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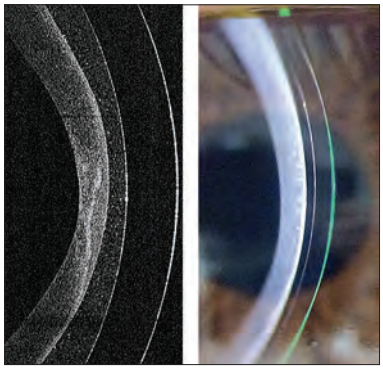
BLANCHARD CONTACT LENSES

# OPTIMIZING OCULAR HEALTH WITH ONEFIT™ SCLERAL LENSES

**With the reintroduction of** scleral lenses, many benefits have been realized, but questions of oxygen delivery to the cornea have also been raised. The benefits to irregular corneas have been demonstrated with improved visual acuity and the treatment of ocular surface disease. The excellent comfort of scleral lenses, along with the ability to deliver crisp vision in a stable design, has led manufacturers and practitioners to expand this technology to the refractive correction of normal corneas. The long-term outcome of the use of scleral lenses on the normal cornea is unknown, but at Blanchard Contact Lenses, we have always known that "It's All About Oxygen." With this in mind, Blanchard developed the Onefit™ Scleral Lens, utilizing a minimalist design and fitting philosophy — minimal lens mass and tear lens thickness to deliver optimal oxygenation to the cornea.



At the 2017 Global Specialty Lens Symposium meeting in Las Vegas, Langis Michaud, OD, MSc, FAAO (dipl), FSLS, FBCLA, presented theoretical data from many studies that modeled the predicted outcome of the oxygen transmissibility of scleral lenses. An *in vivo* study by Claude, Morency, Melillo, and Michaud confirmed the suggestion by theoretical models that we should limit the thickness of the lens, as well as the thickness of the tear film, to allow normal corneal physiological responses and to avoid hypoxia.

While it is important to strive to meet the Holden and Mertz (Dk/t of 24), Harvitt and Bonanno (Dk/t of 35) criteria when fitting normal corneas, John Gelles, OD, FIAO, FCLSA, presented clinical data in the form of a case report from his pilot study, evidencing the relief of corneal edema using the minimalist fitting approach of Onefit™ lenses on corneal transplant patients. The risk-benefit ratio must be carefully considered when fitting these highly compromised corneas with scleral lenses to avoid irreversible complications, such as corneal vascularization or endothelial pleomorphism or polymegathism.

The clinical study collected global data to determine the corneal thickness in post-graft patients. The patients in the study had previously been fit with a scleral lens system with the following average of parameters: center thickness (CT) of 0.45; vault of 300µm; material Dk of 100. Using the following formula, the Dk/t of the scleral system was determined: Dk/t = 1/[(Thickness of Lens/Dk of Lens Material) + (Thickness of Post Lens Tear Layer/Dk of Tears)]. In the case presented, the corneal graft patient was wearing a scleral lens system that provided a Dk/t of 14.3 at the apical clearance, the area with the highest Dk/t in the system (CT 0.45; Apical Clearance 200µm; Boston XO). Differential maps showed a significant global increase in corneal thickness from 2012 to 2016 with this scleral lens system, suggesting corneal edema. The patient was refit with Blanchard's Onefit™ lenses using Menicon Z with a CT of 0.20 and an apical vault of 50µm. Using the above formula, the Dk/t with the Onefit™ was 53.3 at the apical clearance, the area with the highest Dk/t in the system. After only 3 months, the patient experienced a significant reduction in corneal thickness, signifying a reduction in corneal swelling.

Conclusions of this study indicate that an increased Dk/t with a minimalist fitting philosophy reduces hypoxic stress and corneal edema. The minimalist approach includes a decreased CT, reduced vault, and hyper Dk materials to promote improved tear exchange. This provides benefits to the highly compromised cornea, but the extrapolation is that all corneas will benefit. Less stress to the cornea equals better corneal health. The Onefit™ Scleral Lens Platform by Blanchard — with its minimalist design and fitting philosophy — provides ideal oxygen transmission for long-term corneal health, along with consistently crisp vision and hydrating comfort. **CLS**