MISSION EYE CARE

Centre for Dry Eye and Corneal Disease

Myopia Management 101

- **Dr. Andrea Lasby, OD, FSLS, FAAO, FCCSO**
- **Dr. Sheila Morrison, OD, MSc, OD, FSLS, FAAO, FCCSO**

Speakers

Why This Matters

Myopia is increasing worldwide

Kids with myopia today = higher risk eyes tomorrow

Staff are often the **first and most trusted point of contact** for families

Consistent messaging = better patient trust and acceptance

What is Myopia

- Nearsightedness = difficulty seeing far away
- Caused by the eye growing too long (axial elongation)
- Usually starts in childhood and can worsen each year

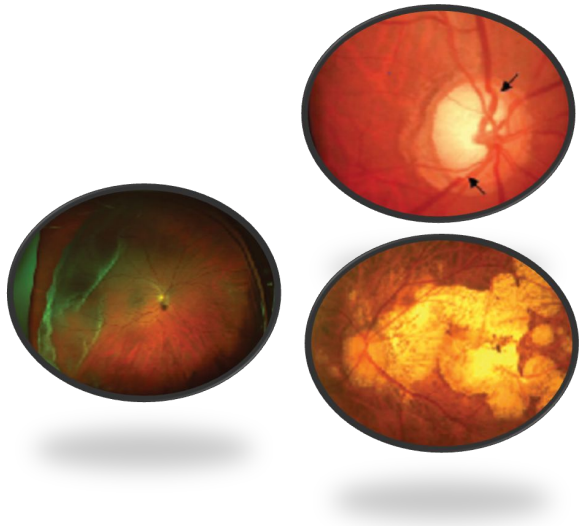
Youth vs Adult Myopia

Myopia vs Just Needing Glasses

- Myopia is **not just blurry vision**
- It is an eye growth condition
- Higher prescriptions = higher lifetime eye health risks

Why Progressive Myopia is a Problem

- Increased risk of:
  - Retinal detachment
  - Myopic maculopathy
  - Glaucoma
  - Earlier cataracts
- Slowing progression = protecting long-term eye health



Risk Factors

- Family history of myopia (one or both parents)
- Younger age at onset (myopia starting early)
- Rapid prescription changes year over year
- Limited outdoor time
- High near work / screen use
- Longer eye length (axial elongation), if measured
- History of inconsistent glasses or treatment wear

What Parents Might Notice

- Squinting
- Sitting close to screens
- Complaints of headaches or eye strain
- Falling behind in school visually
- Frequent prescription changes

Why Early Treatment Matters

Treatment Options

- Myopia control glasses
- Daily myopia control contact lenses
- Overnight wear contact lenses (Orthokeratology)
- Low-dose atropine eye drops
- Combination therapy
- Lifestyle & visual habit guidance

Teach Your Boss #1

How does it REALLY work: Contrast and aberration play a larger role than optical defocus

Myopia Control Spectacles

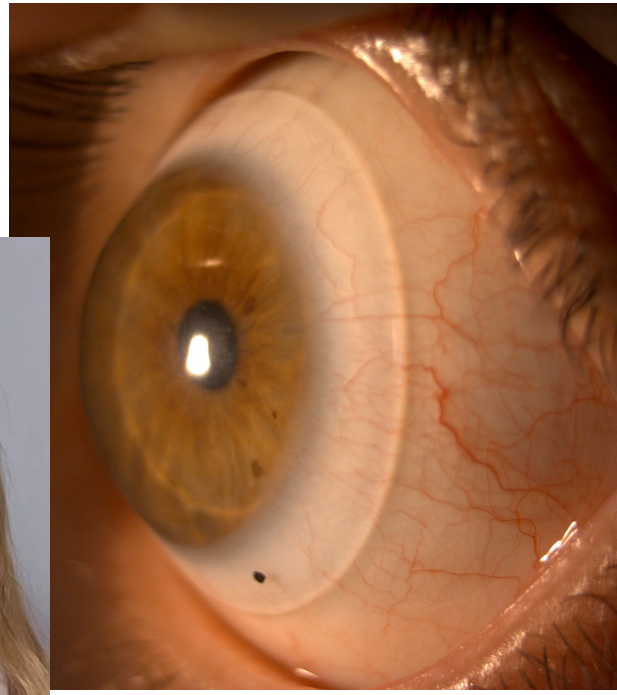
- Simplest option
- Safest option
- Great for patients who are not ready for CLs

Teach Your Boss #2

- Under-correction does not work
- PAL does not work well
- Bifocal works even worse

Daily Wear Myopia Control CLs

- Soft
- Hybrid
- Scleral



Soft Lenses

Lens	Company	Replacement	Design
Abiliti	J&J	Daily	Concentric
MiSight	CooperVision	Daily	Concentric
NaturalVue	VTI	Daily	Gradient
Biofinity Mutifocal “D”	CooperVision	Monthly	Gradient
Proclear Multifocal “D”	CooperVision	Monthly	Gradient
Duette Progressive “D”	Synergeyes	6 months	Gradient
Oasys for Presbyopia	J&J	2-week	Concentric
Specialty CL	Varies	Varies	Gradient
xxxx????	**Euclid/PTS**	**Monthly (CAN)**	**EDOF**

