleral lenses as key factors to consider so as to achieve a safe fitting of scleral lenses.

This work should be considered a corner stone, and represents a new essential piece in the puzzle to better understand the pathophysiology related to scleral lens wear. It will help eye care practitioners to define the safest ways to prescribe and to adapt scleral lenses, especially at a time when this modality seems to be becoming mainstream.

References

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