

Reducing Dementia Risk: The Case for Bioptic Telescope Low Vision Aids

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In his November 2024 *Viewpoint* article in JAMA Ophthalmology,¹ Dr. Ehrlich raises an important concern about the emerging evidence linking visual impairment (VI) to an increased risk of cognitive decline and dementia. The connection between sensory deficits, particularly vision loss, and cognitive deterioration is becoming a key focus in geriatric ophthalmology and other fields. Since visual impairment is an independent risk factor for cognitive decline, it is essential to not only understand these links but also develop comprehensive responses to VI. While Dr. Ehrlich emphasizes the need for increased awareness and further research, he does not explore the role of low vision rehabilitation options—particularly bioptic telescopes—in mitigating these risks.

Cognitive Risks of Visual Impairment

The evidence suggests that individuals with visual impairment are at heightened risk for developing Alzheimer's disease and other dementias. The mechanisms behind this relationship are complex but likely involve a combination of sensory deprivation, reduced social engagement, and fewer opportunities for cognitive stimulation due to impaired vision.² The cumulative impact of these factors may accelerate cognitive decline, leading to reduced quality of life and increased burdens on families, caregivers and finances.

The Potential of Bioptic Telescopes for Reducing the Risk of Dementia

Dr. Ehrlich's article rightly stresses the importance of early diagnosis and intervention, especially given the aging population. However, it focuses largely on the direct management of the pathology underlying VI, without addressing low vision rehabilitation options that could improve visual function and help reduce the cognitive risks.³ One often overlooked but highly effective treatment is the use of bioptic telescopes.⁴ These devices, mounted onto conventional eyeglasses, enable individuals with central vision loss to switch between their regular eyeglass lenses and the telescope eyepiece, magnifying objects hence making them more visible. For example, a person with BCVA of 20/200 using a 5x bioptic telescope may achieve 20/40 vision, sufficient for most daily activities.

Bioptic telescopes are particularly beneficial for patients with central vision loss, such as those with macular degeneration, where peripheral vision is preserved. These devices are often prescribed to support mid-range and distance-oriented activities and many can be focused to be used at any distance. Bioptic telescopes facilitate facial recognition,⁵ making eye contact, reading body language, reading signs, watching TV, and participating in social or recreational activities. In some states, they may even help individuals qualify for limited driving privileges.⁶ Beyond improving visual function, bioptic telescopes enhance social engagement, which is crucial for cognitive health.⁷ By helping users maintain social interactions and reduce isolation, these devices counteract some of the negative effects of vision loss, such as depression and sedentary behavior, which have been shown to accelerate cognitive decline.

The Need for Comprehensive Rehabilitation

Despite the clear benefits of bioptic telescopes and other low-vision aids, their integration into standard care for patients with visual impairment remains inconsistent, notwithstanding the American Academy of Ophthalmology's [position statement](#) that "vision rehabilitation is now the standard of care for all who experience vision loss." Early detection and treatment of vision loss are important, but so is the inclusion of vision rehabilitation services to help patients adapt to their visual challenges. This support should include the appropriate provision of and training in the use of low vision devices. While sometimes costly and not routinely covered by insurance, low vision aids should be seen as an investment in improving the patients' quality of life and their potential lessening of the risk of cognitive decline.

Conclusion: A Comprehensive Approach to Vision and Cognitive Health

Dr. Ehrlich's concern about the cognitive risks associated with visual impairment is compelling, but addressing these risks requires more than just medical treatment. Integrating low vision rehabilitation services into the care plan for individuals with vision loss offers a comprehensive strategy to help reduce the potential risk of cognitive decline. This approach empowers patients to live fuller, more engaged lives despite their visual impairments.

References:

1. Ehrlich JR. Untreated Vision Loss as a Modifiable Dementia Risk Factor. *JAMA Ophthalmol.* 2024;142(11):993–994.
2. Lane J, Rohan EMF, Sabeti F, Essex RW, Maddess T, Dawel A, Robbins RA, Barnes N, He X, McKone E. Impacts of impaired face perception on social interactions and quality of life in age-related macular degeneration: A qualitative study and new community resources. *PLoS One.* 2018 Dec 31;13(12):e0209218.
3. Macnamara A, Chen CS, Davies A, Sloan C, Loetscher T. Low vision devices for age-related macular degeneration: a systematic review. *Disabil Rehabil Assist Technol.* 2023 Oct;18(7):998-1010.
4. Szlyk JP, Seiple W, Laderman DJ, Kelsch R, Stelmack J, McMahon T. Measuring the effectiveness of bioptic telescopes for persons with central vision loss. *J Rehabil Res Dev.* 2000 Jan-Feb;37(1):101-8.
5. Tejeria L, Harper RA, Artes PH, Dickinson CM. Face recognition in age related macular degeneration: perceived disability, measured disability, and performance with a bioptic device. *Br J Ophthalmol.* 2002 Sep;86(9):1019-26.
6. Bowers AR, Apfelbaum DH, Peli E; Bioptic Telescopes Meet the Needs of Drivers with Moderate Visual Acuity Loss. *Invest. Ophthalmol. Vis. Sci.* 2005;46(1):66-74.
7. Penninkilampi R, Casey AN, Singh MF, Brodaty H. The Association between Social Engagement, Loneliness, and Risk of Dementia: A Systematic Review and Meta-Analysis. *J Alzheimers Dis.* 2018;66(4):1619-1633.