New product to the market

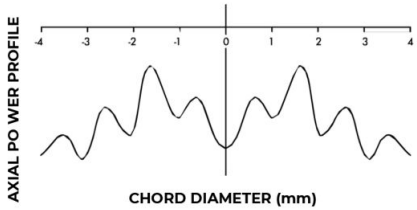
Teach Your Boss #3

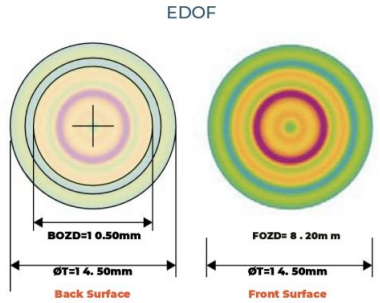
Be Free Day Pro is an individually crafted silicone hydrogel contact lens specifically designed for Myopia Management. It is powered by the Brien Holden Vision Institute's patented Extended Depth of Focus (EDOF) technology, which slows myopia progression and supports a comfortable adaptation to the lens, enhancing the overall wearing experience. A monthly disposable contact lens, BeFreeDay features high water content, low coefficient of frictionand low elastic modulus, which combine to improve comfort throughout the day. Its wide range of parameters ensure an excellent fit, especially for the youngest contact lens wearers.

PARAMETERS	
Base curves (mm)	7.10 to 9.80 (0.30 steps)
Diameters (mm)	13.50 to 15.50 (0.50 steps)
Spheres (D)	-0.25 to -15.00 (0.25 steps)
Cylinders (D)	-0.75 to -8.00 (0.25 steps)
Axes (°)	All (1° steps)

MATERIAL	
Type	Filcon 5b (60) [75%]
DK (ISO 9913-1-1998)	60
DK/t (-3.00 D)	50
Water Content	75%
Central Thickness (-3.00 D)	0.12
Cof	0.02
Modulus	0.33
UV filter	Class 1
Handling tint	Blue
Pack size	3 Lenses
Manufacturing Process	Lathed

POWER PROFILE & OPTICAL DESIGNS





Daily Disposable

- **12.5x decreased risk** of corneal infiltrative events (CIEs) with daily disposable lenses compared to reusable lenses

Multicenter case-control study of the role of lens materials and care products on the development of corneal infiltrates

Robin L Chalmers [1], Lisa Keay, John McNally, Jami Kern

Affiliations + expand

PMID: 22227912 DOI: 10.1097/OPX.0b013e318240c7ff

Abstract

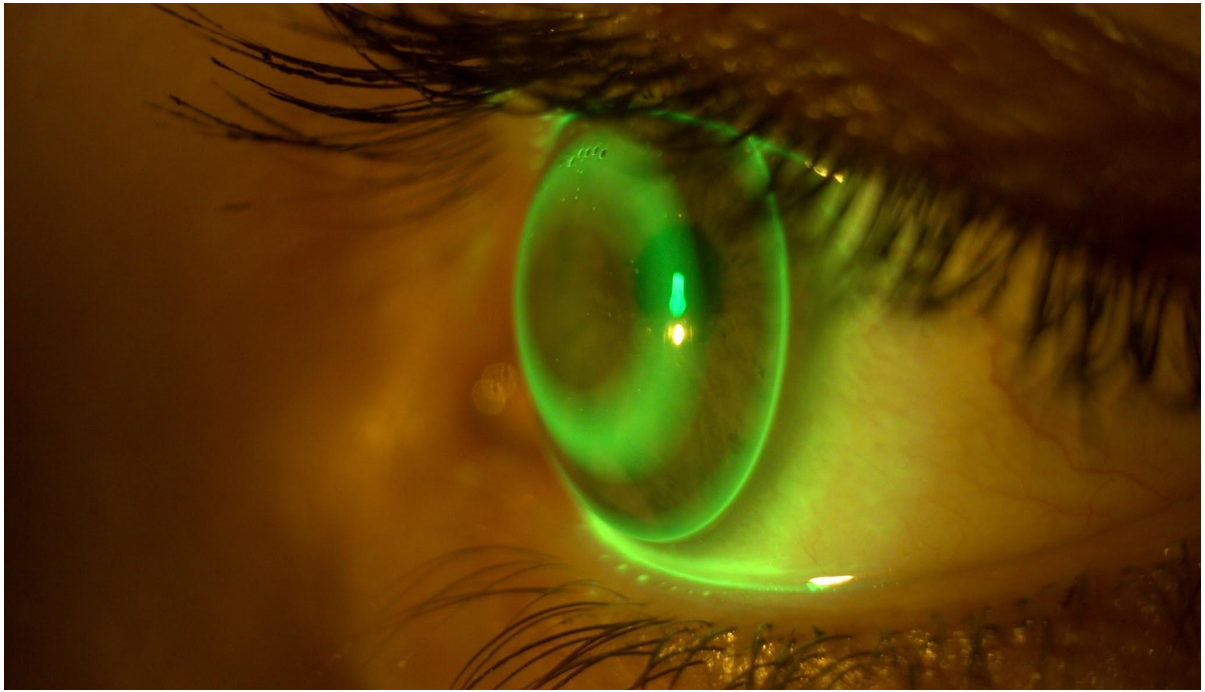
Purpose: To evaluate the association of symptomatic soft contact lens (SCL)-related corneal infiltrative events (CIEs) with SCL material, lens care products (LCPs), and other risk factors.

