



TODAY'S PERSPECTIVES ON MYOPIA MANAGEMENT



Important insights from those
in the trenches treating the condition.

A ROUNDTABLE WITH KEVIN CHAN, OD, MS, FAAO, IACMM;

ANDREW FISCHER, OD, FAAO, FSLS;

LAURA GOLDBERG, OD, MS, FAAO, DIPL ABO; AND INNA LAZAR, OD

MODERN OPTOMETRY (MOD): WHAT DO YOU FIND MOST REWARDING ABOUT PROVIDING MYOPIA MANAGEMENT TO PATIENTS? WHAT DO YOU FIND MOST CHALLENGING?

Andrew Fischer, OD, FAAO, FSLS: I tend to recommend orthokeratology (ortho-k) lenses to most patients who are good candidates, and one of the best parts is the follow-up after their first night of using the lenses. The kids are so excited to be able to see without their glasses.

With ortho-k, though, education is challenging because optometrists constantly preach to all our soft contact lens wearers to never sleep in their lenses to lower risk of infection. So, there is often apprehension and skepticism from the parents when we discuss fitting their young child with a lens they'll be sleeping in each night. Also, because myopia management is not covered by insurance, the out-of-pocket costs can be a barrier for some patients.

Laura Goldberg, OD, MS, FAAO, Dipl ABO: I have been practicing myopia management for 7 years now, and the thing I absolutely love about it is that it is one of the only preventive treatments in our profession. We have the ability to spare children not only from potentially having to wear thick glasses, but also from serious, vision-threatening complications.

To me, the most challenging part of myopia management is conveying
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CHALLENGING MYOPIA CASES FROM THE PANELISTS

We asked the ODs to share a case that tested and ultimately strengthened their skills in managing myopia.

Laura Goldberg, OD, MS, FAAO, Dipl ABO: I had a 16-year-old patient with a manifest refraction of $-1.50 -0.25 \times 005$ OD and $-4.50 -1.25 \times 160$ OS. His original keratometry (K) readings were 41.50 @ 176 and 42.50 @ 086 OD, 41.00 @ 173 and 42.50 @ 083 OS (Figure 1). Although these K readings correlate with astigmatism (so not lenticular), he was starting out with very flat Ks to begin with. He was initially fitted with nontoric Paragon Corneal Refractive Therapy (CRT) lenses (CooperVision).

The right eye achieved $-0.25 -0.75 \times 180$ with unaided VA of 20/20, but the left eye only corrected to $-2.00 -1.75 \times 160$ with unaided VA of 20/30 (Figure 2), even after trying a different CRT lens. After several unsuccessful attempts, we opted to have the patient wear a daily toric lens in his left eye. He needed to have as clear vision as possible in each eye to continue playing on a traveling baseball team.

Inna Lazar, OD: One particularly tricky case involved a 10-year-old boy with progressive myopia. Despite wearing MiSight 1 Day lenses (CooperVision), his myopia continued to worsen, approaching -4.00 D. His family history included one parent with a -3.50 D prescription. During a visit, the boy mentioned winning an

award for reading the most books at the local library, indicating significant near work, despite limited screen time. Combination therapy has been shown to improve myopia control in patients 8 to 12 years of age.¹

After discussing options with his parents, we decided to add low-dose atropine drops to his treatment. There is now enough evidence to suggest 0.025% atropine should be added to his treatment lenses.^{2,3} This case highlights the importance of considering a patient's lifestyle and habits and reinforces the value of patient and parent input in treatment decisions.

Kevin Chan, OD, MS, FAAO, IACMM: A 10-year-old child came in for a consultation for myopia management. She was first prescribed glasses at 5 years of age. Interestingly, neither parent had myopia. At that time, her pediatric ophthalmologist had already diagnosed several retinal holes in each eye, and she had undergone multiple surgeries for retinal repair. She was the only child in the family who wore glasses and had retinal complications, and her family was deeply concerned about her vision.

