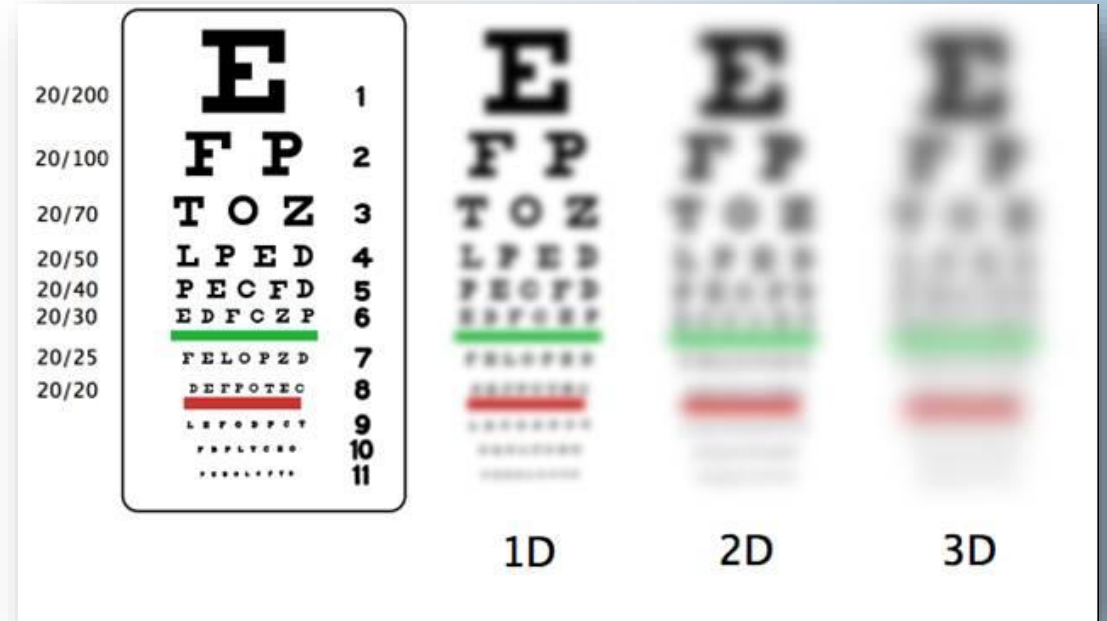




# MYOPIA MANAGEMENT AND YOUR CHILD

# What happens in myopia (nearsightedness)?

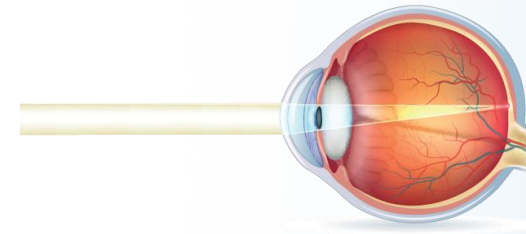
- Unable to see clearly in the distance
- Light does not focus correctly due to a longer than normal development of the eyeball
- Requires a specifically shaped lens to refocus light correctly
- Traditional glasses and most day wear soft contact lenses fix the symptom of myopia (blurry distance vision) but do not correct the underlying problem of continuing eye growth



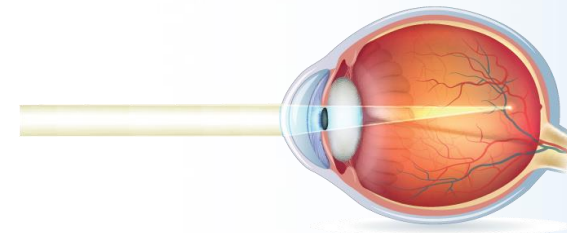
# Underlying problem = Excessive eye growth

This lengthening of the eyeball we call myopia, must be corrected during the active growth years, usually 6-21 years of age.

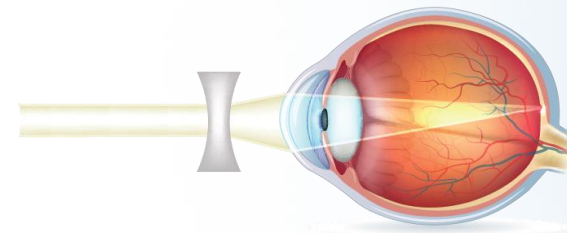
## NORMAL VISION AND MYOPIA



**NORMAL VISION**  
FARAWAY OBJECT IS CLEAR



**MYOPIA**  
NEARSIGHTED EYE  
THE EYEBALL IS TOO LONG  
FARAWAY OBJECT IS BLURRY



**MYOPIA CORRECTED**  
CORRECTION WITH A MINUS LENS

A young boy with short hair, wearing an orange polo shirt, is smiling and looking towards the camera. He is in a classroom setting, with other children and desks visible in the background, though they are out of focus. The background is dimly lit, creating a soft, natural atmosphere.