Methods: Cases with symptomatic CIEs were identified in a retrospective, multicenter case-control study at five academic eye care centers. Each case was matched to three controls each who had received eye care near the time of the case's last full examination at that center but were not matched for demographic or other factors. Infiltrate status was established by an expert panel who were masked to sponsor, SCL, and LCP brand. Stratified analyses were conducted removing all daily disposable (DD) and all extended wear (EW) cases.

Results: Clinical records from 166 patients with symptomatic CIEs and known EW status were included. Cases used >50 SCL brands and >10 LCP brands. Increased risk in univariate analysis for LCP was not significant after adjustment for other factors. In the multivariate analysis of all cases, use of reusable SCLs (4.03×; 95% C.I. 1.12 to 14.67) and EW (3.98×; 2.32 to 6.84) increased risk and patient age (per year older) was protective (0.96×; 0.94 to 0.98). Among daily wear cases (n = 102 cases), use of reusable SCLs (12.46×; 1.54 to 100.62) and silicone hydrogel (SiHy) (1.99×; 1.06 to 3.75) and age (0.95×: 0.92 to 0.97) were associated. Without DD cases (n = 162), EW (4.42×; 2.53 to 7.70), SiHy use (1.84×; 1.03 to 3.29), and patient age (0.96× 0.94 to 0.98) were significant factors. No specific SCL or LCP brands were associated with increased risk.

Conclusions: In this community-based trial, younger patients were at increased risk of infiltrative events. DD lenses were protective relative to reusable lenses. Overnight use increased risk in all analyses and silicone hydrogels increased risk in daily wearers, regardless of LCP brand. Improvements in lens storage case hygiene and environment may be a mechanism for reducing risk of CIEs related to SCL use.

Overnight Wear CLs (Orthokeratology)



The Role of Orthokeratology in Myopia Control: A Review

Michael J. Lipson, O.D., F.A.A.O., F.S.L.S., Moya M. Brooks, M.D., and Bruce H. Koffler, M.D.

Abstract: The prevalence of myopia and high myopia has significantly increased worldwide and in the United States. The serious implications of these trends are being recognized. Myopia is not just a minor inconvenience requiring vision correction with glasses or contact lenses, but a disease process creating significant risk of serious vision-threatening eye disease. Various methods of treatment for myopia and myopic progression have been prescribed and studied in effort to find one that is effective, safe, and that patients will be compliant with. Numerous peer-reviewed studies have shown orthokeratology (OrthoK) is effective in slowing myopic progression. This review article covers the development of OrthoK, its mechanism of action, its evolution, and refinement from a refractive option to its use as a mean of slowing myopic progression. After detailing patterns of myopia progression, a description of theories and studies as to how OrthoK slows myopia progression in children is also explained. The review will focus on progression of myopia and the use of OrthoK to slow myopia progression after myopia has been diagnosed.

Key Words: Orthokeratology—Myopia progression—Myopia management—Myopia control.

(*Eye & Contact Lens* 2018;44: 224–230)

Prevalence of myopia is increasing dramatically in East Asia, in the United States, and worldwide.[1,2] Myopia is being diagnosed at younger ages and is progressing to higher degrees. Implications of these trends for the future are serious.[3] It is not just that more people will be dependent on glasses or contact lenses, but that more people will be faced with vision-threatening eye disease such as myopic macular degeneration, central and peripheral retinal pathology, and glaucoma and cataract, as a result of complications related to longer axial length and increasing myopia.[4] But, numerous studies show that we can provide interventions with the ability to slow myopic progression.[5] This review will cover the epidemiology of myopia, risk factors for development and progression of myopia; provide a description of modern orthokeratology (OrthoK, the use of specially designed rigid gas-permeable (GP) contact lenses worn while sleeping to reshape the cornea and thus the refractive error of the eye), and review

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M. Lipson is a consultant to Bausch and Lomb's Specialty Vision Products division. B. Koffler is on the speaker's bureau for Paragon Vision Sciences and Bausch and Lomb. The author has no funding or conflicts of interest to disclose.

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the studies demonstrating that OrthoK is a safe and efficac process not only to correct refractive error, but also to slow gression of myopia.

Various methods of treatment for myopia and myopic gression have been prescribed and studied in effort to find that is effective, safe, and that patients will be compliant w Currently, the three methods that have the greatest efficacy OrthoK, atropine, and specially designed soft lenses.[6] review will focus only on OrthoK. In the United States, overn OrthoK received Food and Drug Administration (FDA) cleara to correct myopia in 2002. At this time, prescribing OrthoK cifically to stop myopic progression is "off label." As wil described later, numerous peer-reviewed studies have shown thoK is effective in slowing myopic progression.[7,8] Even with FDA clearance for an indication of myopia control, most pati report that myopia control is the main reason they became in ested in OrthoK.[9]

