Extended wear of scleral contact lenses
Stephanie L. Woo, O.D.

Scleral contact lenses are a type of gas-permeable contact lens that completely vaults the cornea.¹ There is a layer of fluid between the contact lens and the anterior portion of the cornea, so the contact lens does not touch the actual corneal surface. Scleral contact lenses are indicated for irregular corneas such as those with keratoconus, irregular astigmatism, post-radial keratotomy or post-LASIK, post-penetrating keratoplasty, and severe dry eye.²

Most patients wearing scleral contact lenses enjoy daytime wear of the lenses and then remove the lenses at night. This allows the cornea to obtain more oxygen and time to disinfect the lenses. Although scleral contact lenses are made of highly permeable materials to allow maximum oxygen (Boston XO, XO2, Tyro 97, etc.), the combination of material and tear chamber decreases the amount of oxygen to the eye (Table 3). The key to obtaining the highest amount of oxygen to the cornea is a high-oxygen-permeable material combined with a small amount of central clearance.³

Because the cornea does not receive a high amount of oxygen with a scleral contact lens on, scleral lenses are best worn on a daily basis, not extended wear. An exception to this is for patients with extreme dry eye or patients with severe epithelial defects.⁴⁻⁶ One study evaluated extended wear of a scleral lens on patients with persistent epithelial defects (some were Stevens-Johnson syndrome). The study found that extended wear of scleral contact lenses was effective in promoting the healing of persistent corneal epithelial defects in some eyes that failed to heal after other therapeutic measures.⁴ The method of healing was due to a combination of oxygenation, moisture, and protection of the corneal epithelium. However, microbial keratitis represents a significant risk, as it was found in about 30 percent of the eyes with extended-wear scleral lenses.

References:
Dr. Woo graduated from the Southern California College of Optometry and completed a Cornea and Contact Lens Residency at the University of Missouri - St. Louis. She is a Fellow of the American Academy of Optometry and a Fellow of the Scleral Lens Education Society. She currently practices at Havasu Eye Center in Lake Havasu, Ariz.

Please close this browser window to return to the CLCS Newsletter