Myopia Control Using Specialized Spectacle Lenses: Results in a Portuguese Cohort

Controlo da Miopia Utilizando Lentes Graduadas Especializadas: Resultados numa Coorte Portuguesa

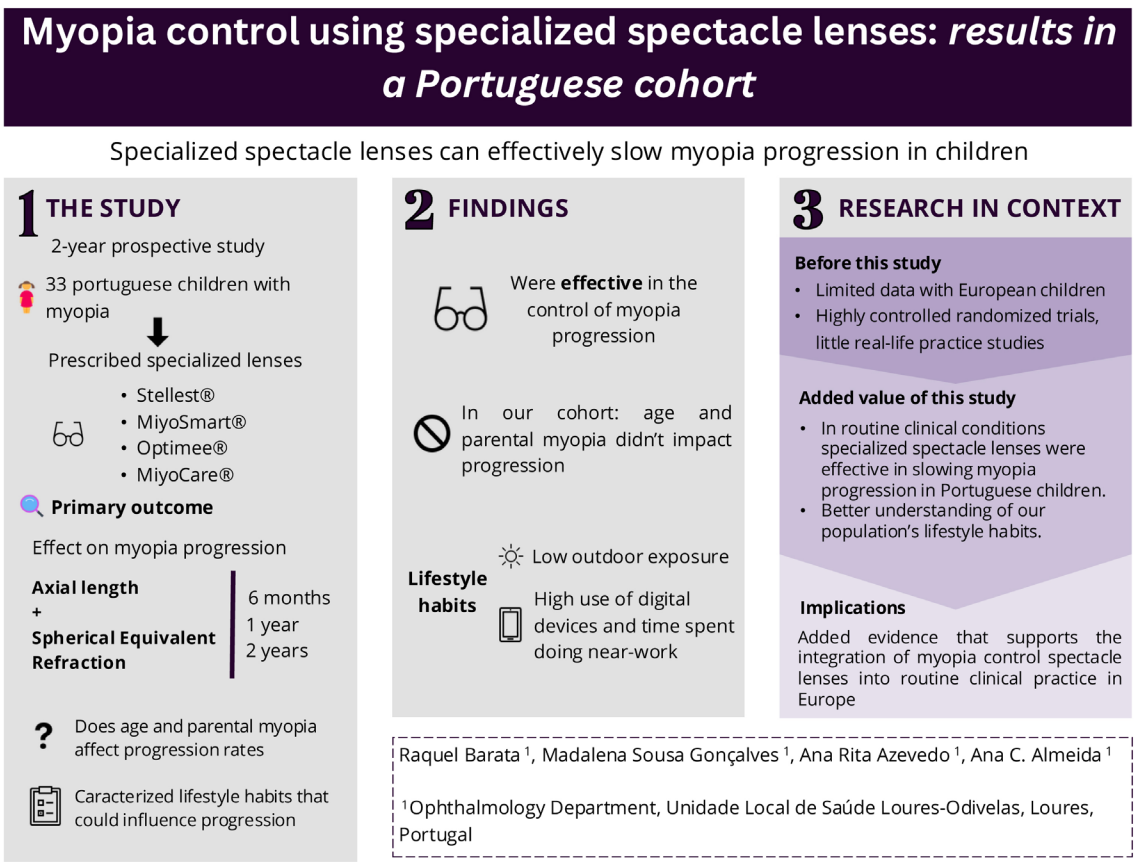
Raquel Barata [1,*], Madalena Sousa Gonçalves [1], Gonçalo Duarte [2], Ana Rita Azevedo [1], Ana C. Almeida [1]

[1] Ophthalmology Department, Unidade Local de Saúde Loures-Odivelas, Loures, Portugal
[2] Pharmacology and Therapeutics Unit, Unidade Local de Saúde Santa Maria, Lisboa, Portugal

Recebido/Received: 2025-10-16 | **Aceite/Accepted:** 2026-01-11 | **Published online/Publicado online:** 2026-06-12 | **Published/Publicado:** 2026-06-27