EPIDEMIOLOGY OF MYOPIA/UNITED STAT AND WORLDWIDE

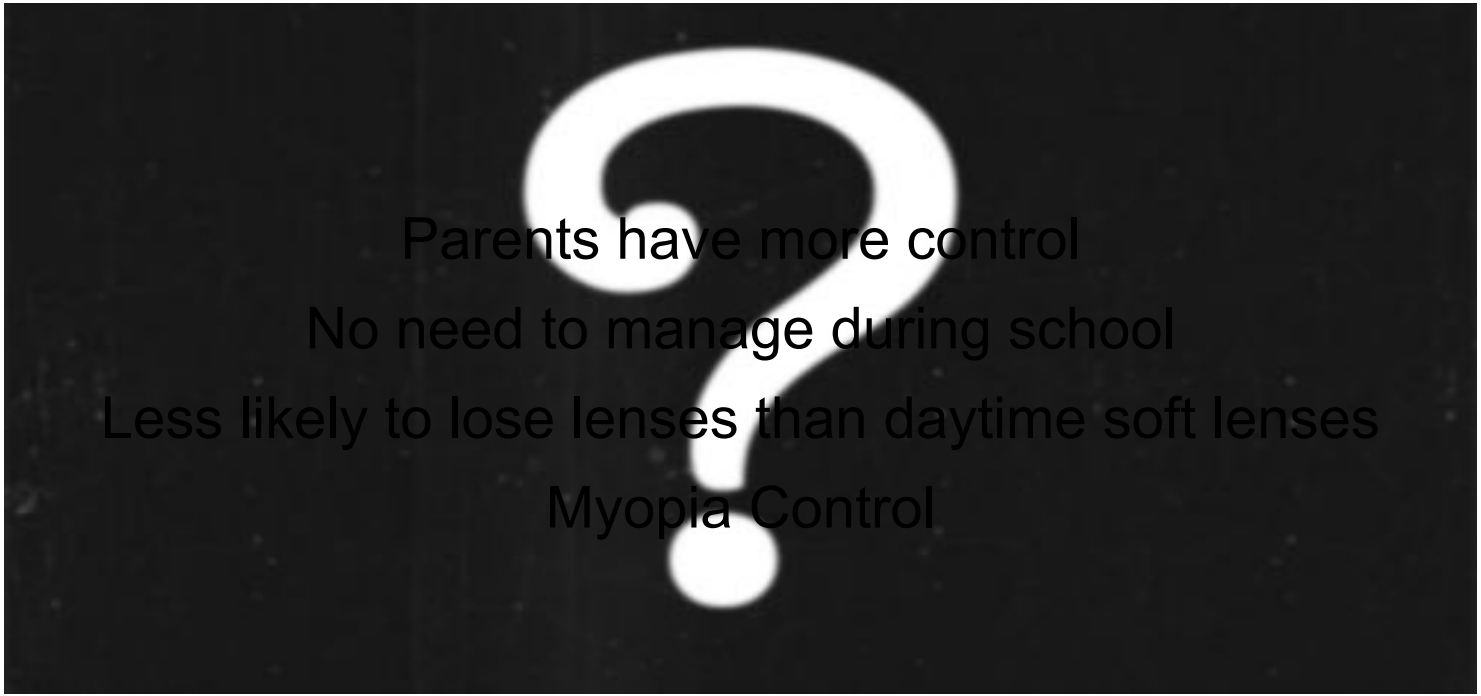
In the United States, myopia prevalence in adults has increa from 25% in 1979% to 41% in 2004.[1] More recent studies indi that trend continues such that, as of 2016, the figure is near 50 Globally, prevalence of myopia in East Asian countries has t reported as high as 90%.[10]

A notable group of world health experts estimates that, in 2 there were almost 2 billion people in the world with myopia project that, with current trends, half of the world popula (approximately 5 billion) will be myopic by 2050.[2] (Fig. 1 addition, myopia is being diagnosed at younger ages in m countries.[11] Extensive study has shown that children who dev myopia at a younger age tend to progress more quickly and mately progress to a higher level of myopia.[8,12] Increasing de of myopia is clinically apparent as the axial length of the increases during growth years. Although a thorough review myopia demonstrated that any degree of myopia is a risk fa for future vision-threatening pathology, high myopia (more 6.00D) is associated with very high risk of these conditions.[4] higher the degree of myopia, the greater the risk. For exam people with more than 6.00D of myopia have a 14.4 times gre chance of developing glaucoma and a 3.3 times greater chanc developing a posterior subcapsular cataract.[8,13] Those with m than 8.00D of myopia have a 7.8 times greater risk of ha a retinal detachment. Vision impairment, significantly red best-corrected vision, is 22 times more likely in myopia 10.00D compared with those at 6.00D of myopia.[13] With cur trends, projections are that more than 900 million of the wo populations will be highly myopic (more than 5.00D) by 205

Why Fit Orthok Lenses?