# The dangers of being myopic

- Highly myopic adults are more at risk for developing serious, sight-threatening eye conditions (such as myopic macular degeneration, retinal detachment, early cataracts and glaucoma) than non-myopic patients<sup>6</sup>
- Myopia affects the quality of your child's educational and sports performance, social relationships and daily lives
- Myopia can *limit* your child's choices of careers such as police, military or pilots

# When should I start therapy for my child?

Myopia prevention can start at any age by increasing time outdoors and limiting electronic screen time.

Depending on the child's maturity level, parents may choose to start orthokeratology as early as 6-8 years old.

## Consider treatment:

- If myopia is already greater than 1.00D
- If myopia is increasing more than the average  $\sim 0.50\text{D}/\text{year}$ <sup>24</sup>
- If significant family risk factors are present – one or both parents are nearsighted<sup>1</sup>



17. 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 Aug;96(8):556-567. doi: 10.1097/OPX.0000000000001410. PMID: 31343513.

24. Zhao J, Mao J, Luo R, Li F, Munoz SR, Ellwein LB. The progression of refractive error in school-age children: Shunyi district, China. *Am J Ophthalmol.* 2002 Nov;134(5):735-43. doi: 10.1016/s0002-9394(02)01689-6. PMID: 12429251.

1. Jones LA, Sinnott LT, Mutti DO, Mitchell GL, Moeschberger ML, Zadnik K. Parental History of Myopia, Sports and Outdoor Activities, and Future Myopia. *Invest Ophthalmol Vis Sci.* 2007;48:3524-3532.

# How long do we need to continue the therapy?

**At least until after high school, preferably after college**

- ~50% are still progressing at age 15<sup>25</sup>
- Only 10% are still progressing at age 21<sup>25</sup>

Consider careful monitoring of eye length/prescription 6-12 months after stopping therapy to assure myopia is no longer progressing



# Interventions – what can we do?

- Traditional Glasses
- Increased time outdoors
- Limit screen exposure time
- Medical intervention (Rx drops)
- Day-time wear myopia control contact lenses
- Overnight Orthokeratology



# Interventions – what can we do?

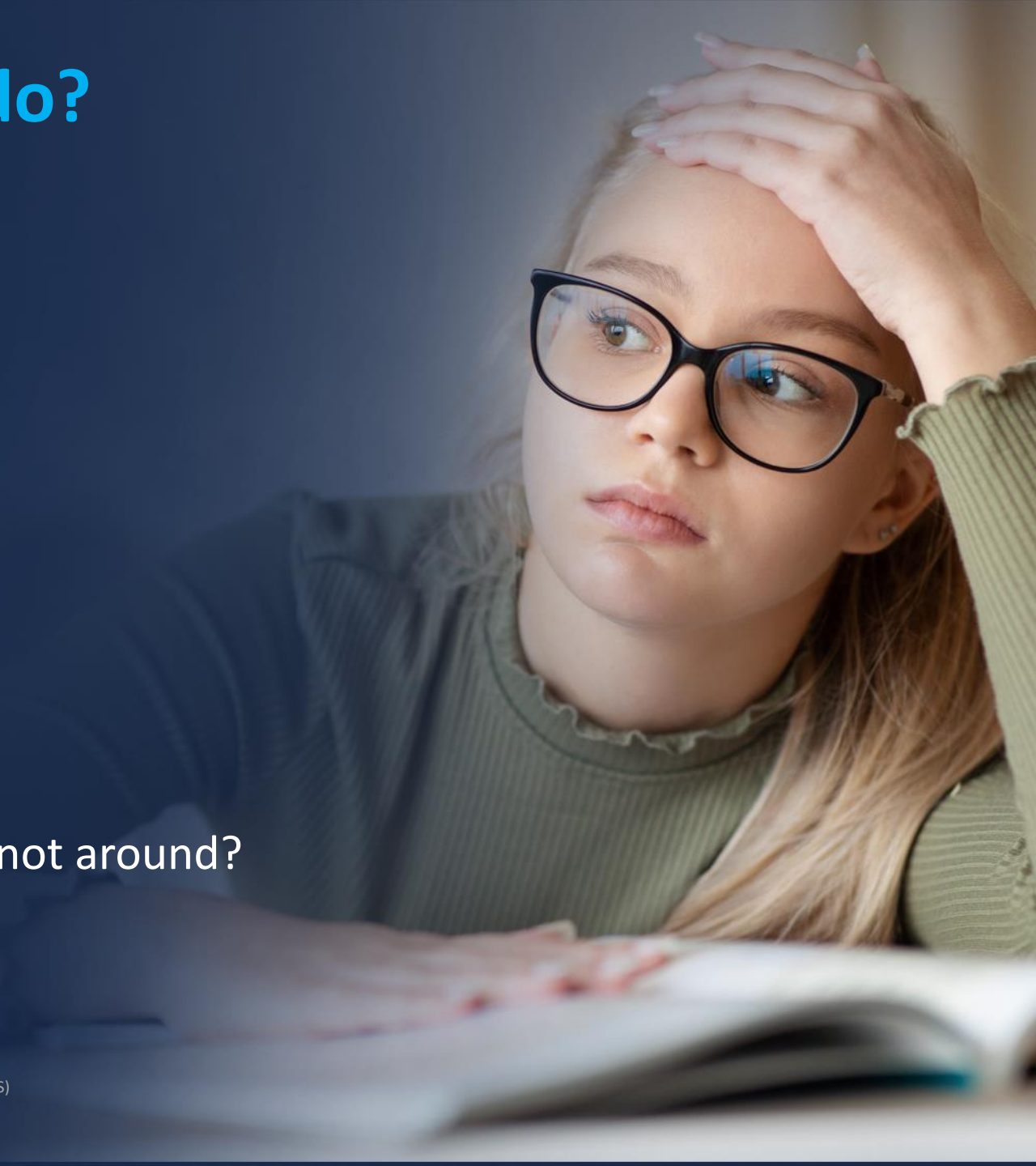
## Defocus Spectacle Lens Designs<sup>13</sup>

