Scleral lenses: a literature review.

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ABSTRACT: To present a comprehensive review of current and historical literature on scleral lenses.

METHODS: A comprehensive search of several databases from each database's earliest inception to May 23, 2014 was conducted by an experienced librarian with input from the author to locate articles related to scleral lens design, fabrication, prescription, and management.

RESULTS: A total of 899 references were identified, 184 of which were directly related to scleral lenses. References of interest were organized by date, topic, and study design. Most of articles published before 1983 presented lens design and fabrication techniques or indications for scleral lens therapy. Case reviews published after 1983 identified major indications for scleral lenses (corneal ectasia, ocular surface disease, and refractive error) and visual and functional outcomes of scleral lens wear. Statistically significant improvements in visual acuity, vision-related quality of life, and ocular surface integrity were reported. Reviews of ocular and systemic conditions suggested that comprehensive management strategies for these conditions could include scleral lenses. Early work investigating scleral lens fitting characteristics, optical qualities, and potential physiological impact on anterior ocular structures have been published in the past 5 years.

CONCLUSIONS: Indications for scleral lens wear are well-established. Developing areas of research on the physiologic impact of scleral lens wear on the ocular surface, the use of technology to improve scleral lens vision and fit, and the impact of these devices on the quality of life should further enhance our understanding of scleral lenses in the future.

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