DOI: https://doi.org/10.48560/rspo.43619

GRAPHICAL ABSTRACT



ABSTRACT

INTRODUCTION: Myopia is increasing worldwide and is projected to affect nearly 5 billion people by 2050. High myopia is a major risk factor for vision-threatening complications and children with fast-progressing myopia require early intervention and monitoring. Several interventions have showed to effectively slow progression, and options based on peripheral defocus lenses showed promising results in clinical trials. Our study aimed to evaluate myopia progression in a Portuguese children cohort using different lens designs in a real-world setting, and to assess the role of age and parental myopia. We also described lifestyle habits that could influence progression.

METHODS: This was a prospective, non-randomized interventional study. Children aged 5 to 17 years with a myopia diagnosis were prescribed specialized lenses commercially available (Stellest®, MiyoSmart®, Optimee® or MiyoCare®) and followed at 6 months, 1 and 2 years. Cycloplegic refraction and axial length (AL) were measured at each visit. The primary outcome was myopia progression, expressed as the change in spherical equivalent refraction (SER) during follow-up. The secondary outcome was axial length elongation over time. Subgroup analyses compared outcomes by parental myopia, age at prescription and lens design.

RESULTS: Thirty-three children were included (66 eyes), mean age was 9.6 years at the start of treatment. Over a follow-up of up to 2 years, AL growth was 0.14 mm/year (95% CI 0.07–0.21, $p<0.001$) and SER shifted by –0.38 D/year (95% CI –0.52 to –0.24, $p<0.001$), both below fast-progression thresholds (≥0.30 mm/year and ≥–0.50 D/year).

CONCLUSION: In our cohort, specialized spectacle lenses were associated with reduced myopia progression. Collected data regarding lifestyle habits highlighted the need to improve parental literacy related to myopia and associated risk factors, to encourage healthier lifestyle habits and potentially reduce long-term risk.

KEYWORDS: Child; Disease Progression; Eyeglasses; Myopia.

RESUMO

INTRODUÇÃO: A miopia tem vindo a aumentar em todo o mundo e estima-se que venha a afetar cerca de 5 mil milhões de pessoas até 2050. A alta miopia é um importante fator de risco para complicações, pelo que crianças com miopia com rápida progressão requerem intervenção precoce e seguimento cuidado. Diversas intervenções têm demonstrado eficácia no controlo da progressão da miopia e as opções baseadas em lentes de desfoque periférico mostraram resultados promissores em ensaios clínicos. O objetivo deste estudo foi avaliar a progressão da miopia numa coorte de crianças portuguesas, utilizando diferentes tipos de lentes especializadas. Foram descritos hábitos de estilo de vida que poderiam influenciar a progressão.

MÉTODOS: Este é um estudo prospetivo, não randomizado e intervencional. Foram incluídas crianças com idades compreendidas entre os 5 e os 17 anos com diagnóstico de miopia, às quais foram prescritas lentes graduadas especializadas, sendo seguidas aos 6 meses, 1 e 2 anos. Em cada consulta foi avaliado o equivalente esférico sob cicloplegia e o comprimento axial. O principal objetivo foi a avaliação da progressão da miopia, expressa pela variação do equivalente esférico ao longo do tempo, e a avaliação do aumento do comprimento axial. Foram realizadas análises por subgrupos para comparar o efeito da miopia parental, a idade à prescrição e o tipo de lente usada.

RESULTADOS: Foram incluídas 33 crianças (66 olhos), com idade média de 9,6 anos no início do tratamento. Durante o seguimento, até 2 anos, o crescimento axial médio foi 0,14 mm/ano (IC 95%: 0,07–0,21; $p<0,001$) e a variação do equivalente esférico foi –0,38 D/ano (IC 95%: –0,52 a –0,24; $p<0,001$), ambos abaixo dos limiares definidos para progressão rápida (≥0,30 mm/ano e ≥–0,50 D/ano).

