Prescription and use of eye glasses in children in different situations

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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
Fundus Examination & Refraction

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

Retinoscopy

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

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

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
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

Aim of Refractive Correction

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

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

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)
Anisometropia & Aniseikonia

\[ F_c = F_l + F_e - d \cdot F_l \cdot F_e \]

\[ 5.0D + 5.0D = 10D \quad \text{At 20 cm} = 5.0D \]
**Image in Ametropia**

- Blurred & large
- Blurred & small

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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
Astigmatism

Is amblyogenic

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
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

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
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
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

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
- 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
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

Side effects of bifocals