Myopia Control with Orthokeratology Contact Lenses in Spain (MCOS): Refractive and Biometric Changes

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Abstract

PURPOSE: To compare axial length growth between white children with myopia wearing orthokeratology contact lenses (OK) and distance single-vision spectacles (SV) over a 2-year period. METHODS: Subjects 6 to 12 years of age with myopia −0.75 to −4.00DS and astigmatism ≤1.00DC were prospectively allocated OK or SV correction. Measurements of axial length (Zeiss IOLMaster), corneal topography and cycloplegic refraction were taken at 6-month intervals. RESULTS: Thirty-one children were fitted with OK and 30 with SV. Following 24-months, axial length increased significantly over time for both the OK group (0.47mm) and SV group (0.69mm; p<0.001) with a significant interaction between time and group (p=0.05) reflecting a greater increase in the SV group. Significant differences in refraction were found over time, between groups and for the interaction between time and group for spherical (all p<0.001) but not cylindrical components of refraction (all p>0.05). Significantly greater corneal flattening was evident in the OK group for the flatter and steeper corneal powers and for corneal shape factor (all p≤0.05). CONCLUSION: Orthokeratology contact lens wear reduces axial elongation in comparison to distance single-vision spectacles in children.

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