

# MYOPIA CONTROL: UPDATE

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## Course Description:

Myopia control is quickly becoming a new standard of care for our patients. This course will review the history of and basis for the science of myopia control as well as methods of myopia control backed by peer-reviewed research as well as how to apply the treatments in clinical settings

## Learning Objectives:

1. To teach the history of and basis for myopia control
2. To teach the risks of progressive myopia and reasons to apply myopia control
3. To teach the methods of myopia control that are backed by peer reviewed research and review the research
4. To teach application of the methods in a clinical setting

## 1. Myopia in Society

- a. Image of Myope
- b . Impact on our children
- c. Prevalence and Incidence

## 2. Development of Myopia

- a. Facts and factors
- b. Impact on risk of future ocular disease
- c. How Myopia Progresses
- d. Peripheral hyperopia and impact on myopic creep
  1. What is peripheral hyperopia?

## 3. Management of peripheral hyperopia

### a. Orthokeratology

#### 1. Studies

- a. Charm and Cho
- b. Chen et al
- c. Cho et al
- d. Hiraoka et al
- e. Kakita et al

f. Santodomingo-Rubido et al

g. Swarbrick et al

h. Walline et al

i. Smart - Davis, Eiden

J. Crayon – Walline et al

b. Soft Lenses for Myopia Control

1. Distance Center

a. Anstice and Phillips

b. Lam et al

c. Sankaridurg et al

d. Walline et al

c. Spectacle Lenses for Myopia Control

1. Zeiss Myovision

d. Hybrid distance center multifocal lenses

4. Other suggested methods and their studied impact

a. Silicone-Acrylate (RGP) Contact Lenses

1. Katz et al

2. Walline et al (CLAMP)

3. Perrigin et al

b. Bifocal/Multifocal Ophthalmics

1. Betz, Gamble, Miles (1940's and 1950's)

2. Theory –

a. Accommodative effort, especially in Esophores

3. Effect

a. Best multifocal to use

4. Studies

a. Comet (Hyman, Gwiazda et al)

b. Fulk et al

- c. Houston Myopia Control Study
- d. Hong Kong Progressive Lens Myopia Control Study
- e. Cheng and Woo et al

c. Undercorrection

1. Theory

- A. Association between accommodative effort and myopia
- b. Myopic patients have higher accommodative lag than

emmetropes

2. Facts

- a. Adler, Millodot et al

d. Vision Training

- 1. No peer reviewed, randomized data to support

e. Pharmacologic

- 1. Anti-muscarinic eyedrops eliminate accommodation

- 2. at least 8 studies confirm effect

- a. Fan et al
- b. Lee et al
- c. Shih et al
- d. Siatkowski et al
- e. Tan et al
- f. Wu et al
- g. Yen et al

- 3. Probably most effective treatment

- 4. Mechanism Retinal, not accommodative

5. Lower concentrations (.1% and .01%) slow by 68% and 59% respectively (Bullimore)

- A. Chia et al
- b. Bedrossian et al
- c. Brodstein et al

f. Nutrition and Environment

1. Time outdoors

- a. Bullimore et al
- b. Wu et al
- c. The Children of the 90s study

2. Diet

- a. Vitamin deficiency

3. Working distance

4. Peripheral deprivation

g. How to talk to parents

1. Good habits for children

- a. Hair in face
- b. Working distance
- c. Digital usage
- d. 20/20/20 rule

h. What defines clinically meaningful myopia control

1. Only 4 modalities considered to be scientifically impactful

- a. OrthoK
- b. Soft Distance Center Bifocal Contacts
- c. Atropine
- d. Bifocals (subtle effect)