

COURSE OUTLINE

Title: Customized OK and MYOPIA CONTROL

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Length: 1 H

LEARNING OBJECTIVES

At the end of this lecture, attendees will be able to

1. Understand the basic principles of managing myopia and their clinical applications
2. Evaluate the efficacy of current strategies actually used clinically
3. Appreciate the improved outcome coming from customization of myopia control strategies and OK in particular, for each patient.

Introduction/ Summary

Nowadays, myopia should not be considered as a simple refractive error but more likely as a loss of emmetropization process occurring early in life. When myopia evolves, it may become a significant risk factor for developing ocular pathology such as retinal detachment, choroidal neovascularization and glaucoma.

This lecture aims to review the basic principles (3 pillars: binocular vision, environment, control of optical defocus) behind the current strategies used clinically to manage myopia. From the white papers recently published about myopia, to the clinical experience of the University of Montreal clinic, where 650 patients are regularly followed, author will demonstrate what strategy should we consider and which one may be considered as the most effective, based on several populations (low-moderate-high myopes), ethnical origins (Asian vs Caucasian) and gender (male/female). Customization of orthokeratology lenses and soft lens designs will be also covered, with emphasis on the improved outcome coming from this approach.

KEY WORDS: myopia, orthokeratology, custom contact lens design

DETAILED OUTLINE

- 1- Introduction
 - a. Myopia prevalence
 - i. Is this really epidemic ?
 - b. Myopia as a risk factor for ocular pathology
 - i. Glaucoma
 - ii. Maculopathy
 - iii. Cataracts
 - c. Myopia: natural evolution
 - i. What is expected in diopters, per gender and ethnical background
 - ii. Axial length evolution over time
 - iii. Relationship between AL and MYOPIA : the CLEERE study results
 - d. Myopia : The targets
 - i. Threshold to respect (Netherland study) to alleviate visual impairment > 65 y.p.
 1. Diopters: < 6D
 2. AL < 26 mm
 - ii. Interventions and Efficacy
 1. What are the tools available
 - a. Standard
 - b. Customized
 2. Basis to establish efficacy ?
 3. 1st vs following years
 4. Importance of lens design
 - iii. Projected outcome dictates the strategy
 1. Type (optical, pharma, combined)
 2. Agressivity (target 50% efficacy or more)
- 2- Myopia and axial length control
 - a. Basic principles
 - b. The 3 pillars
 - i. Binocular vision
 - ii. Environment
 - iii. Control of the central + peripheral blur
 - iv. Other elements to consider : spherical aberrations, ocular biomechanics
 - c. Potential contribution of nutrition in myopia development: impact on recommendations

- 3- The Montreal experience
 - a. Retrospective analysis: population description- groups
 - i. Gender
 - ii. Ethnicities
 - iii. Refractive error
 - iv. Age
 - b. Description of strategies used
 - i. Lens design analysis (OK and soft MF)
 - ii. Customized designs
 - 1. Ocular parameters to consider
 - 2. Lenses/software used
 - 3. Benefits to use customized designs
 - c. The specific case of orthokeratology
 - i. How it works: hydraulic forces
 - ii. Safety issues: how to alleviate MK ?
 - iii. Generating convex power
 - iv. Where to land : the area principle
 - v. How much: considering dose-response phenomenon
 - 1. New findings in choroidal response
 - vi. How to do it ?
 - 1. Zone sizes and location
 - 2. Lens centration : Toric BC and PCs
 - d. Results (per groups, gender, ethnies, etc)
 - i. Evolution (yearly basis) for refractive error
 - ii. Axial length progression
 - iii. Overall efficacy
 - iv. Customized vs standard lenses
 - v. Combinations: pharma and lenses
- 4- Clinical recommendations
 - a. Differentiate myopia correction vs control
 - b. Customizing lens designs : how to do it
 - c. Increased myopic defocus : the importance of the dose/response, area impacted for peripheral refraction
 - d. Adapt design to evolution (more or less aggressive)
 - e. Recommendations
 - i. Based on baseline refractive errors (low vs moderate/high myopia)
 - ii. Based on pupil size (< 4.5 mm vs > 4.5 mm)
 - iii. Based on gender and ethnies
- 5- Conclusion
 - a. Myopia control should be based on projected outcome (if nothing is done)
 - b. Strategy is determined by the targeted efficacy
 - c. Commercial lenses are working well in soft MF; less for OK
 - d. Customization of lens designs help to improve results as needed