Upon further evaluation and examination, her refractive status was highly atypical: nearly -16.00 D of myopia and -4.00 D of corneal and refractive astigmatism

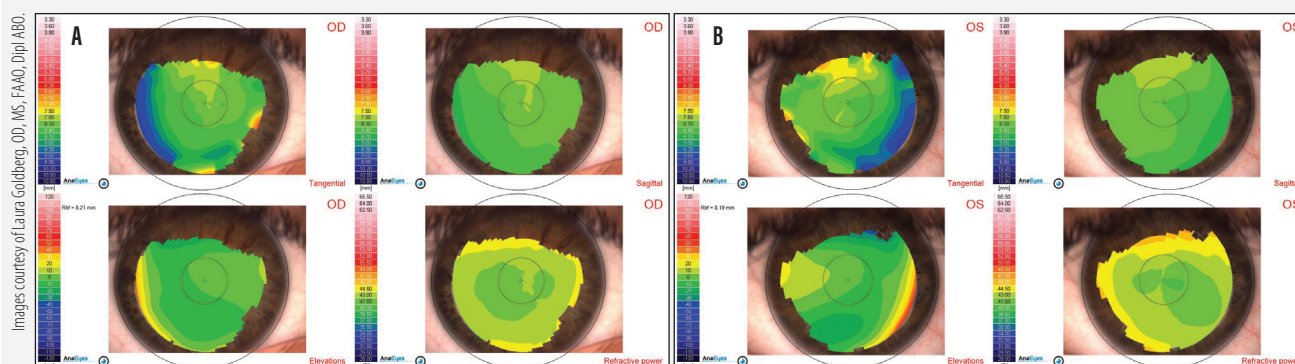


Figure 1. Topographies of the right (A) and left (B) eye before treatment. Each cornea shows moderate with-the-rule astigmatism and relatively flat K readings.

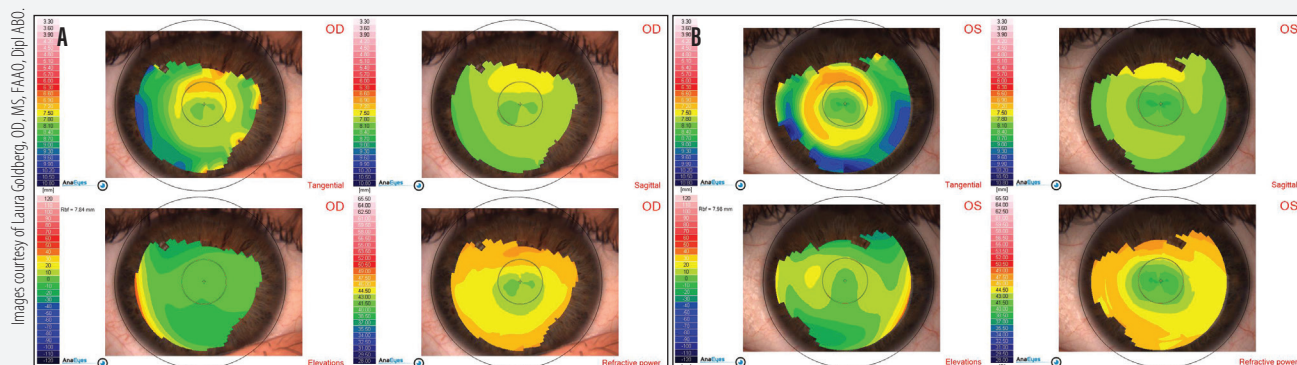


Figure 2. Topographies of the right (A) and left (B) eye after treatment. We were unable to achieve a full bullseye effect in either eye due to flat K readings. Although the left eye appears to have a better bullseye using an ortho-k lens with higher refraction, we were unable to achieve 20/20 vision in the left eye.

