

DIMS Spectacle Lenses: Is it an Effective Approach to Slow Myopia Progression in Turkish Children? A Retrospective Study



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Background

- Myopia is considered an epidemic due to the increasing prevalence rates worldwide.
- Myopia is associated with ocular complications that can pose significant risks to visual health.
- **Purpose:** This retrospective study aimed to assess the effectiveness of a myopia control spectacle lens (DIMS) in slowing the progression of myopia in a population of Turkish children when compared to single vision lenses (SVL).

Methods

- **Population:** 34 patients (68 eyes; 6-18 years), with progressive myopia (26.5% females and 73.5% males).
- **Groups:** 14 patients in the SVL group and 20 in the DIMS spectacle lens group (using Hoya® MiyoSmart®)
- **Measurements:** Cycloplegic autorefractometry Spherical Equivalent Refraction (SER) and Axial Length (AL), were measured at baseline and 6 months.
- **Topcon Autorefractor and Zeiss IOLMaster 700** were used for refraction and AL measurements, respectively.
- **Outcome Variables:** SER and AL changes were compared between the groups at six months.

Acknowledgements

- The first author of the study has received a travel grant from HOYA.

Results

- There was no significant difference in the baseline SER between the DIMS and SVL group (Table 1)
- The mean SER change was significantly less in the DIMS spectacle lens group after 6 months (Table 1)
- There was no significant difference in the baseline AL between the DIMS and SVL group (Table 2)
- The mean AL increase was significantly less in DIMS spectacle lens group after 6 months (Table 2)

SE (Diopters)	Baseline	6 Months
SVL	-3.27+/-0.45	-3.52+/-0.50
DIMS	-3.37+/-0.26	-3.41+/-0.30
Mean Difference		
p-value	0.45*	0.01*

Table 1: Spherical equivalent (SER) at baseline and after 6 months of follow-up (*: Mann-Whitney U-test)

AL (mm)	Baseline	6 Months
SVL	24.94+/-0.23	25.07+/-0.25
DIMS	24.45+/-0.14	24.51+/-0.02
Mean Difference		
p-value	0.09*	0.01*

Table 2: Axial length (AL) at baseline and after 6 months of follow-up (*: Mann-Whitney U-test)

Discussion

- Myopia management is essential for the younger generations to reduce the risk of vision impairment in the future.
- Atropine is still the most commonly used myopia management strategy in Turkey. However, the lack of a factory-made preparation makes the clinicians skeptical about its safety and reliability.
- Orthokeratology is not very commonly practiced among ophthalmologists in Turkey, due to the fear of increased risk of contact lens related adverse effects.
- Soft contact lens designs which are used for myopia management are not an accessible myopia management strategy in Turkey
- Spectacle lenses are still the main treatment for myopia management in Turkey.
- D.I.M.S. technology was the first novel design of myopia management lenses in Turkish market. These lenses use the simultaneous myopic defocus theory (excluding prismatic bifocal design).
- In this cohort, DIMS spectacle lenses significantly reduced the progression of SER and AL in Turkish children
- However longer follow-up with a larger cohort deemed necessary, based on the newer recommendations of IMI.

Conclusions

DIMS spectacle lenses are effective in reducing myopia progression and axial elongation in Turkish children compared to SVLs in the first six months.

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