CONCLUSÃO: Na nossa coorte, as lentes graduadas especializadas associaram-se a um bom controlo da progressão da miopia. Os dados recolhidos sobre hábitos de vida evidenciam a necessidade de melhorar a literacia parental relativamente à miopia e aos seus fatores de risco, de modo a promover comportamentos mais saudáveis e, potencialmente, reduzir o risco de progressão a longo prazo.

PALAVRAS-CHAVE: Criança; Miopia; Óculos; Progressão da Doenças.

INTRODUCTION

The prevalence of myopia has been increasing worldwide and is projected to affect approximately 5 billion people by 2050,[1] representing a major public health concern. High myopia is a cause of low vision and blindness,[2] as it increases the risk of complications such as cataract, open-angle glaucoma, myopic macular degeneration, and retinal detachment.[3] Therefore, children with fast-progressing myopia require early intervention and careful monitoring.

Different strategies have been suggested to delay the progression of myopia, such as topical atropine,[4] soft contact lenses,[5] orthokeratology[6] and different types of spectacle lenses (defocus incorporated multiple segments, highly aspherical lenslets and cylindrical annular refractive elements).[7–9]

We conducted a prospective study over a 2-year follow-up of a cohort of Portuguese children with fast progressing myopia that were managed with different technologies of spectacle correction. The objective of this study was to evaluate the efficacy of specialized spectacle lenses on myopia progression patterns in a real-world clinical setting, using different lens designs, contributing with evidence to complement findings from controlled clinical trials. We also investigated and described lifestyle habits that could influence progression.

METHODS

This was a prospective, interventional, single-centre study conducted at Hospital Beatriz Ângelo, Loures, Portugal. Children were consecutively enrolled when they initiated myopia control with spectacle lenses, according to a predefined study protocol. Follow-up visits were planned at 6-month intervals; however, some children returned at different time points (e.g., 12 or 24 months). The information from all available visits was included in the analysis.

Children were eligible for inclusion if they were younger than 18 years, had a cycloplegic objective spherical equivalent refraction (SER) of ≤ –0.50 D, and best-corrected visual acuity (BCVA) of 0.8 or better. In addition, evidence of myopia progression was required, defined as a decrease in SER of more than –0.50 D over one year and/or axial length (AL) growth of at least 0.20 mm/year (consistent with axial elongation threshold frequently used as clinical benchmarks in myopia control studies[10]), leading to the prescription of myopia control spectacle lenses. Families had been offered a choice among commercially available lens designs (Stellest®, MiyoSmart®, Optimee®, and MiyoCare®). Parents were responsible for purchasing the spectacles independently. Lens type was recorded in the clinical file at follow-up visits.

Children were excluded if they had ocular diseases that could influence treatment outcomes (such as congenital retinal disease, amblyopia, or strabismus), a history of ocular injury or surgery, or if they were undergoing other optical or pharmacological methods for myopia control, such as atropine eye drops.

Clinical data included demographic characteristics (age and sex), as well as SER and AL, measured at baseline and at subsequent visits. AL was measured using the Zeiss IOL Master (Carl Zeiss Meditec Inc., Dublin, CA). Additional variables included family history of myopia (none, one parent, or both parents). Lifestyle habits were recorded at baseline using a structured questionnaire and included average daily hours spent at school, watching television, using a computer, using a tablet/smartphone, performing near work (reading/homework), and time spent outdoors.

The study was approved by the Ethics Committee of Hospital Beatriz Ângelo. The study was conducted in accordance with the ethical standards of the Declaration of Helsinki.

OUTCOME MEASURES

The primary outcome was myopia progression, expressed as the change in spherical equivalent refraction (SER, diopters) during follow-up. The secondary outcome was axial length (AL, mm) elongation over time. Treatment success was defined as SER > –0.50 D/year and/or axial elongation of <0.20 mm/year.

