



Myopia Control: Let's Build the Bridge Between OMDs and ODs

Glenda Aleman*

Optometric Physician, OK Love Myopia Control Experts, USA

***Corresponding Author:** Glenda Aleman, Optometric Physician, OK Love Myopia Control Experts, USA.

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According to the American Academy of ophthalmology, school-age children (5-year-old) should be screened for visual acuity and misalignment. Furthermore, Nearsightedness (Myopia) is the most common problem for this age group. The primary eye care providers, optometrists, and ophthalmologists know that Myopia is on the rise.

The prevalence of childhood myopia has reached epidemic levels worldwide, and it is expected that 50% of the world's population will be Myopic by the year 2050 [1]. Myopic maculopathy is the leading cause worldwide of irreversible visual impairment. One diopter increase in Myopia has been correlated to a 67% increased risk of myopic maculopathy. Ophthalmologists (OMDs) and optometrists (ODs) are uniquely positioned to take action in the fight against Myopia. In his paper "Why Each Diopter Matter," Mark Bulimore highlights how we can significantly impact public health by reducing the risk of visual impairment by 40% by slowing down myopia progression by one diopter [2].

New developments in myopia management treatment options! Contact lens manufacturers and pharmaceutical companies have turned their attention to the growing epidemic and made significant developments in new treatments to slow myopia progression in the last decade. Cooper Vision was the first contact lens manufacture to get FDA approval for a contact lens indicated to slow down myopia progression in children. MiSight obtained FDA approval based on data from a three year randomized, controlled prospective clinical trial; the study consisted of 135 children ages 8-12, the children wear divided into a control group, this group was fitted with conventional contact soft lenses, and the other group was fitted with MiSight lenses. At the end of the

trial, children wearing MiSight lenses showed minor myopia progression than children in the control group. Additionally, children in MiSight contact lenses showed less axial length elongation [3].

In May of 2021, Johnson and Johnson received FDA approval for their ACUVUE Abiliti Overnight Therapeutic Lenses to treat Myopia. Clinical data from ROMIO and TO-SEE studies highlighted the effectiveness of Orthokeratology. The studies showed that Orthokeratology could slow myopia progression between 28% to 67% in children aged 6 to 8. consequently, myopic children wearing single vision glasses progressed faster and had increased axial length elongation [4,5].

Although low-dose atropine (LDA) has not received FDA approval to treat myopia progression, its off-label use has become more popular among clinicians. The effectiveness of LDA has been studied extensively in the last two decades. The latest research show that 0.02% is more effective than 0.01% in slowing myopia progression [6]. In a recent study, LDA in 0.025% and 0.05% concentrations slowed eye elongation significantly over one year; whereas 0.01% atropine showed no clinically significant effect in the LAMP and ATOM2 studies [7]. Hence, the new recommended concentration should be 0.02% to 0.05%, depending on the Patient's risk factors.

What is the best treatment option for myopia control? It is a question I often hear from OMDs, ODs, and parents interested in myopia management. This is not a one-answer question, it requires a more complex discussion not to be taken lightly. Although all three modalities of treatments effectively slow myopia progression and axial length elongation, other factors should be considered when prescribing myopia management therapies.

In a review of best practices among myopia management clinicians, the consensus is that LDA is prescribed to younger patients with lower amounts of Myopia. Furthermore, LDA is an excellent choice for patients who cannot wear contact lenses or have higher astigmatism that can not be corrected with most commercially available ortho-k lenses. In contrast, MiSight lenses are a better option for teens and pre-teens who are used to wearing daily disposable contacts and high school students who might not get 7-8 hours of sleep due to school's high workloads demands and therefore are not good candidates for ortho-k. MiSight is also an excellent choice for children of motivated parents who have hectic work schedules and can benefit from the fewer office visits compared to ortho-k.

Finally, in addition to the benefits of slowing myopia progression, Ortho-k enhances the patient quality of life by providing clear vision during the day without optical correction. Hence, ortho-k is the treatment of choice for patients who practice sports, whether it is dancing, wrestling, gymnastics, or track; ortho-k gives patients the ability to practice their favorite sport or activities while being free of correction. Ortho-k is especially beneficial for patients who practice water sports such as swimming or water polo. Ortho-K is also an excellent choice for patients with more significant amounts of Myopia and greater than -1.50 diopter of astigmatism. There are labs and tools which allow the customization of ortho-k lenses for higher myopes with higher amounts of astigmatism, though the use of ortho-k for prescriptions higher than -5.00 D is consider off table.

We are building the bridge between OMDs, and ODs. Dr. Marc Bosen, a cornea specialist in South Florida, does not see pediatric patients. However, he talks to his high myopic LASIK patients who have children about the genetic component of Myopia and recommends that the parents seek help for their myopic children. A 14-year-old Hispanic male was referred to our clinic for a myopia control consultation; both parents had a history of Myopia greater than five diopters, the mother had -5.75 Both eyes(OU), and the father -6.00 OU both had seen Dr. Bosen for LASIK surgery.

The Patient's entrance visual acuity (VA) 20/CF@4FT, OD, and OS, subjective manifest refraction (MRX) was OD: -5.75-1.00X30 OS: -6.00-0.25X 150 axial length OD: 25.99 mm, and OS: 26.12mm. He was wearing soft daily disposable contacts (SCLs), a 9th-grade high school student. The Patient is on the school's water polo team and enjoys playing basketball in his spare time. Based on the Pa-

tient's prescription and extracurricular activities, the Patient was recommended to start Ortho-k.

- **Visual acuity after one night of ortho-k treatment:** OD: 20/100-1, OS: 20/150, OU: 20/70, Subjective RX: OD: -3.25-0.75X30, OS: -3.25-0.50X160, Patient-reported ~8 hours of overnight wear, and no issues with insertion and removal. The Patient was given Misight SCLs to wear during the day, as needed.
- **Visual acuity after three weeks of ortho-k treatment:** OD: 20/20-2, OS: 20/25, OU: 20/20, subjective RX: OD: -0.25, OS: -0.50-0.25X150. The Patient-reported great vision, Patient also reported he had only used the SCLs during the day for one week; furthermore, the Patient also reported wearing the ortho-K lenses for 8 hours overnight. Ortho-k treatment was successful.
- **Visual acuity after six months of ortho-k treatment:** OD: 20/20, OS: 20/20-1, MRX: D: Plano, OS: -0.25, additionally, axial length OD: 26.08mm, and OS: 26.21, a change of 0.09mm in OD and OS. The Patient-reported great stable vision during waken hours; no issues were reported with ortho-k. Parents and Patients were delighted with the treatment and were grateful to Dr. Bosen for referring them for myopia control.

This case is an excellent example of a successful collaboration between OMD and OD. Myopia is a significant health issue globally, and eye doctors need to work together to combat the myopia epidemic. Collaborative care is the way of the future for eye-care and myopia management.

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