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Performance Comparison of Peripheral Defocus Spectacle Lenses

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Aims/Purpose: To compare the effectiveness of myopia control spectacle lenses with Highly Aspherical Lenslets (HAL) to Defocus Incorporated Multiple Segments (DIMS) in European children with progressive myopia after 12M & 24M of lens usage.

Methods: In this retrospective study, data from 146 progressive myopic patients (73 treated with DIMS vs. 73 treated with HAL), aged 6-17 years (mean age ±SD, 11.3±2.36) with Spherical Equivalent Refraction (SER) between -0.50D to -9.25D and no associated ocular pathology were included. Spherical equivalent refraction (SER) and axial length (AL) were measured at baseline, 12M and 24M.

Results: The mean change in SER from baseline to 12M and baseline to 24M for the HAL and DIMS groups were -0.30±0.30D and -0.34±0.46D (12M) and -0.63±0.56D and -0.50±0.64D (24M), respectively. The mean difference was -0.04 (95%CI: -0.17 - 0.08) at 12M and -0.13 (95%CI: -0.07 - 0.32) with no statistically significant difference between the two groups both at 12M and 24M (Mann-Whitney U Test, p=0.80 and p=0.05 respectively). The mean change in AL from baseline to 12M and baseline to 24M for the HAL and DIMS groups were 0.15±0.47mm and 0.19±0.56mm (12M) and 0.32±0.72mm and 0.29±0.63mm (24M), respectively. The mean difference was 0.04 (95%CI: -0.13 - 0.21) and -0.03 (95%CI: -0.25 - 0.19) with no statistically significant difference between the two groups both at 12M and 24 M (Mann-Whitney U Test, p=0.34 and p=0.71 respectively).

Conclusions: Data from these retrospective analyses demonstrate and highlight that both optical interventions are effective in controlling myopia progression at 12M and 24M (i.e. non-inferiority of DIMS vs. HAL) in European children with progressive myopia.