Subgroup analyses were performed to explore potential modifiers of treatment effect, including parental history of myopia (none *vs* ≥1 parent), age at lens prescription (<10 *vs* ≥10 years), and spectacle lens design. In addition, descriptive analyses of lifestyle factors were conducted to characterize the cohort and were not included in statistical models of myopia progression.

STATISTICAL ANALYSIS

Changes in axial length (AL) and spherical equivalent refraction (SER) were analysed using linear mixed-effects models. Follow-up time was included as a continuous variable, allowing estimation of annualized progression rates.

Fixed effects included sex, age at lens prescription, parental myopia, and lens design as covariates. Because both eyes of the same child were measured repeatedly across visits, analyses accounted for this clustering by treating the child identifier as a random effect. This approach allowed us to estimate the average rate of progression while properly adjusting for within-subject correlation. Subgroup analyses were performed by comparing progression according to age at prescription (≤10 *vs* >10 years), parental myopia (0 *vs* ≥1 parent), and lens design (Stellest® and MiyoSmart®); MiyoCare® and Optimee® were reported descriptively due to the small number of subjects.

Estimated marginal means and 95% confidence intervals were calculated for each group at each follow-up timepoint. A p-value <0.05 was considered statistically significant.

RESULTS

In total, 33 children (66 eyes) were included in the analysis, of which 51.5% were girls; the mean age at lens prescription was 9.6 ± 2.4 years, with a mean age of myopia diagnosis of 7.5 ± 2.0 years. At baseline, mean AL was 24.6 ± 1.2 mm and mean SER was −3.5 ± 2.2 D (range, −8.75 to −0.50). Parental myopia was reported in 20 children. Because spectacles were purchased independently, in some cases families did not recall exact brand, resulting in missing information on lens type (Table 1).

Table 1. Demographic characteristics at baseline.	
Characteristic	**Value**
Age at lens prescription, y, mean±SD	9.6 ± 2.4
Age of myopia diagnosis, y, mean±SD	7.5 ± 2.0
Gender: male/female, %	48.5 / 51.5
Parental myopia, %	
None	39.4
One parent	33.3
Two parents	6.1
Unknown	21.2
Lens design, n children (%)	
Stellest®	9 (27.3%)
MiyoCare®	3 (9.1%)
MiyoSmart®	11 (33.3%)
Optimee®	3 (9.1%)
Unknown	7 (21.2%)
Baseline cycloplegic refraction (SER), D	–3.5 ± 2.2
Baseline axial lenght, mm	24.6 ± 1.2

Over a maximum follow-up of 2 years, axial length (AL) increased by an average of 0.14 mm/year (95% CI 0.07–0.21; $p<0.001$) and spherical equivalent refraction (SER) shifted by -0.38 D/year 95% CI –0.52 to –0.24; $p<0.001$. Both values are below fast-progression thresholds (<0.20 mm/year and ≥–0.50 D/year). Descriptive annualised changes calculated at each timepoint are shown in Table 2. At 6 months (n=20), variability was greater (SD 1.02 mm/year for AL), reflecting short-term measurement noise, but the overall pattern stabilised at 1 year (n=23) and 2 years (n=12), with consistent annualised progression of approximately 0.16 mm/year in AL and –0.35 to –0.39 D/year in SER.

Subgroup analyses were performed using the available data. All 33 children were included in the age analysis, with 22 prescribed lenses at ≤10 years and 11 at >10 years. Children ≤10 years showed slightly faster progression, with annual AL elongation of 0.13 mm *versus* 0.11 mm and SER shifts of –0.31 D *versus* –0.18 D, although these differences were not statistically significant ($p=0.45$ for AL, $p=0.13$ for SER). Parental myopia status was known in 26 children; 20 had at least one myopic parent and 6 had none, while 7 had missing information and were excluded. Progression rates were similar between groups, with annual AL elongation of 0.11 mm in children with ≥1 myopic parent *versus* 0.12 mm in those without, and SER shifts of –0.32 D *versus* –0.37 D, with no significant differences ($p=0.95$ for AL, $p=0.79$ for SER). Lens design analyses were restricted exclusively to the 20 children with Stellest® (n=9) or MiyoSmart® (n=11). Both designs showed comparable efficacy, with annual AL elongation of ~0.10 mm/year and SER shifts of ~–0.30 D/year, and no significant differences between them (p=0.89 for AL, $p=0.87$ for SER). Children using Optimee® (n=3), MiyoCare® (n=3), or whom the lens type was unknown (n=7), were not included in the analyses due to insufficient sample size and were reported descriptively only (Table 3).