Pros – easy to wear

- Lowest cost per year

Cons – required hours of daytime wear

- limits sport use
- hard to keep in proper adjustment
- are they being worn when parents are not around?

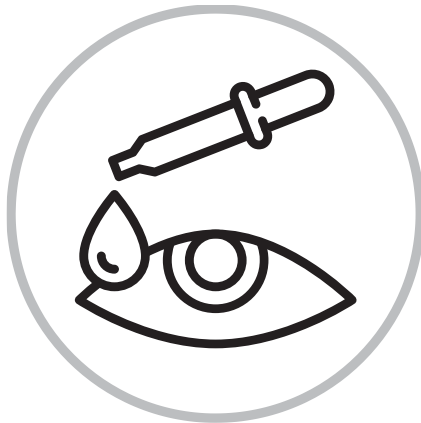




# Interventions – what can we do?

## Prescription eyedrops<sup>16</sup>

- Pros – helpful for children who are too young or unable to wear contact lenses
  - May be combination therapy for increased effects
- Cons – questionable impact on eye growth (at lower concentrations), currently only available through specialty pharmacies, may cause symptoms of dilation (glare/halos, blurred vision, light sensitivity)
- Long-term impact of pharmaceutical on eye tissues





# Interventions – what can we do?

## Day-wear soft contact lenses shown to slow myopia progression<sup>17</sup>

- Pros – easy to wear, familiar, immediate comfort
- Cons – allergies, can cause/worsen dry eyes,<sup>18</sup> require children to manage unsupervised 10-12 hours per day, can be contaminated by environmental, easily damaged

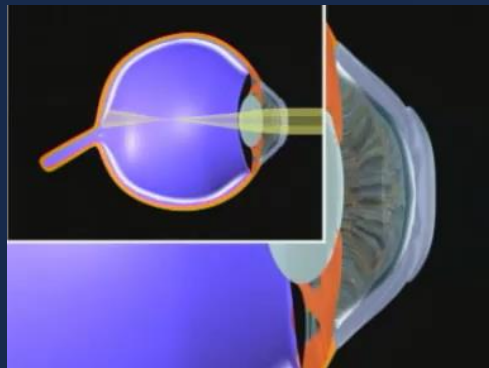
17. Chamberlain P, Peixoto-de-Matos SC, Logan NS, Ngo C, Jones D, Young G. A 3-year Randomized Clinical Trial of MiSight Lenses for Myopia Control. *Optom Vis Sci.* 2019 Aug;96(8):556-567. doi: 10.1097/OPX.0000000000001410. PMID: 31343513.