OU. Her BCVA was 20/60 OU. I also diagnosed her with intermittent exotropia (IXT) and convergence insufficiency (CI). The concomitant binocular vision dysfunction had directly affected her ability to stay focused in school and other daily activities.

After extensive education and discussing all viable treatment modalities for her unique case, I recommended custom soft toric multifocal contact lenses with peripheral +4.00 D for daytime wear, and she has been able to achieve better vision (20/40) than with her glasses. The concomitant symptoms associated with IXT and CI also noticeably improved. More importantly, she also gained self-confidence and self-esteem. She and her family were very grateful when she was able to successfully pass her driving test and obtain a permit. Her myopia has remained stable. While this

patient's myopia exhibited an atypical pathophysiology at a young age, it could still be managed. Every diopter matters, so be proactive!

Andrew Fischer, OD, FAAO, FSL: One of my most challenging cases was an exchange student who had been wearing the same ortho-k lenses for 6 to 7 years. She came in with extremely blurred vision due to superficial punctate keratitis. The lenses were excessively flat and tight fitting and were causing damage. I kept her out of her lenses for nearly 2 months before refitting her. We were in a time crunch, as she was leaving the country, but we were able to get her into a new lens.

1. Xu S, Li Z, Zhao W, et al. Effect of atropine, orthokeratology and combined treatments for myopia control: a 2-year stratified randomised clinical trial. *Br J Ophthalmol.* 2023;107(12):1812-1817.
2. Zhang XJ, Zhang Y, Yip BHK, et al. Five-year clinical trial of the low-concentration atropine for myopia progression (LAMP) study: phase 4 report [published online ahead of print March 16, 2024]. *Ophthalmology.*
3. Wang JD, Liu MR, Chen CX, et al. Effects of atropine eyedrops at ten different concentrations for myopia control in children: A systematic review on meta-analysis [published online ahead of print February 20, 2024]. *Eur J Ophthalmol.*

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the urgency to parents who have never worn glasses or had ocular comorbidities. We have to stress that their 5-year-old child who is -0.50 D has a high risk of becoming -4.00 D to -6.00 D, which is considered a high myope and comes with a significantly increased risk of myopic maculopathy and retinal detachment.^{1,2}

Inna Lazar, OD: I've been managing myopia since early in my career, and I find it difficult when, after an extensive

consultation and presentation of all the evidence, the parent or guardian decides not to proceed with a treatment. It's also incredibly fulfilling to see concerned parents, who are often myopic themselves, bring their children in for a consultation because they understand the challenges of myopia and want to prevent it in their kids.

MOD: DO OTHER EYE CARE PROVIDERS IN YOUR AREA OFFER MYOPIA CONTROL? IF NOT, DO YOU GET MANY REFERRALS FOR THIS SERVICE?

Dr. Goldberg: I work in Pasadena, Maryland, which is located between Washington, DC, and Baltimore. We get quite a few patients from the suburbs, but there are Treehouse Eyes myopia management centers all over Maryland, where colleagues such as Dr. Kevin Chan tend to handle the more complex and motivated patients.

Kevin Chan, OD, MS, FAAO, IACMM: Thanks for the shoutout, Dr. Goldberg! At Treehouse Eyes, I've had opportunities to provide

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– INNA LAZAR, OD

consultations and co-manage patients with myopia with local eye care practitioners (ECPs). During peer education at continuing education lectures or conferences, I’m glad to see that more and more ECPs are starting to pay attention to pediatric myopia management. That said, it’s yet to be mainstream.

Dr. Fischer: In southern Indiana, myopia management is not widely available, so when I started the myopia management program in our dry eye and contact lens clinic in 2019, we saw it as an opportunity to differentiate ourselves from other optometry clinics in the area.

Being in a small, rural community, OD-to-OD referrals can be hard to come by. No one wants to “lose” patients. With that being said, several practices do send patients our way for our myopia management program. After the patient’s prescription stabilizes, I always advise patients to follow up with their original provider for further care. I also regularly provide updates

back to the referring doctor about their patients. I find this helps put referring ODs at ease about sending patients to me for specialty care.