Lifestyle habits are presented descriptively and were not analysed in relation to progression outcomes. Through questionnaires, children reported 7.8 ± 1.1 hours/day at school, 1.5 ± 0.9 hours watching television, 1.6 ± 1.1 hours using a computer, 2.0 ± 1.3 hours using a tablet or smartphone, and 1.5 ± 0.8 hours on reading or homework. Reported outdoor time averaged 1.9 ± 0.9 hours/day (Table 4).

DISCUSSION

In this study, we investigated the effect of specialized spectacle lenses in a Portuguese cohort. Over the follow-up period, we observed that these lenses were effective in slowing refractive progression and axial elongation in myopic children, being consistent and extending evidence from recent meta-analyses of randomized controlled trials.[11–13]

Table 2. Annualised changes in axial length and spherical equivalent refraction.			
Follow-up	**n children**	**Axial length, mm/year (mean ± SD)**	**Spherical equivalent, D/year (mean ± SD)**
6 months	20	0.38 ± 1.02	–0.51 ± 0.64
1 year	23	0.16 ± 0.36	–0.35 ± 0.42
2 years	12	0.16 ± 0.16	–0.39 ± 0.36

Table 3. Annualized myopia progression in the different subgroups.				
Subgroup	**N**	**AL, mm/year (95% CI)**	**SER, D/year (95% CI)**	**Interaction *p*-value**
Age at prescription				
≤10 y	22	0.131 (0.078–0.184)	–0.314 (–0.446 to –0.182)	0.45 (AL), 0.13 (SER)
>10 y	11	0.111 (0.011–0.211)	–0.180 (–0.333 to –0.028)	
Parental myopia				
None	6	0.123 (0.003–0.243)	–0.368 (–0.668 to –0.069)	0.95 (AL), 0.79 (SER)
≥1 parent	20	0.113 (0.049–0.177)	–0.317 (–0.522 to –0.112)	
Lens design				
MiyoSmart®	11	0.097 (0.007–0.187)	–0.300 (–0.512 to –0.089)	0.89 (AL), 0.87 (SER)
Stellest®	9	0.103 (–0.015–0.221)	–0.317 (–0.627 to –0.006)	

Table 4. Lifestyle habits.

Activity	Number of hours spent per day, mean±SD
School	7.8 ± 1.1
Watching TV	1.5 ± 0.9
Using the computer	1.6 ± 1.1
Using a tablet or smartphone	2.0 ± 1.3
Doing close work (homework, reading, painting)	1.5 ± 0.8
Outdoor	1.9 ± 0.9

Growing evidence indicates that axial length growth decreases with age and, in older children, approaches values close to those observed in our cohort.[14] In this context, the mean axial elongation of approximately 0.14 mm/year observed in our study closely aligns with physiological growth patterns, suggesting attenuation of myopia progression rather than solely remaining below a fixed axial length threshold.

Our results align with a recent study on European children, which found that DIMS and HAL spectacle lenses were equivalent in reducing myopia progression over a 2-year period.[15] This contrasts with findings from a larger Chinese cohort, where HAL lenses were reported to be more effective than DIMS.[16] These differences may be related to the characteristics of the underlying population, including their baseline progression rates, ethnicity, environmental exposures, and cohort size, highlighting the importance of evaluating myopia control strategies across different clinical contexts.