18. Guillon M, Maissa C. Dry eye symptomatology of soft contact lens wearers and nonwearers. *Optom Vis Sci.* 2005 Sep;82(9):829-34. doi: 10.1097/01.opx.0000178060.45925.5d. PMID: 16189493.

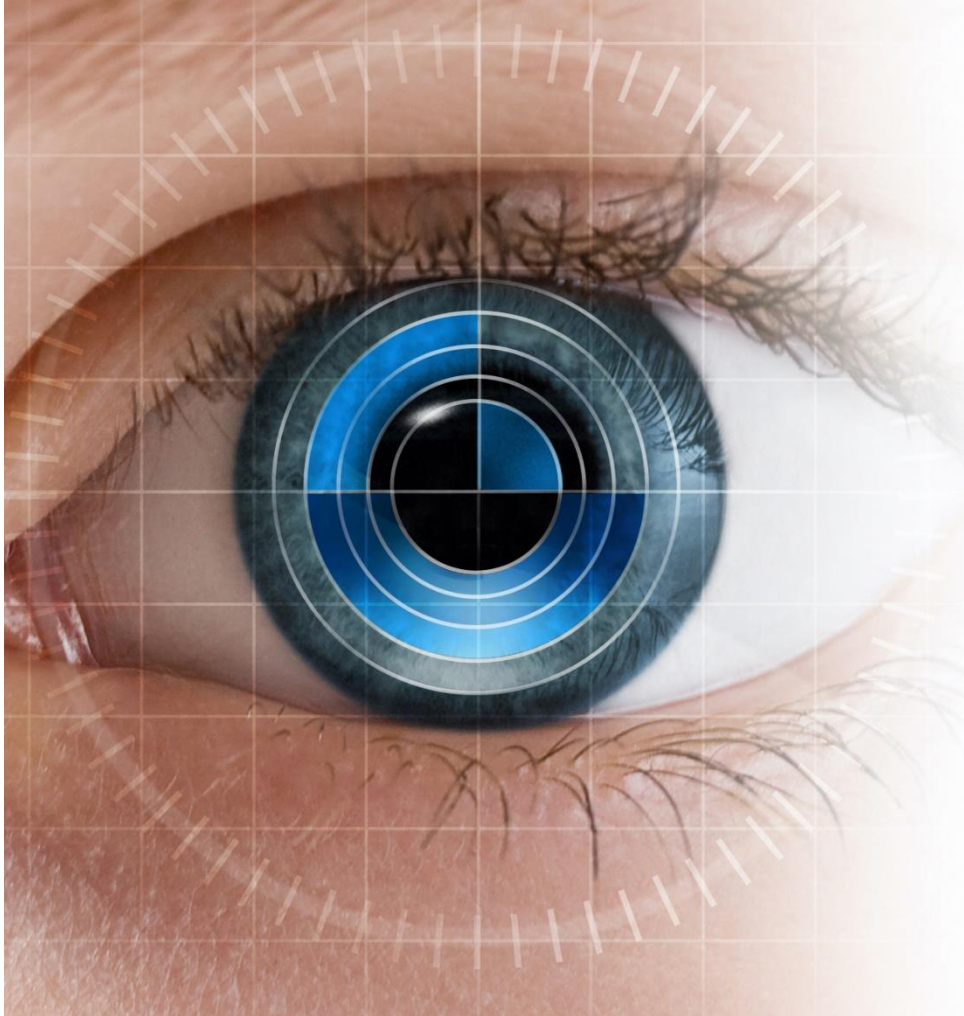
# Interventions – what can we do?

**Orthokeratology (Ortho-K) - one of the most studied methods for the temporary reduction and management of myopia.**

- Pros – 20+ years of clinical studies and FDA approval for safety and efficacy,<sup>20</sup> fully reversible therapy<sup>21</sup>
- Cons – adaptation to wearing lenses at night needed, best performance requires nightly usage (but occasional breaks are acceptable)



# What are the steps in orthokeratology therapy?



- Once the patient is determined to be a good candidate, individually designed lenses are ordered based on the eye measurement
- Patient-specific lenses are dispensed when they arrive and patient is instructed on application, removal, as well as proper cleaning, storage and disinfection processes based on manufacturers instructions

# What are the steps in orthokeratology therapy?

Even young children easily adapt to instructions for application and removal with the nightly in-home help of their parents.