- Freedom from glasses during the day
- Ocular surface dryness with other daily wear lense
- Myopia control
- Lifestyle considerations

PROs of OrthoK for Young Children



Parents have more control

No need to manage during school

Less likely to lose lenses than daytime soft lenses

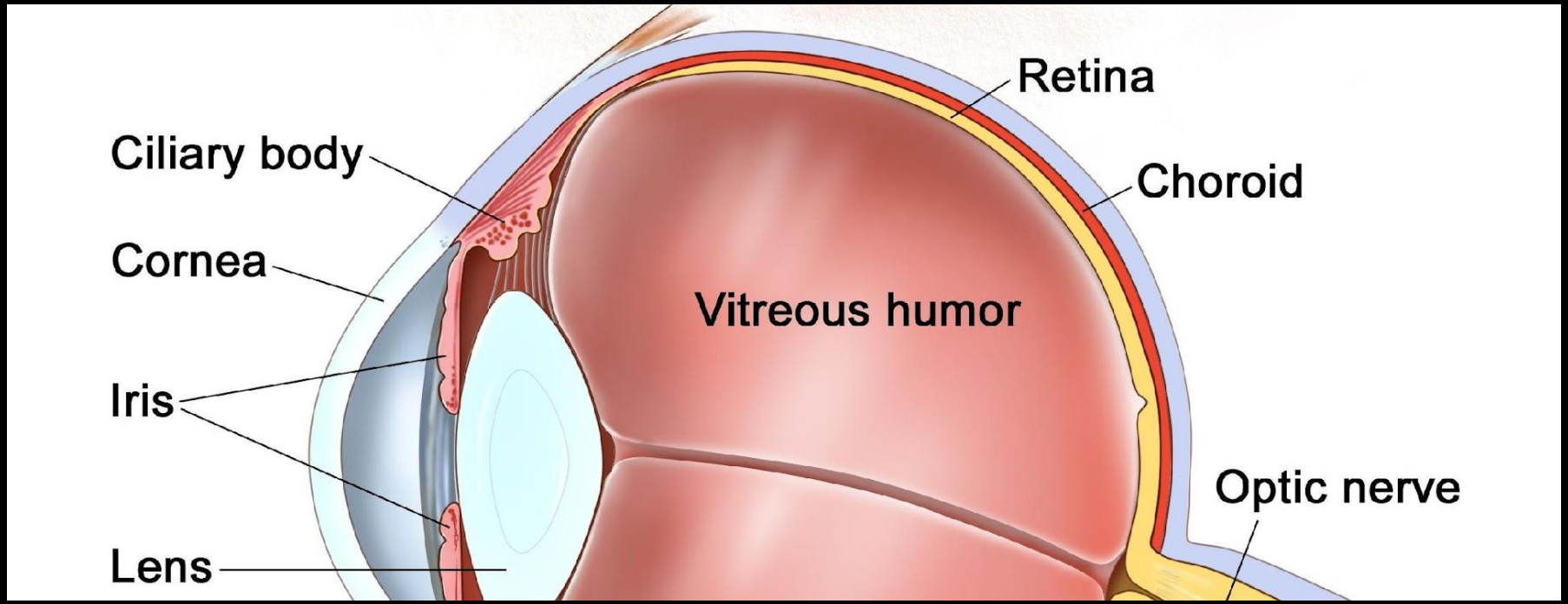
Myopia Control

Low-dose atropine eye drops

- Strengthens the wall of the eye, thus preventing elongation
- 1 drop in each eye, at bedtime

- Atropine 0.025% - 0.050% has minimal side effects compared with atropine at 0.1% and retains comparable efficacy in controlling axial length growth
- Common side effects include:
  - Stinging
  - Blurred Vision
  - Light Sensitivity

What the Heck is the Choroid?



Teach Your Boss #4

0.01% has been shown to lack efficacy… 0.025-0.050% atropine is recommended

Lifestyle & Visual Habit Guidance

What it includes

- Outdoor time
- Screen breaks
- Healthy visual habits

Combination Therapy with CLs

Combination

- Combining atropine with an optical treatment slowed eye growth over a one-year period when compared to monotherapy
- Red light therapy combined with orthok slowed eye growth more than orthok alone
- Overall, if a single CL treatment does not provide sufficient control, adding a second treatment is likely to benefit

> Front Med (Lausanne). 2024 Apr 23:11:1358046. doi: 10.3389/fmed.2024.1358046. eCollection 2024.

Effect of 0.01% atropine combined with orthokeratology lens on axial elongation: a 2-year randomized, double-masked, placebo-controlled, cross-over trial

Binbin Li [1], Shiao Yu [2], Shasha Gao [1], Guangli Sun [1], Xuena Pang [1], Xiuhong Li [1], Ming Wang [3], Fengyan Zhang [1], Aicun Fu [1]

Affiliations + expand

PMID: 38716420 PMCID: PMC11074463 DOI: 10.3389/fmed.2024.1358046

Randomized Controlled Trial > Ophthalmology. 2024 Nov;131(11):1304-1313. doi: 10.1016/j.ophtha.2024.05.015. Epub 2024 May 18.

Myopia Control Effect of Repeated Low-Level Red-Light Therapy Combined with Orthokeratology: A Multicenter Randomized Controlled Trial

Ruilin Xiong [1], Wei Wang [1], Xianghua Tang [1], Meinan He [2], Yin Hu [1], Jian Zhang [1], Bei Du [2], Yu Jiang [3], Zhuoting Zhu [4], Yanping Chen [1], Shiran Zhang [1], Xiangbin Kong [5], Ruihua Wei [2], Xiao Yang [1], Mingguang He [6]

Affiliations + expand

PMID: 38763303 DOI: 10.1016/j.ophtha.2024.05.015

CLs in Combination with Lifestyle

- Screen time can affect myopia
  - Typically spent indoors
- Children who spend more time indoors are more likely to develop myopia
  - UV light and blue light are thought to play an important role in eye development

How Do We Choose the Right Option?