Although in our study younger age and parental myopia were not significantly associated with faster progression, prior evidence has consistently highlighted these as strong predictors of faster myopic shift,[17–19] which may be explained by the relatively small sample size of our cohort.

Beyond optical treatment, our assessment of lifestyle habits revealed that the Portuguese children from our sample usually spend almost 8 hours of their day at school, have a high device use (specially of near use) and relatively limited time spent outdoors. When compared to a similar study done with Israeli children,[20] our cohort reported substantially longer school hours and near work, but lower smartphone/tablet use. Outdoor exposure was limited in both populations. These findings are relevant given that increased near work and reduced time outdoors are recognized as key environmental risk factors influencing myopia onset and progression.[21]

This comparison underscores the importance of considering environmental and behavioural influences alongside optical interventions when recommending myopia control strategies. In addition to individual counselling, broader approaches such as educating parents and children about healthy visual habits, as well as initiatives to promote outdoor activities and regulate excessive device use, may further enhance the effectiveness of myopia treatments.

STRENGTHS AND LIMITATIONS

An important aspect of our work is the confirmation of the benefits of specialized spectacle lenses in a routine clinical practice setting, outside the highly controlled conditions of randomized trials. Children were managed according to clinical indications, and adherence to spectacle wear was high, supporting the feasibility and acceptability of these interventions for families.

The strengths of this study include its prospective design, systematic follow-up, and the evaluation of multiple lens technologies, allowing caregivers to make informed choices about lens selection. In addition, the assessment of lifestyle habits in our cohort provides novel insights that are rarely addressed in comparable trials.

However, several limitations must be acknowledged. The study was non-randomized, conducted in a single centre, and involved a small sample size. Missing data on parental myopia and lens type reduced the power of subgroup analyses. Lifestyle information was based on self-reported questionnaires, which may be subject to recall or reporting bias. The use of a single axial length cutoff, rather than age-adjusted thresholds or percentile growth charts, was due to the limited sample size, which did not allow robust age stratified analyses and could have influenced the classification of progression in some children. Finally, the absence of a control group is an important limitation, since myopia progression and axial elongation are known to decelerate physiologically with increasing age, and therefore part of the observed reduction in progression could also reflect natural age-related changes. Although we provide valuable real-world information, our study does not allow definite causal inference regarding efficacy.

CLINICAL IMPLICATIONS AND FUTURE DIRECTIONS

Our findings add evidence that supports the integration of myopia control spectacle lenses into routine clinical practice in Europe. Clinicians should consider age, parental history, and lifestyle habits when selecting and counselling families. Larger multicentre studies with longer follow-up periods and comparisons between lens designs, atropine, and other type of interventions are needed to define the standard of care strategies for myopia control.

CONCLUSION

In our cohort, specialized spectacle lenses were associated with maintaining myopia progression below clinically relevant thresholds, aligning with published meta-analytic findings from randomized controlled trials. The efficacy of HAL and DIMS designs were comparable and consistent with recent evidence from European populations, supporting their use in our daily practice. Collected data on lifestyle habits highlighted the need to improve population literacy regarding myopia and its risk factors, to encourage healthier behaviours and potentially reduce the long-term risk of progression.

CONTRIBUTORSHIP STATEMENT / DECLARAÇÃO DE CONTRIBUIÇÃO

RB: Conceptualization, formal analysis, data collection, writing original draft, editing.

MTG: Data collection, writing and review.

GD: Formal analysis, review and editing

ARA: Conceptualization, data collection, writing, review

ACA: Conceptualization, data collection, formal analysis, writing, review

All authors have read and approved the final version to be published.

RB: Conceitualização, análise formal, recolha de dados, redação do rascunho original, edição.

MTG: Recolha de dados, redação e revisão.

GD: Análise formal, revisão e edição.

ARA: Conceitualização, recolha de dados, redação, revisão e edição.

ACA: Conceitualização, recolha de dados, análise formal, redação, revisão e edição.

