

**The Optometric Trends Discovery Group's
2023 Report on**

Scleral Lens: INSIGHTS & TRENDS

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Optometrists play a crucial role in fitting **scleral lenses**, specialized contact lenses designed for corneal irregularities or severe dry eye conditions, by conducting comprehensive eye exams to ensure accurate fitting and optimal vision and comfort. They also provide ongoing care and instructions for patients, ensuring proper usage, hygiene, and monitoring for any potential complications.

We'll review data from the 2023 Optometric Trends Discovery Group (OTDG) Survey to gain insights into clinical practice patterns and opinions of US optometrists as they relate to scleral lenses.

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Use of Scleral Lenses

On average, respondents see 4 scleral lens patients each week, though nearly half (43%) don't see any. Scleral lenses have numerous indications beyond irregular cornea correction and may be used to manage dry eye and ocular surface disease. Scleral lenses can be used to correct refractive error and for therapeutic rehabilitation, and even come in multifocal designs. With novel technology and innovative designs, there is a tremendous opportunity to fit scleral lenses in every practice.

An interesting finding of the survey is that 85% and 63% fit scleral lenses for patients with dry eye and regular astigmatism, respectively. These are much higher numbers than those reported in the SCOPE publication in 2022, which found that 10% and 2% of practitioners fit scleral lenses for OSD and uncomplicated refractive error.³ However, it is promising that the major-

ity of practitioners fit scleral lenses for OSD. Scleral lenses are increasingly common and are now widely implemented as a treatment for ocular surface disease. Scleral lenses protect the cornea, accelerate the healing process, and decrease the frequency of topical lubrication.

Sixty-four percent of respondents agreed with the statement that “scleral lenses reduce the need for corneal transplant surgery in patients with keratoconus”. This is encouraging but that also means that 36% are either neutral or disagree with this idea. Multiple peer-reviewed publications have demonstrated that scleral lenses are effective in helping individuals with corneal ectasia by expanding the ability to fit more severe cases that may have historically been referred for corneal transplantation.^{1,2} Thus I believe that there should be close to 100% agreement with that statement.

1. Koppen C, Kreps EO, Anthonissen L, Van Hoey M, Dhubhghail SN, Vermeulen L. Scleral Lenses Reduce the Need for Corneal Transplants in Severe Keratoconus. *Am J Ophthalmol*. 2018 Jan;185:43-47. doi: 10.1016/j.ajo.2017.10.022. Epub 2017 Nov 16. PMID: 29103959.

2. Ling JJ, Mian SI, Stein JD, Rahman M, Poliskey J, Woodward MA. Impact of Scleral Contact Lens Use on the Rate of Corneal Transplantation for Keratoconus. *Cornea*. 2021 Jan;40(1):39-42. doi: 10.1097/ICO.0000000000002388. PMID: 32452985; PMCID: PMC7686092.

3. Nau CB, Harthan JS, Shorter ES, Fogt JS, Nau AC, Hochwald AP, Hodge DO, Schornack MM. Trends in Scleral Lens Fitting Practices: 2020 Scleral Lenses in Current Ophthalmic Practice Evaluation Survey. *Eye Contact Lens*. 2023 Feb 1;49(2):51-55. doi: 10.1097/ICL.0000000000000960. Epub 2022 Nov 21. PMID: 36440667; PMCID: PMC9877123.

Scleral Lens Usage Before and After Eyecare Procedures

As seen in Figure 1 most respondents believe that respondents should be out of scleral lenses for 2 or more weeks before taking measurements before cataract surgery or corneal collagen cross-linking. The biggest difference is that among those who do not feel that 2 weeks is necessary, respondents tended toward 1 week for cataract surgery rather than no period prior to measurements (20% vs 3%), whereas for corneal collagen cross-linking 13% do not believe that scleral lenses need to be removed prior to measurements.