# Why do we recommend Overnight Ortho-K?

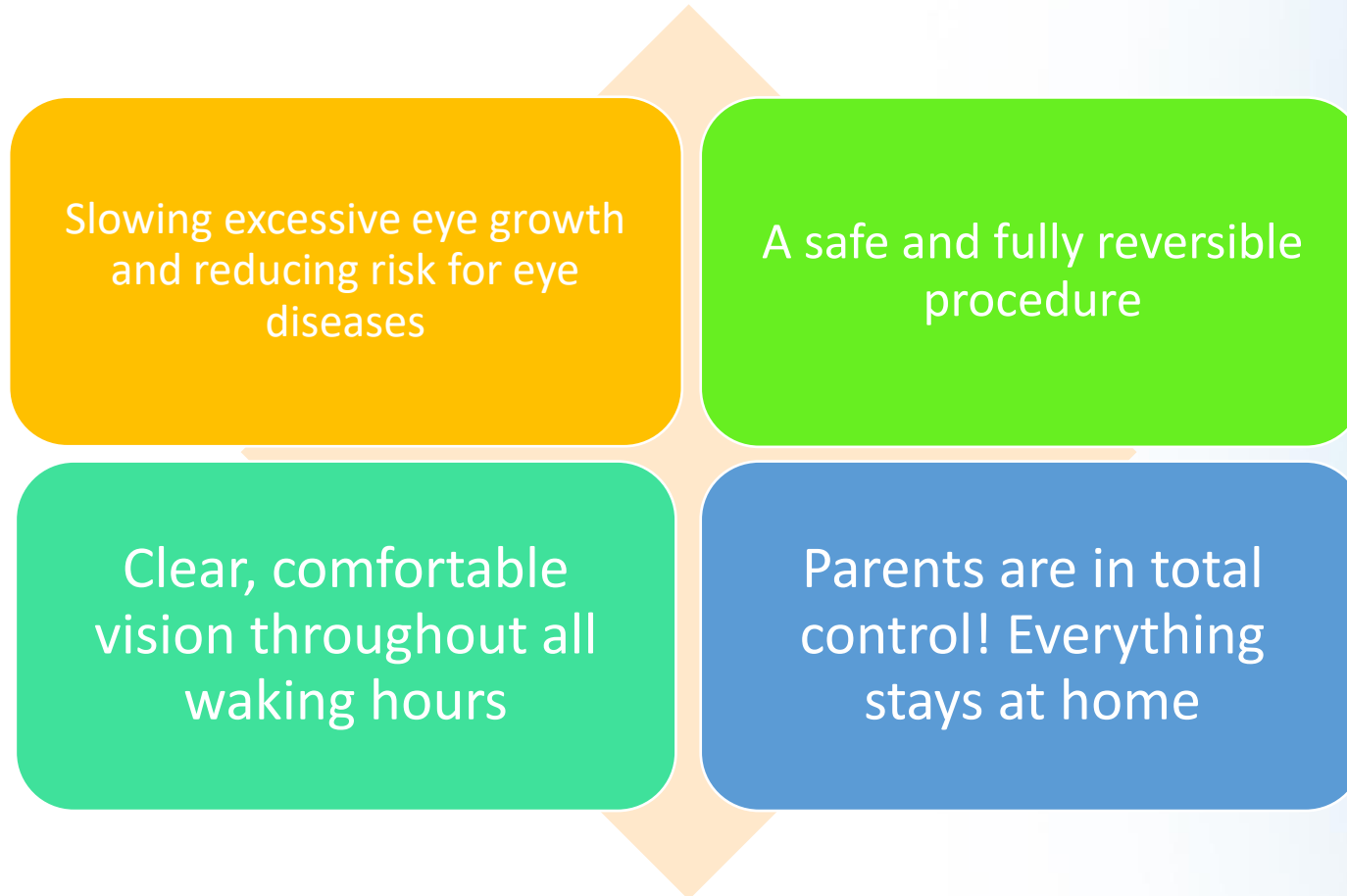
## Overnight Ortho-K

- Lens stays in place held by closed eyelids
- Fewer misplaced lenses
- Parents manage cleaning and care at home
- Full freedom for daytime activities
- Only needs 7-9 hours of sleep wear-time
- No blinking = improved comfort

## Day-time Wear

- Easier to lose or damage lenses
- Children need to manage lenses outside of home
- Remove for all water activities
- 12-14 hours of needed wear-time
- Dry eyes and/or seasonal allergies may impact success

# SUMMARY – Why your doctor recommends orthokeratology for myopia management?



# Thank you!

- Questions?

