

ORTHOKERATOLOGY ROLE IN MIOPIA MANAGEMENT

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Introduction. One of the best techniques for reducing axial elongation and delaying the onset of myopia in children is orthokeratology (OK). By wearing an OK lens overnight, the central cornea can be flattened using a reverse design that creates a flat central treatment zone surrounded by a steep mid-peripheral ring zone. This steep mid-peripheral ring zone helps to create peripheral defocus to control the progression of myopia, while the flat central treatment zone supports clear vision throughout the day.

The purpose of this retrospective randomized study was to evaluate the effectiveness of orthokeratology in controlling myopia.

Method. We investigate axial elongation of the eyeball in myopic children wearing ortho-k lenses (study group) and single-vision spectacles (control group) for a period of 4 years in Promed Clinic, Chisinau, Republic of Moldova. In total, 175 children (175 right eyes) with myopia met the inclusion criteria were selected in study, and divided in 2 groups. The inclusion criteria for the study group were: age of 8–18 years at baseline, cycloplegic autorefraction from -6.00 to -1.25 (D) in both eyes, (3) astigmatism (cycloplegic autorefraction) ≤ 1.50 D, (4) anisometropia (cycloplegic autorefraction) ≤ 1.50 D, overnight treatment with OK lens, a follow-up time ≥ 2 years. The exclusion criteria for study group were: strabismus and binocular vision abnormalities; ocular and systemic abnormalities; incomplete data.

Result. The 4-year trial involved 85 ortho-k patients (40 females, 45 males) and 90 control subjects (42 females, 48 males). There were no significant differences in the baseline data ($P > 0.05$) between the two subject groups. In the ortho-k group, the average age was 11.10 ± 1.15 years, while in the control group it was 11.35 ± 1.20 years. The initial myopia was 3.15 ± 0.75 D in the ortho-k group and 3.30 ± 0.80 D in the control group. The subjects' axial length increased over time in both groups. In the control groups, the increase over time was statistically significant and happened more rapidly ($P < 0.01$). At each follow-up visit, the ortho-k group consistently showed a lower rate of axial elongation compared to the control group ($P < 0.001$). After four years, the average increase in axial length for ortho-k participants was less than that of control subjects.

Conclusions. Orthokeratology (ortho-k) reduced the number of myopic children showing fast progression and also slowed down the elongation of the eye's axial length.