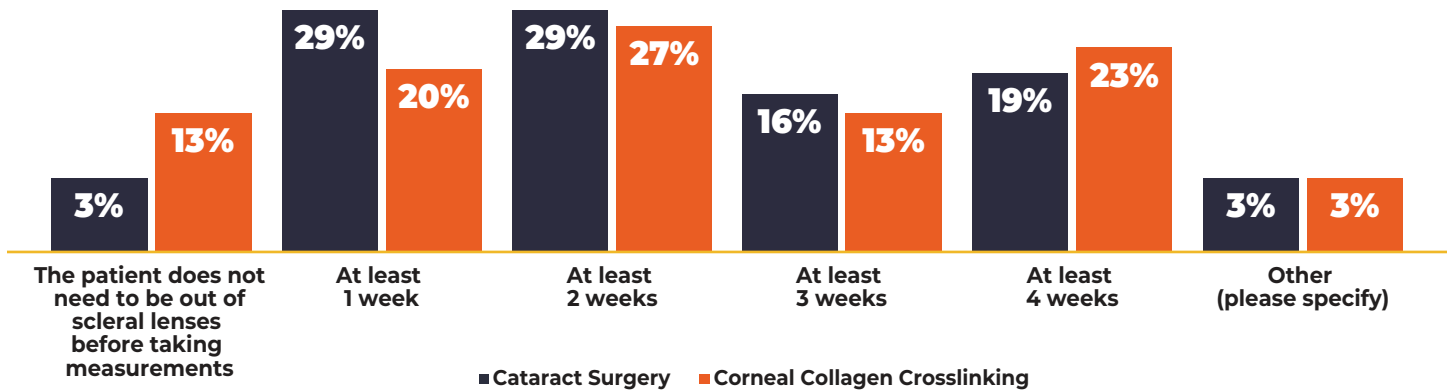


FIGURE 1. How long should a patient be out of scleral lenses before taking measurements before cataract surgery or corneal collagen cross-linking?

On the other end of things, Figure 2 shows that after cataract surgery only 32% of respondents want their patients back in scleral lenses as soon as possible, with most respondents being neutral on the topic. In contrast, after corneal collagen cross-linking, 53% agree that patients should be back in scleral lenses as soon as possible. In both cases, I would have expected higher percentages of wanting their patients to be back in scleral lenses as soon as possible. This is especially true for individuals with irregular astigmatism.

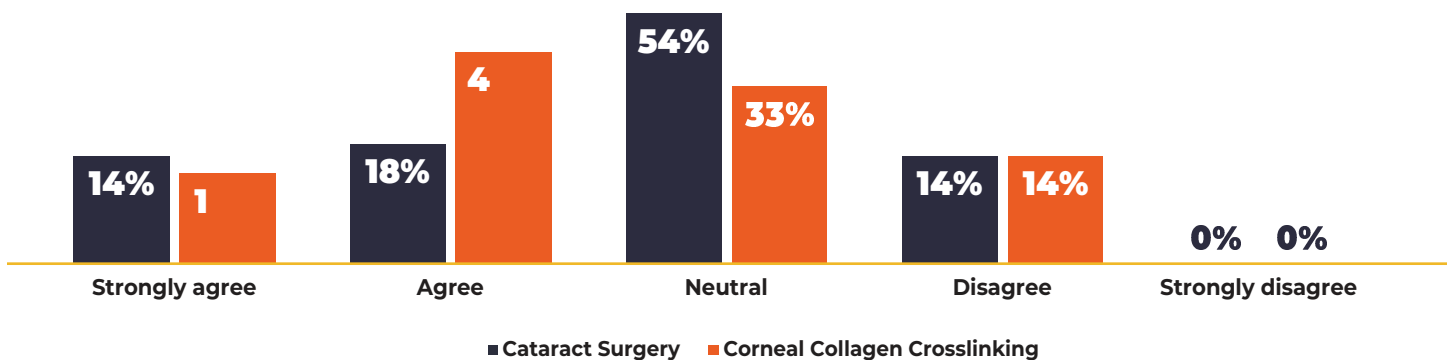


FIGURE 2. Rate your level of agreement with the following statements: “After cataract surgery / corneal collagen cross-linking, it is essential to get patients back into their scleral lenses as soon as possible.”

“There is an opportunity to educate practitioners about the importance of scleral lens replacement.”