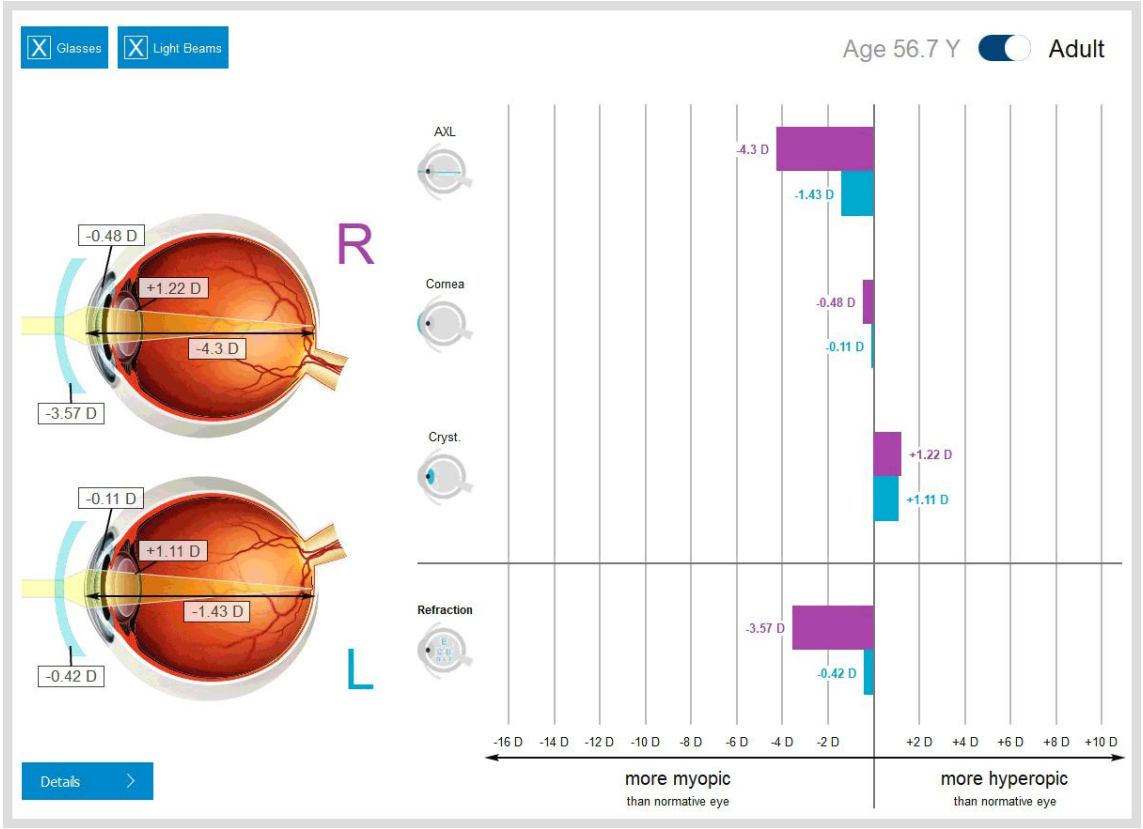
- Child's age
- Prescription and rate of change
- Lifestyle and maturity
- Family goals and comfort level
- Axial length…

Sample Myopia Clinic Baseline Work-up

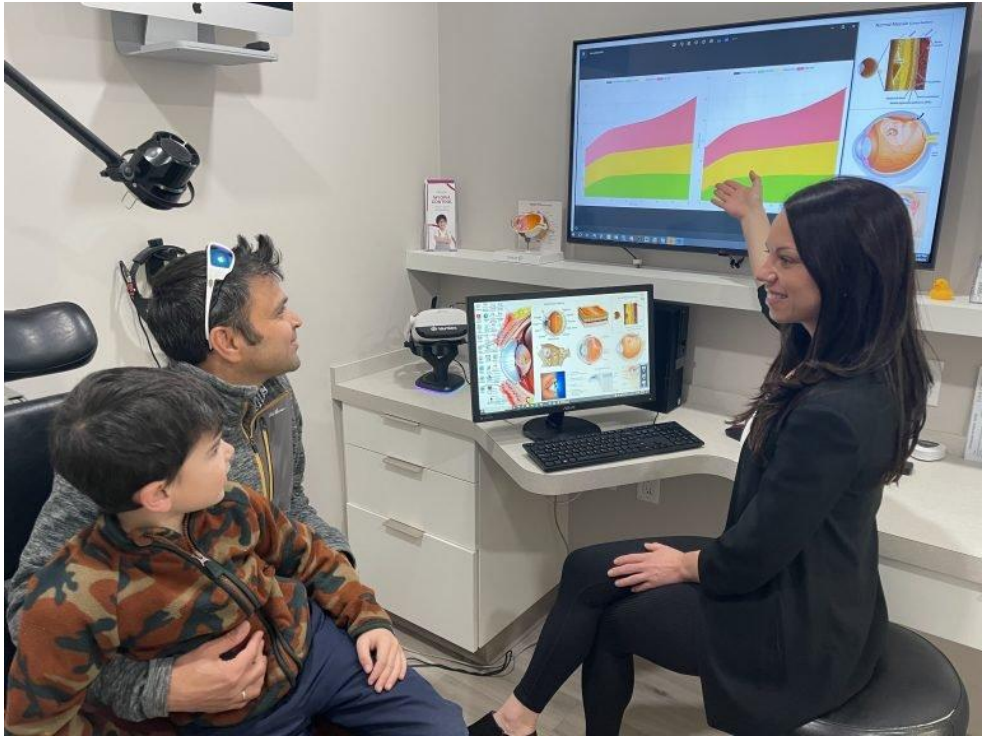
- Dry Refraction
- Cycloplegic Refraction (damp) with 1% tropicamide, 1gtt OU,wait 5 min, instill another 1gtt OU **or cyclopentolate**
- Wet autorefraction
- **Axial Length**
- Corneal Topography
- BV testing: eye posture & accommodation
- Need to evaluate anterior and posterior cornea prior to orthok

