

Prescription and use of eye glasses in children in different situations

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Refractive correction

- Main purpose of refractive correction
- They create a sharp retinal image that is essential to complete the sensory motor arc of the eyes
- Assist in restoring the proper balance between accommodation & convergence
- proper correction is the basic step of treatment of any type of strabismus
- High hyperopia may manifest as suspectedly blind infant

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Fundus Examination & Refraction

- Dilation & cycloplegia
 - Atropine for 3 days for preschool & initial refraction
 - Cyclopentolate 1% 3 times before (1hour)
 - Phenylephrine 2.5%
 - Mydracel 1/2 hour before

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Retinoscopy

- Streak retinoscopy
- Autorefractor
- Photorefraction
- Pitfalls in doing retinoscopy

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Proper prescription

- **Preschool Children**
 - Full amount of the cycloplegic refraction
 - Some prefer to reduce 1.0D
 - Proper cylindrical axis & power

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School Children

- Distance V.A. is essential in all activities
- Full cycloplegic refraction should not be prescribed
- Best corrected V.A.
- Insisting upon correction that blurs distance vision is wrong

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Why the child refuses to wear the glasses?

- In all probabilities it is not the child's fault
- Measure the glasses & IPD
- Frame design
- Repeat the refraction
- Gradual wearing

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Aim of Refractive Correction

- To give the patient the least possible correction that cure the Symptoms (Strabismus, Asthenopia)

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Common Inherited Misconcepts

- Correction of anisometropia causes aniseikonia
- Regression of hypermetropia with adolescence
- Astigmatism as a disease
- Antireflection & computer

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Anisometropia

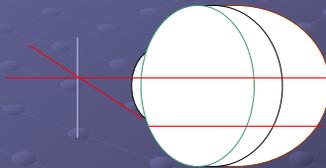
- Aniseikonia is caused by uncorrected anisometropia
- Correction of the whole amount of anisometropic correction
- Aniseikonia may be suppressed by sensory suppression (Ask for that)
- Glasses in axial errors
- Contact lenses
- Refractive surgery (long term safety in children is not proofed)

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Anisometropia & Aniseikonia



$$F_c = F_1 + F_e - d \cdot F_1 \cdot F_e$$



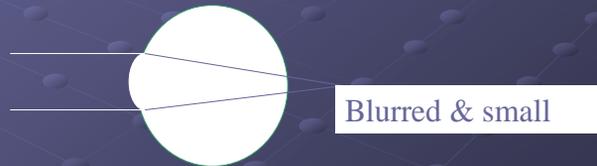
$$5.0D + 5.0D = 10D$$



$$\text{At } 20 \text{ cm} = 5.0D$$

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Image in Ametropia



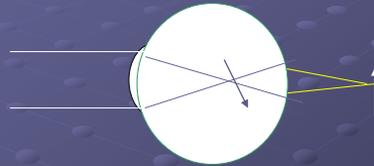
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Emmetropization

- The globe is a self adjusted system
- At birth, the axial length is 17mm but the corneal power is 51 and the lens is 34
- The globe grows, the cornea flattens and the lens power decreases
- During the first year the normal refractive errors is 1.0 – 1.25 and astigmatism 1.0 – 2.0
- Emmetropization within the first two years

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Astigmatism



- Is amblyogenic

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Indications of glasses in strabismus

- Accommodative Esotropia
- Infantile onset ET more than + 2.0D even they don't have accommodative element
- All forms of strabismus as the 1st step
- Acquired ET

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Is it possible to treat accommodative esotropia surgical?

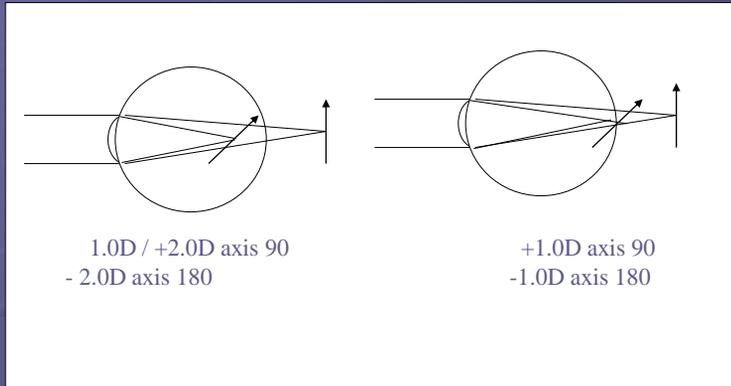
- Of course not
- The muscle tone in fully refractive is normal
- Weaken a normal tone may result in no effect or exoshift
- The muscle tone in normal hyperopic subject is high and self adjusted
- The muscle tone in non accommodative is high

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Indications of glasses in XT

- XT with myopia - Full correction
- XT with high hyperopia - best corrected VA
- XT with mild hyperopia - No glasses
- Overcorrecting minus lenses

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Follow up

- 6 weeks for ocular alignment
- Every 3 months for preschool children
- Every 6 months for school children
- Any change in ocular alignment or glasses refusal
- Any changes in head position

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Follow up of accommodative ET

- The aim is to let the child accommodate without deviation
- Under correction of hyperopic error (weaning) to restore accommodation without ET
- To avoid consecutive XT
- Accommodation is the stimulus of emmetropization

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Bifocals

- Ortho at far after wearing the full correction & esotropic at near
- High AC/C ratio
- Starting at office with 0.5 increment & measuring the angle each time

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- Adding + lenses in office may be not sufficient to relax accommodation
- Straight top bisecting the pupil on looking straight ahead
- Contra indicated in amblyopia
- Weaning before 10y

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Side effects of bifocals

- Correct fitting and compliance in active children is less satisfactory
- Some children are unable to function without inhibition of accommodation even in adolescence
- The near deviation may increase

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