

Contact Lens Challenge: Contact Lenses for Kids

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The use of contact lenses for pediatric conditions will be discussed. Clinical indications for contact lenses include: esotropia, exotropia, nystagmus, aphakia, as well as opaque lenses for amblyopia, aniridia, and albinism. One half the lecture will cover pediatric examination and lens fitting techniques.

I. Pediatric conditions that may benefit from contact lenses

- A. Binocular interaction
- B. magnification disorders
- C. Persistent problems requiring opaque lenses
- D. Irregular or post-surgical cornea

II. Binocular interaction

- A. Effect of contact lenses
 - 1. Accommodation
 - 2. Convergence
- B. Eso deviations
 - 1. Types of Eso Deviations
 - a. Divergence Insufficiency
 - b. Basic esophoria
 - c. Convergence excess
 - 2. Best for convergence excess
 - 3. Method of choice for hyperopic esophores or hyperopic accommodative esotropes
 - 4. Hyperopes - less accommodative effort and less convergence in contact lenses than spectacles
- C. Exo deviations
 - 1. Types of exo deviations
 - a. Convergence insufficiency
 - b. Basic exo
 - c. Divergence excess
 - 2. Best for divergence excess
 - 3. Might be useful in myope who is intermittent or occasional exotrope
 - 4. Contact lenses cause myopic patients to accommodate more and converge more
- D. Nystagmus
 - 1. Can achieve null point easier
 - 2. Always viewing through optical center
 - 3. Less prismatic effect

4. VA often improved

III. Magnification problems

A. Anisometropia

1. Magnification - contact lenses cause less magnification or minification changes than spectacles
 - a. If axial - same k reading, different refractive error
 - 1) Better off with spectacles
 - b. If refractive - different k readings
 - 1) Better off with contact lenses

2. Examples

B. Pediatric aphakia

1. Correction choices
 - a. Glasses
 - b. IOL
 - c. Contact lenses
2. Anatomical considerations
3. Fitting problems
4. Appropriate lens selection
 - a. Soft lenses – multiple manufacturers, low dK
 - b. Silsoft - elastifocon, dK 340
 - 1) BC and diameter - 7.5, 7.7, and 7.9; 11.3 mm
 - c. Rigid - dK 9-151
 - 1) Any BC and power
5. Lens wearing schedule
 - a. Silsoft or soft extended wear - extended wear
 - b. Rigid - daily wear, leave in for naps, remove at night
6. Helpful hints
 - a. Insert and remove when sleeping
 - b. Easier to fit rigid lenses to infants than at age 2
 - c. Use soft lens care systems for Silsoft lenses

IV. Persistent problems requiring soft opaque lenses

A. Conditions benefiting from opaque lenses

1. Amblyopia
2. Aniridia
3. Albinism

B. Amblyopia

1. Used instead of adhesive patch
2. Works best for patient wearing contact lens

C. Aniridia

1. Problems associated with aniridia
2. Absence of iris
3. Photophobia
4. Nystagmus present

5. Decreased VA
6. Method of treatment
 - a. Artificial iris contact lens

D. Albinism

1. Features of albinism
2. Conditions benefiting from opaque lenses
 - a. Iris translucency
 - b. Photophobia
 - c. Nystagmus
 - d. Large refractive errors
 - e. Visual acuity
3. Recommended treatment
 - a. Use artificial iris lens

E. Sources for opaque lenses

1. Custom Color - 53% water
 - a. BC made to order
 - b. Power and diameter - +35.00 to -35.00 D, 12-16 mm
2. Kontur - 55% water
 - a. BC - 8.3, 8.6, and 8.9
 - b. Power and diameter - +20.00 to -20.00 D, 15.0 mm
3. Adventures in Color
 - a. Dr. supplied lenses
 - b. Add on cost of tint
4. Alden - 35% water
 - a. 7.7- 8.9 mm
 - b. Diameter 13.0, 13.5, 14.0 mm
 - c. Power pl to ± 30 D
5. Coopervision – preset colors, standardization
6. Ciba – custom opaque lenses

V. Irregular or Post-surgical cornea

A. Keratoconus

1. Can be present in children
2. Fitting philosophy

B. Corneal transplant

1. Rare in children
2. High rejection rate
3. Difficult to have high success

C. Corneal scar

1. Lacerating injury
2. Corneal leukoma

VI. Examination procedures

A. Cycloplegic indications

1. Atropine

- a. Accommodative esotropia
 - b. Under age 5
 - 2. Cyclogyl
 - a. Over age 5
 - 3. Mydriacyl
 - a. Limited value with children
 - b. Too much residual accommodation
- B. VA measurements
 - 1. Detection acuity
 - 2. Resolution acuity
 - 3. Recognition acuity
- C. Fixation aides
- D. Refractive state assessment
 - 1. Loose lens retinoscopy
 - 2. Vertex distance method

VII. Contact lens fitting techniques

- A. Infant
- B. Toddler
- C. Child