Routine Eye Exam Should be Completed Prior

Role of Axial Length



Comparisons to Age Norms



Teach Your Boss #5

Pre-myopia should be treated

Pre-Myopes

CLINICAL SUMMARY

IMI Clinical Myopia Management Guidelines Report

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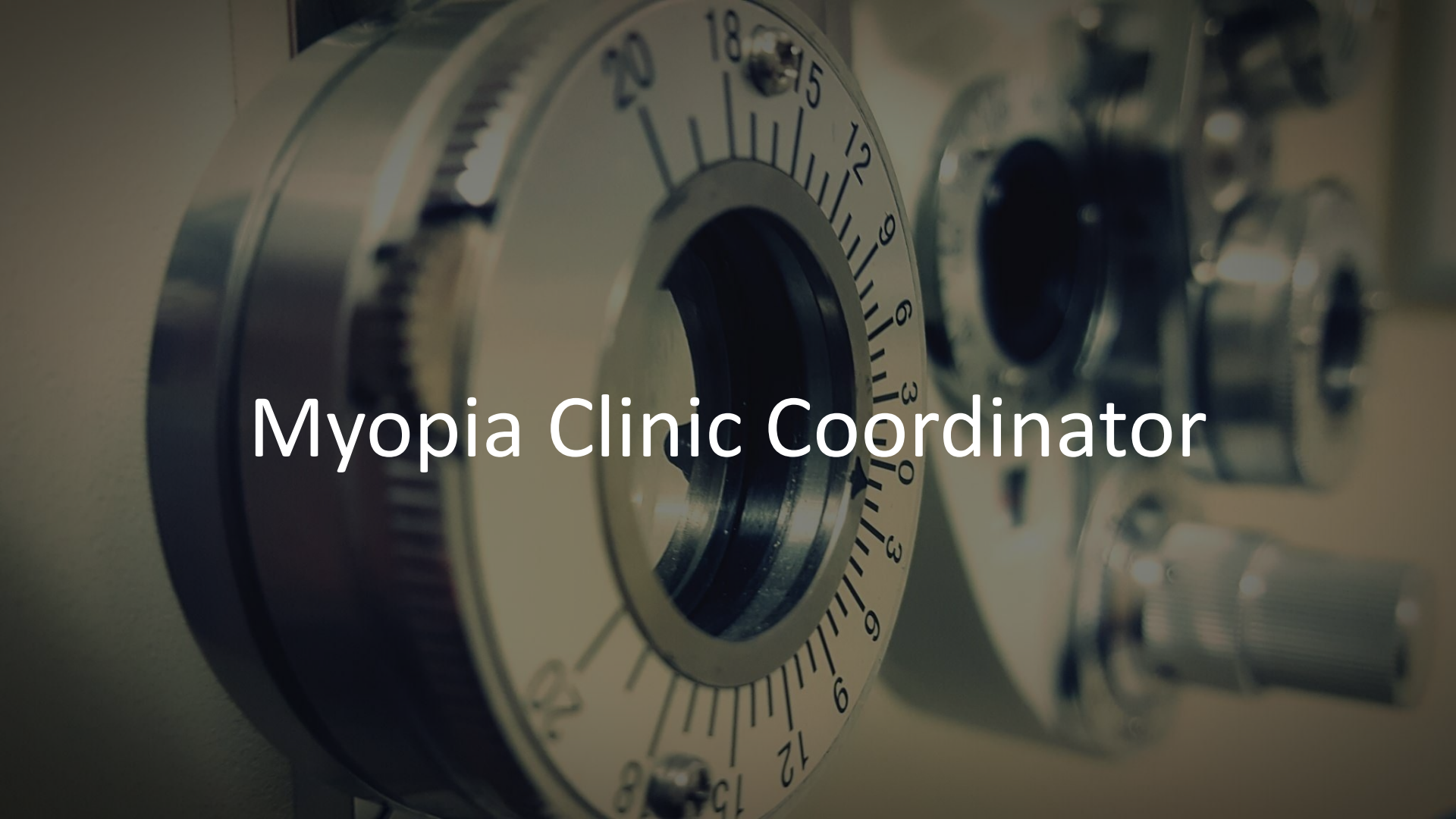
Kate L. Gifford, BAppSc(Optom) PhD
IMI Committee Chair
Private Practice and Queensland University of Technology, Australia

Age normal cut-offs based on an ethnically diverse US study of more than 4,500 children.

Age (years)	Refraction
6	+0.75 D or less
7 to 8	+0.50 or less
9 to 10	+0.25 D or less
11	emmetropia


Kids are a great source of FREE advertising!