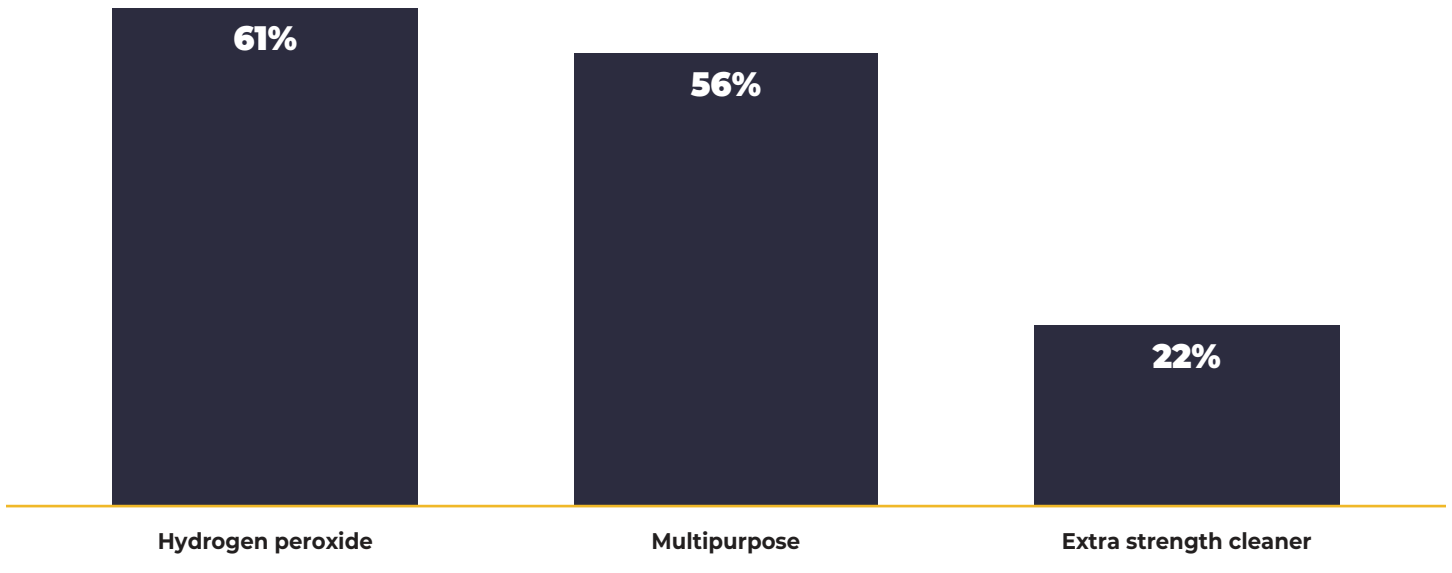


FIGURE 3. What type of disinfection solution do you recommend for scleral lenses? (Select all that apply)

Scleral Lenses Replacement and Cleaning

Most respondents, 54%, believe scleral lenses need to be replaced every 1-2 years, but we should be mindful of the nuance here. The replacement may be based on an individual’s vision and medical insurance coverage. After we finalize a scleral lens fitting, we tend to re-evaluate the lens and eye after 6 months. After 3 years, the material of a scleral lens is altered. Also, scleral lens technology changes over time. There is an opportunity to educate practitioners about the importance of scleral lens replacement.

Contact lens care systems also have important implications for lens-wearing comfort.

As shown in Figure 3, hydrogen peroxide and multipurpose solution are both used by a majority of respondents for scleral lens disinfection. In addition to providing exceptional disinfection and cleaning, the fundamental feature of hydrogen peroxide lens care systems is that they can also help promote lens wear comfort. One difference between H₂O₂ and multipurpose solutions is that H₂O₂ systems are preservative-free. For lens wearers with sensitivity to preservatives, including those with dry eye or contact lens-associated dryness symptoms, H₂O₂ will help avoid the discomfort associated with preservative sensitivity. An analysis of

