

Scleral lenses benefit patients with corneal irregularities

October 9 2012

(Medical Xpress)—A UC Davis Health System Eye Center study found that scleral lenses, which rest beyond the limits of the cornea and cover the white part of the eye (sclera), were a good alternative for patients with corneal abnormalities whose vision could not be corrected with other types of contact lenses or glasses. The study was published in the journal *Eye & Contact Lens*.

Scleral lenses are a type of gas-permeable lens that are larger than traditional small-diameter [contact lenses](#) and are unique in that they continuously bathe the eye with saline, which helps to rejuvenate the ocular surface.

UC Davis optometrists and ophthalmologists conducted the study to evaluate the use of scleral lenses in [patients](#) who are unable to tolerate standard contact lenses and want a nonsurgical option to improve visual acuity.

"Scleral lenses provide better vision and comfort than small-diameter gas-permeable contact lenses," said Melissa Barnett, an optometrist with the UC Davis Eye Center and a co-author of the study. "In the past three years we have been able to help patients who previously have not been able to see or function with other types of contact lenses or glasses, especially those with corneal irregularities and severe dry eyes."

Consider Karen Polansky, a former competitive weightlifter from Carmichael, Calif., whose vision was restored with scleral lenses.

Polansky has a disorder called keratoconus, which causes the clear tissue covering the front of the eye (the cornea) to change from the normal round shape to a cone shape. The degenerative condition is thought to be caused by a structural defect in collagen, a major building block of the cornea, which results in blurred vision that cannot be corrected with glasses.

"I have been plagued with poor vision ever since I was diagnosed with keratoconus 40 years ago at age 25," said Polansky. "Because of the irregular shape of my cornea, I haven't been able to wear glasses, and I've tried every form of contact lens available but none were comfortable. With the scleral lenses I can wear them all day and they have improved my vision, especially at night."

For the scleral lens study, UC Davis researchers reviewed the records of 63 patients fitted with scleral lenses from October 2009 to March 2011. They evaluated a number of factors, including demographic data, diagnosis, previous contact lens wear, surgical history, scleral lens wear and reasons for discontinuing their use.

"The majority of patients in our study found the scleral lenses to be comfortable and to improve their visual acuity," said Barnett. "Even patients with corneal scars, who typically cannot wear contact lenses, benefited from scleral lenses."

Scleral lenses may be helpful for patients with primary and secondary corneal ectasias, post-corneal transplants, corneal scars, and corneal dystrophies or degenerations, she said. They also may improve visual acuity in patients with severe dry eyes, graft-versus-host disease, Sjogren's syndrome, Stevens-Johnson syndrome, neurotrophic keratopathy or chronic inflammatory conditions such as limbal stem cell deficiency or ocular cicatricial pemphigoid.

Provided by UC Davis

Citation: Scleral lenses benefit patients with corneal irregularities (2012, October 9) retrieved 4 October 2023 from <https://medicalxpress.com/news/2012-10-scleral-lenses-benefit-patients-corneal.html>

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