Dry Eye is Up and Coming in Myopia Control…



Myopia Clinic Coordinator

Have Your Resources Ready

WHAT WE DO

Advanced Diagnostics

Our clinic uses the latest tech to precisely monitor changes in eye curvature and axial length. We can then analyze these results and plot them on normative growth curves to monitor and alter treatment for best results

Maximizing Results

Myopia is a result of the eye elongating too quickly, leading to an increased risk of blindness or vision impairment from retinal detachment, myopic macular degeneration and glaucoma. It is therefore imperative that we monitor and alter treatments to maximize success. We pride ourselves on our technology and expertise utilizing the latest research in the field.

Myopia Control Therapies

There are four main options for myopia control, depending on the unique lifestyle and visual requirements of each individual child:

- Soft Contact Lenses
- Orthokeratology
- Specialized Glasses
- Atropine Eye Drops

Our doctors will discuss all options with you so we can create a customized treatment plan in line with their lifestyle and to ensure success.

Myopic progression cannot be reversed, but it CAN be controlled.

Our doctors have the technology and expertise to help you manage your child's myopic progression.

Ask us how to enroll your child into our Myopia Control Academy.

MISSION EYE CARE

Centre for Dry Eye and Corneal Disease

LEARN MORE AT

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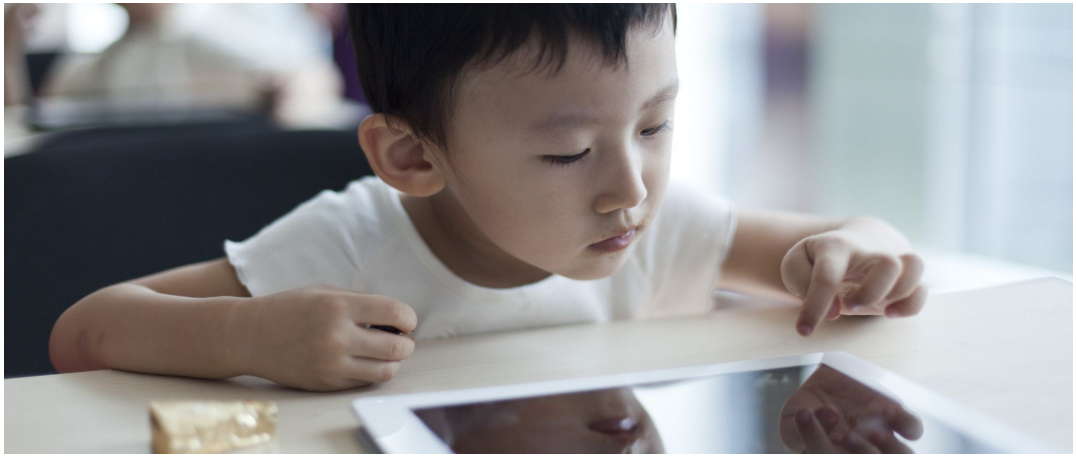
MYOPIA CONTROL

Treatment Options for Your Child's Nearsightedness

Should we Recommend Limiting Screen Time?



Children under 2 years of age	No screen time. Excessive screen time reduces language development and increases the likelihood of childhood obesity.
Children 2-5 years	Children who are toddlers and pre-schoolers should have a maximum of 1 hour of screen time a day. Higher rates of screen time are associated with less play, poorer social skills, slow language development and increased risk of obesity.
Children 5-17 years	Should be limited to 2 hours of recreational screen time per day. Children are now using screens more during their education, so limiting screen time during entertainment is important. When families pay attention to their media consumption and parents monitor their children's digital access, the amount of screen time reduces along with positive improvements in sleep and school performance[6]

https://www.myopiaprofile.com/articles/screen-time-guidelines-for-children

The Staff’s Role in Success

Reinforce	Normalize	Support	Help
Reinforce consistent language	Normalize myopia management as standard of care	Support parents who feel overwhelmed	Help with follow-ups, reminders, and encouragement

Common Parent Questions

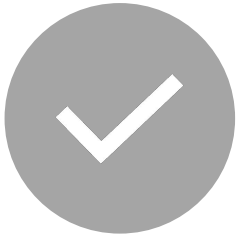
- Parents often ask…
- **“Does my child really need this, or can we just do glasses?”**
- **“Will my child grow out of myopia?”**
- **“Is this safe for kids?”**
- **“How do we know it’s working?”**
- **“Is this covered by insurance?”**
- **“Why didn’t we do this when I was a kid?”**
- **“What happens if we don’t do anything?”**

Emerging Therapies

- Red light
- Nutrition
- School ergonomics

Key Takeaways

MYOPIA IS A GROWING EYE HEALTH ISSUE



EARLY ACTION MATTERS

STAFF PLAY A CRITICAL ROLE IN EDUCATION AND TRUST

CONSISTENT MESSAGING = SUCCESSFUL CARE

Tell Your Boss Summary!

1. Contrast and aberration play a larger role than optical defocus
2. Undercorrection, PAL, bifocal are not recommended
3. BE Free is a new on-label myopia control soft lens
4. 0.025-0.050% atropine is recommended
5. Pre-myopia should be treated

Questions & Discussion

What questions do you hear most from parents?

Where do you feel unsure or want more clarity?