Dr. Lazar: We receive many referrals from local optometrists, pediatricians, occupational therapists, and school nurses. The collaboration with these health care professionals, especially when patients fail vision screenings, is vital in ensuring children receive the care they need.

MOD: HOW MUCH OF AN EFFECT DOES SCREEN TIME HAVE ON MYOPIA?

Dr. Chan: The problem is complex because, while it’s been widely understood and perceived by parents as a culprit, there’s not much definitive evidence showing that screen time directly causes myopia to worsen. Rather, studies have found that the lack of outdoor exposure to sunlight and limited physical activities can trigger a cascade of internal disruptions of ocular homeostasis (although the exact mechanism remains elusive).³

Dr. Fischer: For better or worse, screen time is here to stay. I educate parents to encourage their children to spend as much time outdoors as possible, as this can delay the onset of myopia.⁴

Dr. Goldberg: A good compromise is having the child spend a couple hours each day outside, even if they’re still on a screen. Parents love when doctors tell their children that increased time outside and less screen time is important for healthy development.

Dr. Lazar: Also, it’s not just recreational screen time that contributes to the issue; more and more schools rely on screens for education, both in the classroom and for homework. It’s not easy to combat the effects of extensive screen use, but a balanced approach that includes regular eye exams, appropriate management strategies, and lifestyle adjustments can help slow the progression of myopia.

MOD: WILL AI HAVE A PLACE IN THE MANAGEMENT OF MYOPIA?

Dr. Lazar: Absolutely. We already rely heavily on technology to diagnose and design precise and accurate lenses for our patients. Imagine being able to do this even better and faster.

Dr. Goldberg: Although AI will help to improve the technology of fitting software and treatment modalities to enhance the myopia management options, I’m not worried that it will take over our role as doctors. Myopia management is still very patient-dependent (ie, their individual personality, maturity, lifestyle), so it will likely serve as a tool for doctors rather than a replacement.

Dr. Fischer: AI is definitely not my area of expertise, but we already

have several great predictive models regarding myopia progression. I think integrating the information we gather into an AI-based program (which I am sure will be available sooner rather than later) could help us hone our treatments and identify patients who may progress more quickly.

Dr. Chan: The question is not simply about whether AI will play a role in myopia management, but when and how it can help us as clinicians optimize our understanding of myopia. AI is already being used in predicting and monitoring disease progression.^{5,6}

1. Jiang F, Wang D, Xiao Q, et al. Four-year progression of myopic maculopathy in children and adolescents with high myopia. *JAMA Ophthalmol*. 2024 Mar 1;142(3):180-186.

2. Morano MJ, Khan MA, Zhang Q, et al; IRIS Registry Analytic Center Consortium. Incidence and risk factors for retinal detachment and retinal tear after cataract surgery: IRIS Registry (Intelligent Research in Sight) Analysis. *Ophthalmol Sci*. 2023;3(4):100314.

3. Zhang Q, Jiang Y, Deng C, Wang J. Effects and potential mechanisms of exercise and physical activity on eye health and ocular diseases. *Front Med (Lausanne)*. 2024;11:1353624.

4. He X, Sankaridurg P, Wang J, et al. Time outdoors in reducing myopia. *Ophthalmol*. 2022;129(11):1245-1254.

5. Li DL, Yin ZJ, Li YZ, Zheng YJ, Qin Y, Liang G, Pan CW. Identification of high-risk patterns of myopia in Chinese students based on four major behavioral risk factors: a latent class analysis. *BMC Public Health*. 2023;23(1):1378.

6. Zhang Y, Li Y, Liu J, et al. Performances of artificial intelligence in detecting pathologic myopia: a systematic review and meta-analysis. *Eye (Lond)*. 2023;37(17):3565-3573.

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