Todos os autores leram e aprovaram a versão final a ser publicada.

RESPONSABILIDADES ÉTICAS

Conflitos de Interesse: Os autores declaram a inexistência de conflitos de interesse na realização do presente trabalho.

Fontes de Financiamento: Não existiram fontes externas de financiamento para a realização deste artigo.

Confidencialidade dos Dados: Os autores declaram ter seguido os protocolos da sua instituição acerca da publicação dos dados de doentes.

Proteção de Pessoas e Animais: Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pela Comissão de Ética responsável e de acordo com a Declaração de Helsínquia revista em 2024 e da Associação Médica Mundial.

Proveniência e Revisão por Pares: Não comissionado; revisão externa por pares.

ETHICAL DISCLOSURES

Conflicts of Interest: The authors have no conflicts of interest to declare.

Financing Support: This work has not received any contribution, grant or scholarship

Confidentiality of Data: The authors declare that they have followed the protocols of their work center on the publication of patient data.

Protection of Human and Animal Subjects: The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and those of the Code of Ethics of the World Medical Association (Declaration of Helsinki as revised in 2024).

Provenance and Peer Review: Not commissioned; externally peer-reviewed.

REFERENCES

1. Holden BA, Fricke TR, Wilson DA, Jong M, Naidoo KS, Sankaridurg P, et al. Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050. Ophthalmology. 2016;123:1036-42. doi:10.1016/j.ophtha.2016.01.006
2. Wong TY, Ferreira A, Hughes R, Carter G, Mitchell P. Epidemiology and disease burden of pathologic myopia and myopic choroidal neovascularization: An evidence-based systematic review. Am J Ophthalmol. 2014;157:9-25.e12. doi:10.1016/j.ajo.2013.08.010
3. Haarman AE, Enthoven CA, Willem Tideman JL, Tedja MS, Verhoeven VJ, Klaver CC. The complications of myopia: A review and meta-analysis. Invest Ophthalmol Vis Sci. 2020;61:49. doi: 10.1167/iovs.61.4.49.
4. Yam JC, Jiang Y, Tang SM, Law AK, Chan JJ, Wong E, et al. Low-Concentration Atropine for Myopia Progression (LAMP) Study: A Randomized, Double-Blinded, Placebo-Controlled Trial of 0.05%, 0.025%, and 0.01% Atropine Eye Drops in Myopia Control. Ophthalmology. 2019;126:113-24. doi:10.1016/j.ophtha.2018.05.029
5. Chamberlain P, Peixoto-de-Matos SC, Logan NS, Ngo C, Jones D, Young G. A 3-year Randomized Clinical Trial of MiSight Lenses for Myopia Control. Optom Vis Sci. 2019;96:556-67. doi:10.1097/OPX.0000000000001410
6. Hiraoka T, Kakita T, Okamoto F, Takahashi H, Oshika T. Long-term effect of overnight orthokeratology on axial length elongation in childhood myopia: a 5-year follow-up study. Invest Ophthalmol Vis Sci. 2012;53:3913-9. doi:10.1167/iovs.11-8453
7. Sim BX, Loh KL, Htoon HM, Sri Y, Balakrishnan M, Chan Poh Lin P, et al. Additive effect of highly aspherical lenslet target spectacles to children inadequately controlled by atropine monotherapy. Ophthal Sci. 2025;5:100753. doi:10.1016/j.xops.2025.100753
8. Zhang H, Song D, Wei R. The efficacy and safety of combination therapy of repeated low-level red light and defocus-incorporated multiple segments spectacle lenses for myopia control in children: the study protocol for a 12-month, randomized, parallel-controlled, and single-center clinical trial. Trials. 2024;25:514. doi:10.1186/s13063-024-08210-w
9. Liu X, Wang P, Xie Z, Sun M, Chen M, Wang J, et al. One-year myopia control efficacy of cylindrical annular refractive element spectacle lenses. Acta Ophthalmol. 2023;10:651-7. doi:10.1111/aos.15649
10. Chen J, Liu S, Zhu Z, Bulloch G, Naduvilath T, Wang J, ET AL. Axial length changes in progressive and non-progressive myopic children in China. Graefes Arch Clin Exp Ophthalmol. 2023;261:1493-501. doi: 10.1007/s00417-022-05901-5.
11. Schmidt DC, Hvid-Hansen A, Jacobsen N, Jakobsen TM, Larsen PM, Lindblad KK, et al. Efficacy of interventions for myopia control in children: A systematic review with network meta-analyses. Acta Ophthalmol. 2025;103:939-65. doi:10.1111/aos.17496
12. Perea-Romero J, Signes-Soler I, Badenes-Ribera L, Tauste A. Efficacy of spectacle lenses specifically designed for myopia control: systematic review and meta-analysis. Graefe's Arch

