

Course Title: Orthokeratology Beyond Myopia Control

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Financial Disclosures

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Course Description/Summary:

Myopia is an epidemic on the rise. Fortunately, there has been significant interest in the topic in the last decade, and influential players in the industry have turned their attention to this global issue. There have been significant advances in developing treatments for myopia progression. Orthokeratology (ortho-k) is one of the three myopia control treatments available in the US. In this course, attendees will learn the basics of orthokeratology fitting. How to determine who is an excellent ortho-k patient, practical clinical pearls on orthokeratology lenses, and finally, they will learn how to troubleshoot ortho-k related issues.

Learning Objectives

1. Learn about the latest innovations in myopia management treatments and the latest news, such as the World Council of Optometry (WCO). The WCO has a new advisory board called Global Myopia Awareness Coalition (GMAC). The role of the GMAC is to raise awareness among consumers about the myopia epidemic.
2. Learn about the new FDA-approved orthokeratology lenses.
3. Discuss some current research on the importance of axial length measurement for monitoring the efficacy of myopia management treatment.
4. Attendees will learn the basics of fitting ortho-k lenses, such as baseline data needed for an ortho-k design.
5. Minimal equipment is required for a successful ortho-k practice
6. Discuss the importance of consistency in the sleeping schedule for successful ortho-k treatment.
7. Learn from case examples about the efficacy of ortho-k for myopia control and choosing an ideal patient for Ortho-K.

Course Content

Cases

A. Case #1, *typical myopia progression case: 14 YO Spanish female*

1. baseline data

- (a)-9.00D myopia, OU
- (b) no family Hx of myopia
- (c) Started wearing glasses at 6 YOA
- (d) high school student.

The patient was fitted with a GOV ortho-K lens, and she was able to achieve 20/20 Visual acuity in 3 nights. The patient was thrilled to have perfect vision in less than a week with ortho-K.

2. We were able to restore her vision and confidence level. The patient has been in ortho-k for two years with no myopic progression.

B. Case # two, a 9-year-old boy who is very active and doesn't like wearing glasses.

- 1. Nine yo white boy, -4.00 D sphere
- 2. first exam at six years old
- 3. 2 d progress in 3 years
- 4. Father is -2.50 OU

The Patient was fitted with ortho-k lenses. VA's after one night is 20/20, OD, and OS, 20/15 OU.

Clinical pearls

Important considerations to keep in mind when choosing ortho-k as a treatment for the patient. When choosing ortho-k for myopia management, we need to consider the following:

- 1. The patient's refractive error
Patients with moderate myopia (-1.00D to -5.00D) do better in ortho-k.
- 2. The patient's age and sleeping schedule.
- 3. Ortho-k is more effective in younger patients.
- 4. A consistent sleeping schedule, and compliant patients is critical for success with ortho-k.

5. The parent's life style

1. Ortho-K requires several office visits, The number of follow-up visits comes into play when you have parents who have hectic schedules or patients who have two different homes. in this case, a soft daily disposable dual focal lens is a better alternative

C. A review on the latest development of the myopia epidemic

1. Facts about myopia

1. The prevalence of myopia has reached over 45% in the US.
2. Genetics, Environmental factors, such as; increase screen time, lack of sleep, and decrease outdoor time, all play a role in myopia progression
3. Younger myopes are at a higher risk for myopia progression
4. Better prognosis with younger patients and lower myopia
5. The World Council of Optometry has established the Global Myopia Awareness Coalition(GMAC), an advisory board whose mission is to promote awareness about childhood myopia and diseases associated with high myopia.

2. New FDA approved ortho-k lenses for myopia control

1. Johnson and Johnson announce the new Acuvue Ability Ortho-k lens for overnight wear and myopia control.
2. The doctor will be required to complete an online certification to fit the lens.
3. Available in fall 2021

3. Advantages of Ortho-K lenses, following are some of the benefits of ortho-k lenses

1. Best for active children
2. #1 benefit, No daytime correction needed
3. 45-65% effective in slowing rate of axial length elongation

4. Disadvantage of Ortho-k lenses

1. That physicians need to learn how to fit lenses
2. Specialized equipment needed (Corneal topographer is a must)
3. Increase chair time

4. Basics of Ortho-k Fitting

1. A review on reverse geometry designs.
2. Collection of baseline data for ortho-k lens design
3. How to evaluate an ortho-k lens in the eye
4. Follow schedule

5. How to interpret corneal topography

- (a) Corneal topography is a critical component of any successful ortho-k practice.
- (b) Complete ring Vs. Incomplete
- (c) Central island, what does it mean?
- (b) How to interpret corneal maps on the ortho-K post-treated cornea.

6. How to troubleshoot a poor fitting ortho-k lens.

1. Corneal staining, staining is an indication of epithelial thinning. It is important to examining the patient for cornea staining at every ortho-k visit.
 1. In case of cornea staining, discontinue ortho-k lens wear until corneal is clear.
2. Superior decentration
 1. Increase lens sag
3. Inferior decentration
 1. Decrease lens sag
4. Lateral decentration
 1. Increase lens overall diameter.
5. Lens awareness
 1. Reduce edge lift
6. Treatment Zone
 1. Younger patient can handle smaller treatment zones, while older patients may require larger treatment zones, to avoid visual disturbances.

7. Axial length and importance of determining the risk of myopic pathology on our young patients. Visual fluctuation is common with ortho-k. Hence, measuring axial length is the most effective methods to monitor for myopia progression.

In conclusion, myopia is a global issue, and prevalence continues to increase. However, new treatment options are being developed to slow down myopia progression. Orthokeratology is one of the most effective treatments for myopia progression, with several lens designs available. Optometrists are at the forefront of the epidemic, and we have an opportunity to educate and restore our patient's vision using innovative treatment options.

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