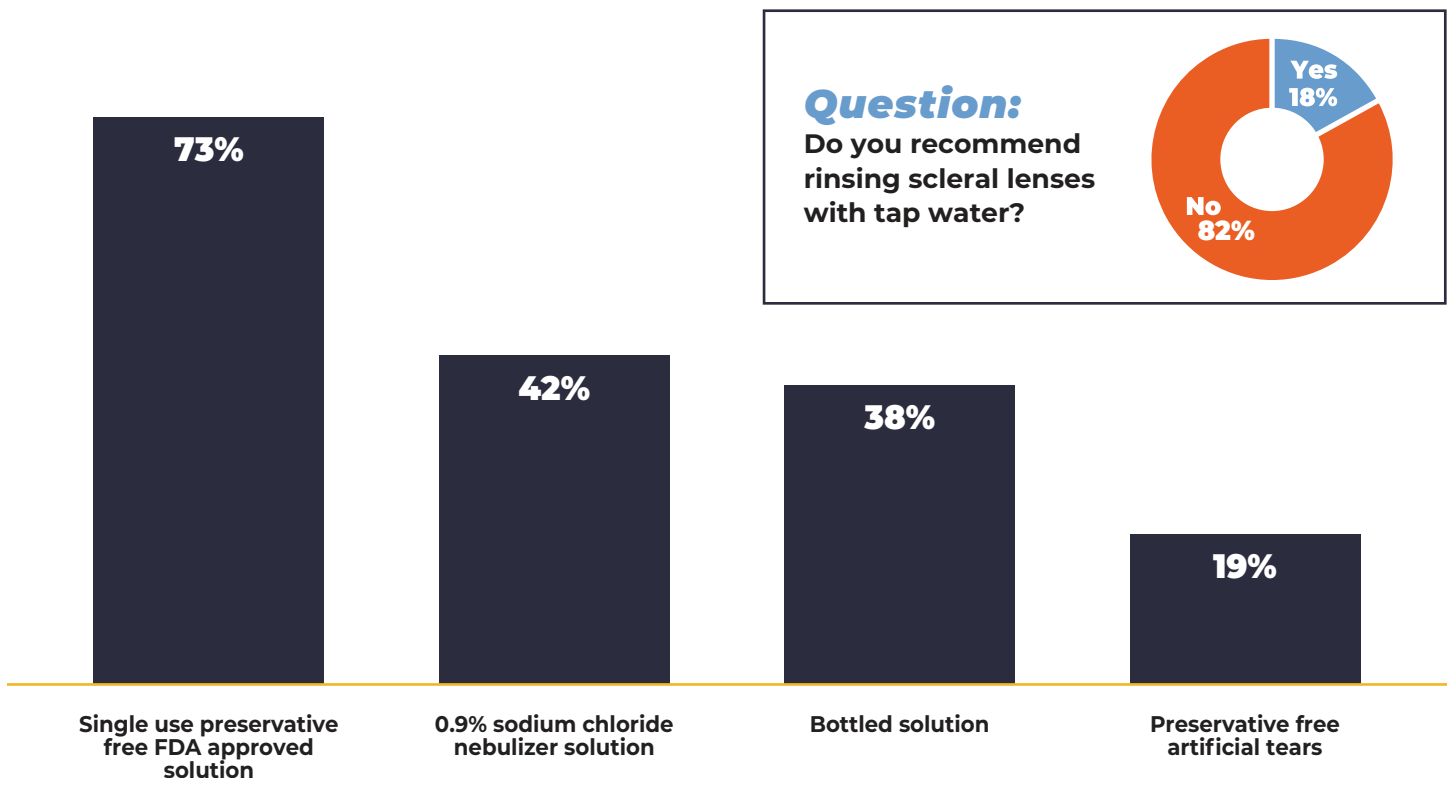


FIGURE 4. What type of application solution do you recommend for scleral lenses? (Select all that apply)

multiple lens and lens care system combinations found that participants using a one-step H₂O₂ system had significantly greater subjective comfort ratings than MPS users upon lens insertion.⁴

I am encouraged to that the majority (73%) of respondents use single-use preservative-free FDA approved solution, as shown in Figure 4. This solution is offered both buffered and non-buffered, ensuring consistent quality. Cost considerations likely drive choices here as I believe the relatively high (42%) of practitioners who recommend a sodium chloride nebulizer solution and relatively low (19%) recommend

preservative-free artificial tears for their convenience, are explained by the cost of each of these solutions. Surprisingly, 38% endorse the use of bottled solutions despite the contamination risk.

Additionally, a substantial majority, 82%, appropriately advise against using tap water to rinse scleral lenses, due to the infection risks, especially from Acanthamoeba.

4. Diec, J., et al., Combined effect of comfort and adverse events on contact lens performance. *Optom Vis Sci*, 2013. 90(7): p. 674-81.

Did you KNOW?



4
average number of scleral lens
patients seen per week



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85%
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63
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The Optometric Trends Discovery Group

(OTDG) Survey was launched on February 4, 2023. The survey included 141 questions developed and reviewed with the OTDG leadership board. The survey questions explored doctors' understanding and current practice patterns across a number of areas of optometric care, including presbyopia, astigmatism, corneal therapeutics, ocular surface disease, glaucoma, lid management, corneal refractive surgery, dry AMD and geographic atrophy, and myopia management.



Nearly 300 optometrists responded to the survey which was closed in mid-March 2023. You can access interpretive reports on additional OTDG topics as they are released by visiting otdg.tfgeducation.com or scanning the QR code.



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Meet the Author

Melissa Barnett
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Melissa Barnett is a world-renowned key opinion leader recognized for her expertise in specialty and scleral lenses, dry eye disease, keratoconus and presbyopia. She has authored more than 275 articles and books, delivered over 350 lectures, is a board member and founding member of Intrepid Eye Society and serves on several industry boards. Her work has been featured in medical journals, professional magazines, as well as consumer publications such as Bloomberg, Prevention Magazine and Good Housekeeping.

She is energized by her passion for helping people improve their lives by optimizing their vision, health and wellness with a customized approach. Dr. Barnett is most proud of being awarded the Scleral Lens Practitioner of the Year from the Scleral Lens Education Society, the inaugural Theia Award for Excellence for Mentoring by Women In Optometry and was granted the Most Influential Women in Optical from Vision Monday.

Dr. Barnett is the Director of Optometry at the University of California, Davis, and is the host of the Clearly KC podcast. She advocates for elevating eye care through technology and her influence on the profession.