Clin Exp Ophthalmol. 2025;263:909-24. doi:10.1007/s00417-024-06706-4
13. D'Andrea L, Rinaldi M, Piscopo R, Iorio F, La Padula S, Maqsood S,et al. Efficacy of spectacle lenses for myopia control: a meta-analysis of randomised controlled trials. Br J Ophthalmol. 2025:bjo-2025-327629. doi:10.1136/bjo-2025-327629
14. Graff B, Lam CSY, Vlasak N, Kaymak H. Age-matched analysis of axial length growth in myopic children wearing defocus incorporated multiple segments spectacle lenses. Br J Ophthalmol. 2024;108:1060-6. doi:10.1136/bjo-2023-324508
15. Lembo A, Schiavetti I, Serafino M, Caputo R, Nucci P. Comparison of the performance of myopia control in European children and adolescents with defocus incorporated multiple segments (DIMS) and highly aspherical lenslets (HAL) spectacles. BMJ Paediatr Open. 2024;8:e003187. doi:10.1136/bmjpo-2024-003187
16. Guo H, Li X, Zhang X, Wang H, Li J. Comparing the effects of highly aspherical lenslets versus defocus incorporated multiple segment spectacle lenses on myopia control. Sci Rep. 2023;13:3048. doi:10.1038/s41598-023-30157-2
17. Yam J, Zhang X, Ka K, Tang F. Influence of Parental Myopia on Childhood Myopia Progression: The Hong Kong Children Eye Study. Invest Ophthalmol Vis Sci. 2023;64.
18. Jiang D, Lin H, Li C, Liu L, Xiao H, Lin Y, et al. Longitudinal association between myopia and parental myopia and outdoor time among students in Wenzhou: a 2.5-year longitudinal cohort study. BMC Ophthalmol. 2021;21:11. doi:10.1186/s12886-020-01763-9
19. Chen CW, Yao JY. Evaluation of risk factors for childhood myopia progression: A systematic review of the literature. Indian J Ophthalmol. 2024 Nov 1;72:S721-7. doi: 10.4103/IJO.IJO_1909_23.
20. Yuval C, Otzem C, Laura BS, Shirel R, Dana GN, Atalia W, et al. Evaluating the Effect of a Myopia Control Spectacle Lens Among Children in Israel: 12-Month Results. Am J Ophthalmol. 2024;257:103-12. doi:10.1016/j.ajo.2023.08.019
21. Tapasztó B, Flitcroft DI, Aclimandos WA, Jonas JB, De Faber JH, Nagy ZZ, et al. Myopia management algorithm. Annexe to the article titled Update and guidance on management of myopia. European Society of Ophthalmology in cooperation with International Myopia Institute. Eur J Ophthalmol. 2024;34:952-66. doi:10.1177/11206721231219532

Corresponding Author/
Autor Correspondente:

Ana Raquel Matias Barata
Avenida das Forças Armadas, 111,
1600-078 Lisboa, Portugal
E-mail: raquel.barata99@gmail.com

ORCID: 0009-0000-8334-149X