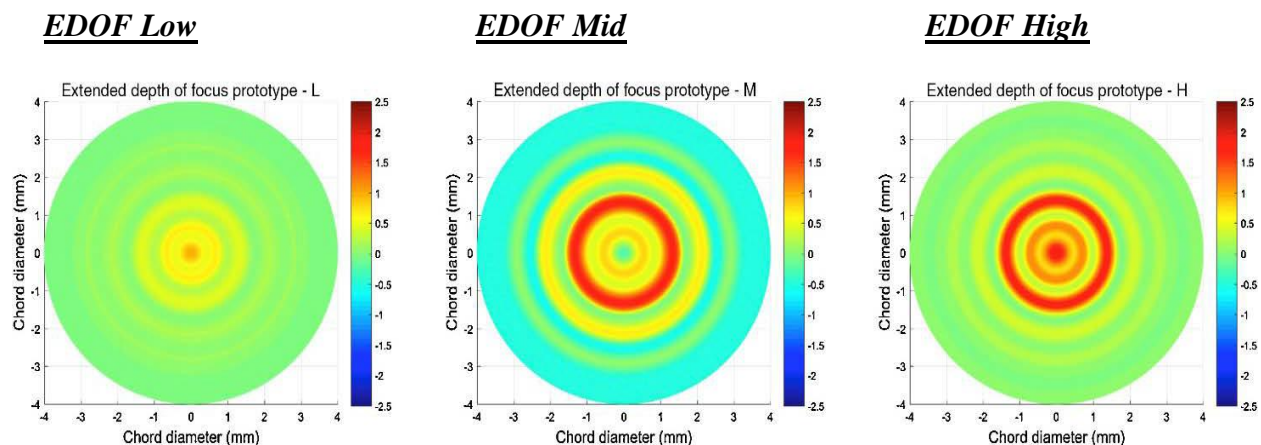


Design Principles and Clinical Insights of Extended Depth-of-Focus (EDOF) Contact Lenses

Extended Depth-of-Focus (EDOF) contact lenses represent a refined approach to presbyopia correction, leveraging advanced optical engineering to deliver a seamless range of clear vision—from near to intermediate to distance—without the abrupt focal shifts common in traditional multifocal lenses. Instead of relying on discrete refractive zones, EDOF lenses employ a gradual, radial gradient of refractive power, reminiscent of natural concentric “annular rings.” This design enables smooth transitions while reducing sensitivity to changes in pupil size, lens positioning, and eye movement, resulting in clearer, more consistent vision across various distances.



Clinical studies have reinforced the benefits of EDOF lenses, showing generally more stable and continuous visual acuity compared to conventional multifocal lenses, with fewer visual disturbances such as halos or ghosting. Many users report satisfactory visual performance across viewing distances even after short-term wear.

Summary of Two Open Access Studies on Extended Depth of Focus Contact Lenses

This summary integrates findings from two open access studies examining extended depth of focus (EDOF) contact lenses, comparing their visual performance, satisfaction, and short-term effects to conventional multifocal lenses.

1. **Bakaraju et al. (2018)** conducted a clinical evaluation of prototype EDOF contact lenses versus one commercially available multifocal design and one bifocal design after one week of wear. Their results demonstrated that the EDOF lenses provided comparable distance visual acuity and superior intermediate and near visual acuity relative to the other lens designs. Additionally, subjective ratings favored the EDOF lenses for overall vision quality. This study highlights the potential of EDOF technology to enhance visual performance, particularly in intermediate and near distance tasks.

[Extended depth of focus contact lenses vs. two commercial multifocals: Part 2. Visual performance after 1 week of lens wear - PMC \(nih.gov\)](#)

2. **Kamiya et al. (2025)** investigated visual performance and user satisfaction with commercially available EDOF lenses in presbyopic subjects. Their prospective study confirmed that EDOF lenses provide satisfactory distance, intermediate, and near visual acuity, with high wearer satisfaction and minimal adverse symptoms. The study further noted that EDOF lenses could reduce the dependence on additional reading glasses and improve overall visual function in daily life, reinforcing their clinical applicability for presbyopia management.

[Visual Performance and Satisfaction of Extended Depth of Focus Contact Lenses in Presbyopic Subjects](#)

Together, these studies indicate that EDOF contact lenses represent a promising alternative to traditional multifocal lenses by delivering an extended depth of focus, enhanced visual quality, and high wearer satisfaction.

Besides presbyopia, EDOF lenses may help reduce hyperopic defocus related to myopia progression. These potential benefits are currently being explored and are now under clinical investigation. The latest findings were also presented at this conference.

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