Title: Eight Years of Performance of Defocus Incorporated Multiple Segments (DIMS) Spectacle Lenses: User Experience and Myopia Management Outcomes

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Abstract

Purpose:
To evaluate the long-term safety, effectiveness and user experience in participants wearing Defocus Incorporated Multiple Segments (DIMS) spectacle lenses.

Methods:

The participants who completed the 2-year randomised controlled trial (RCT) and 6-year follow-up study (n=90) were invited for the 8-year follow-up visit. The participants were eight years older, age from 16- to 21-year-old. Consenting participants were interviewed (face-to face or by telephone) about their current optical correction and experiences with DIMS spectacle lenses. Non-cycloplegic refractions and axial length were measured.

Results:
Participants who wore DIMS spectacle lenses for 8 years experienced a mean myopia progression of-0.44 ± 0.64 D and axial elongation of 0.46 ± 0.64 mm. In contrast, participants with less than 8 years of DIMS wear showed a mean myopia progression of -1.44 ± 1.31 D and axial elongation of 0.88 ± 0.56 mm. Those in the 8-year group demonstrated statistically significant reductions in myopia progression by 1.00 ± 0.41 D(p=0.017) and axial elongation by 0.42 ± 0.18 mm (p=0.019) compared to the less-than-8-year group.

Conclusion:
Continuous long-term use of DIMS spectacle lenses for 8 years significantly reduces myopia progression and axial elongation compared to shorter durations. These findings highlight the long-term benefits of consistent DIMS spectacle lens usage in controlling myopia.

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Patent: Patents titled 'Spectacle Lens' in China (CN104678572 B) and USA (US10268050 B2) were issued on 27 April 2018 and 23 April 2019 respectively.

Keywords: Myopia control, DIMS, myopic defocus, user experience