



The Evolution of Myopia Control Spectacle Lenses in Türkiye

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Treatments for myopia control are becoming increasingly available in Türkiye. This development is encouraging for both clinicians and families, because myopia is currently recognized not only as a refractive error but also as a significant public health problem. High myopia, in particular, is closely associated with vision-threatening diseases such as myopic maculopathy, retinal tears and detachment, glaucoma, and cataract. The risk of developing these complications increases significantly as the degree of myopia increases.

Therefore, any treatment approach capable of slowing myopia progression during childhood is of great importance. Currently, methods used to control myopia are broadly classified into four main categories: atropine therapy, orthokeratology, myopia control soft contact lenses, and specially designed spectacle lenses.

Among these methods, spectacle lenses are becoming increasingly preferred in our country, as they are worldwide, due to their non-invasive nature, high patient compliance, and ease of use in daily life.

One of the first spectacle lenses used for myopia control in Türkiye was the Myopilux design developed by Essilor. For many years, these lenses have been utilized in various designs, including progressive addition and executive

bifocal. Notably, a 2014 study by Cheng et al.¹ demonstrated that executive bifocal spectacles with a near addition of +1.50 diopters significantly slowed myopia progression. The results achieved with prismatic bifocal designs were even more remarkable. However, the efficacy reported for progressive addition spectacles was more limited, with the majority of the effect being observed within the first year.² Although the efficacy of these lenses lags behind that of new-generation myopia control technologies when evaluated by today's standards, it is clear that they played a significant role in popularizing the concept of myopia control in our country.

Later, spectacle lenses with a peripheral progressive design (Myopi-X, NOVAX) introduced a novel approach to myopia control in Türkiye. It is believed that the optical changes created in the peripheral zones of these lenses may alter the retinal image profile and influence eye growth. Clinical studies conducted in Türkiye have reported that these lenses can slow myopia progression, demonstrating an efficacy comparable to that of low-dose atropine therapy.³ However, they provided no additional benefit when used in combination with atropine.⁴ These findings are noteworthy, as they demonstrate that not every combination therapy necessarily produces a more potent effect in myopia control.

Recent years have seen the introduction of much more advanced optical technologies in myopia control spectacle lenses, including DIMS (defocus incorporated multiple segments), CARE (cylindrical annular refractive elements), and HAL (highly aspherical lenslets) technologies.

DIMS technology consists of a central optical zone, which provides clear vision, surrounded by hundreds of microlens segments. These microlenses aim to slow axial eye growth by creating myopic defocus in front of the retina. International studies of spectacle lenses utilizing DIMS technology have demonstrated significant decelerations in both myopia progression and axial elongation. Initial real-

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world data collected in Türkiye also support these results, with retrospective studies in Turkish children showing that DIMS technology provides clear superiority over single-vision spectacle lenses.^{5,6} Furthermore, recent comparative studies have reported that the DIMS design is more effective than peripheral progressive lenses.⁷

CARE technology employs a different optical approach. A central optical zone, which provides distance correction, is surrounded by cylindrical annular refractive elements that simultaneously generate varying focus signals across different regions of the retina. This optical structure aims to suppress axial eye elongation. Initial results obtained in Türkiye indicate that CARE technology is effective in reducing both axial elongation and refractive progression.⁸

In HAL technology, a large volume of myopic defocus is created in the mid-peripheral retina using numerous highly positive aspherical microlenses located in the lens periphery. This approach aims to exert a stronger influence on the retinal signals that regulate eye growth. Recent studies suggest that HAL technology is one of the most effective spectacle lens designs available today.⁹ We eagerly await the outcomes related to this lens from our country as well.

From the perspective of Türkiye, a remarkable transformation has occurred over the last few years. While myopia control was previously practiced only in specific centers and by a limited number of physicians, an increasing number of ophthalmologists are now integrating myopia control approaches into their routine daily practice. This shift is believed to be driven not only by the growing body of scientific evidence but also by the increased accessibility of myopia control lenses in Türkiye.

Perhaps the most significant change is not technological, but conceptual. In the past, correcting a child's existing refractive error was seen as the primary goal, whereas today, the goal is to prevent or reduce the risk of high myopia in the future. In other words, there has been a transition from the era of myopia correction to the era of myopia management.

It is evident that in the coming years, real-world data with longer follow-up periods and new clinical studies

from Türkiye will expand the knowledge base in this field. However, in light of the current data, we can conclude that the success of myopia control spectacle lenses will be measured not only by the diopters gained today, but also by the cases of severe myopia prevented in the future.

Declarations

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References

1. Cheng D, Woo GC, Drobe B, Schmid KL. Effect of bifocal and prismatic bifocal spectacles on myopia progression in children: three-year results of a randomized clinical trial. *JAMA Ophthalmol.* 2014;132:258-264.
2. Gwiazda JE, Hyman L, Everett D, Norton T, Kurtz D, Manny R, Marsh-Tootle W, Scheiman M, Dong L, the COMET Group. Five-year results from the Correction of Myopia Evaluation Trial (COMET). *Invest Ophthalmol Vis Sci.* 2006;47:1166-1171.
3. Akagun N, Altıparmak UE. Myopi-X lenses vs. low-dose atropine in myopia control: a Turkish retrospective study: study design: retrospective observational study. *BMC Ophthalmol.* 2025;25:220.
4. Akagün N, Altıparmak UE. Combination therapy with atropine 0.05% and Myopi-X® glasses: is it effective in myopia control? *Turk J Ophthalmol.* 2025;55:1-5.
5. Akagun N, Altıparmak UE. Defocus incorporated multiple segments spectacle lenses for myopia control: a retrospective study in a Turkish cohort. *Ophthalmic Physiol Opt.* 2025;45:1090-1097.
6. Akagun N, Altıparmak UE. Real-world effectiveness of DIMS spectacle lenses for myopia control in a Turkish Pediatric Population: a retrospective study using age-specific physiological growth curves. *Children (Basel).* 2025;12:1435.
7. Akagün N, Altıparmak UE. Real-world comparison of the effectiveness of defocus incorporated multiple segments and Myopi-X spectacle lenses for myopia control in Turkish children: a retrospective study. *Turk J Ophthalmol.* 2026;56:8-15.
8. Akagun N, Altıparmak UE. Real-world effectiveness of CARE-based spectacle lenses for myopia control in a Turkish Pediatric Cohort. *Vision (Basel).* 2026;10:19.
9. Li X, Huang Y, Liu C, Chang X, Cui Z, Yang Q, Drobe B, Bullimore MA, Chen H, Bao J. Myopia control efficacy of spectacle lenses with highly aspherical lenslets: results of a 5-year follow-up study. *Eye Vis (Lond).* 2025;12:10.