



AMBLYOPIA

Dr Amrit Sahil Panjwani (MBBS, MS Ophthalmology)



WHAT IS AMBLYOPIA?



- Amblyopia literally means “dullness of vision” (Greek ambly dull, + ops, vision, sight).
- Albrecht von Graefe is said to have defined amblyopia as the condition in which the observer sees nothing and the patient very little.

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DEFINE AMBLYOPIA

- Defined as a **decrease of visual acuity** in one eye when caused by abnormal binocular interaction
- occurring in one or both eyes as a result of pattern vision deprivation **during visual immaturity,**
- for which **no cause** can be detected during the physical examination of the eye(s) and
- which in appropriate cases **is reversible** by therapeutic measures

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CLINICAL DEFINITION

- Difference of **2 or more lines** on Snellen visual acuity chart in **unilateral amblyopia** and a visual acuity **of 6/12 or worse** in **bilateral amblyopia** is commonly used as a diagnostic criterion for amblyopia

Table 2: Classification of Amblyopia based on severity.

Severity	Visual acuity
Mild amblyopia	6/9 to 6/12
Moderate amblyopia	6/12 to 6/24
Severe amblyopia	<6/24

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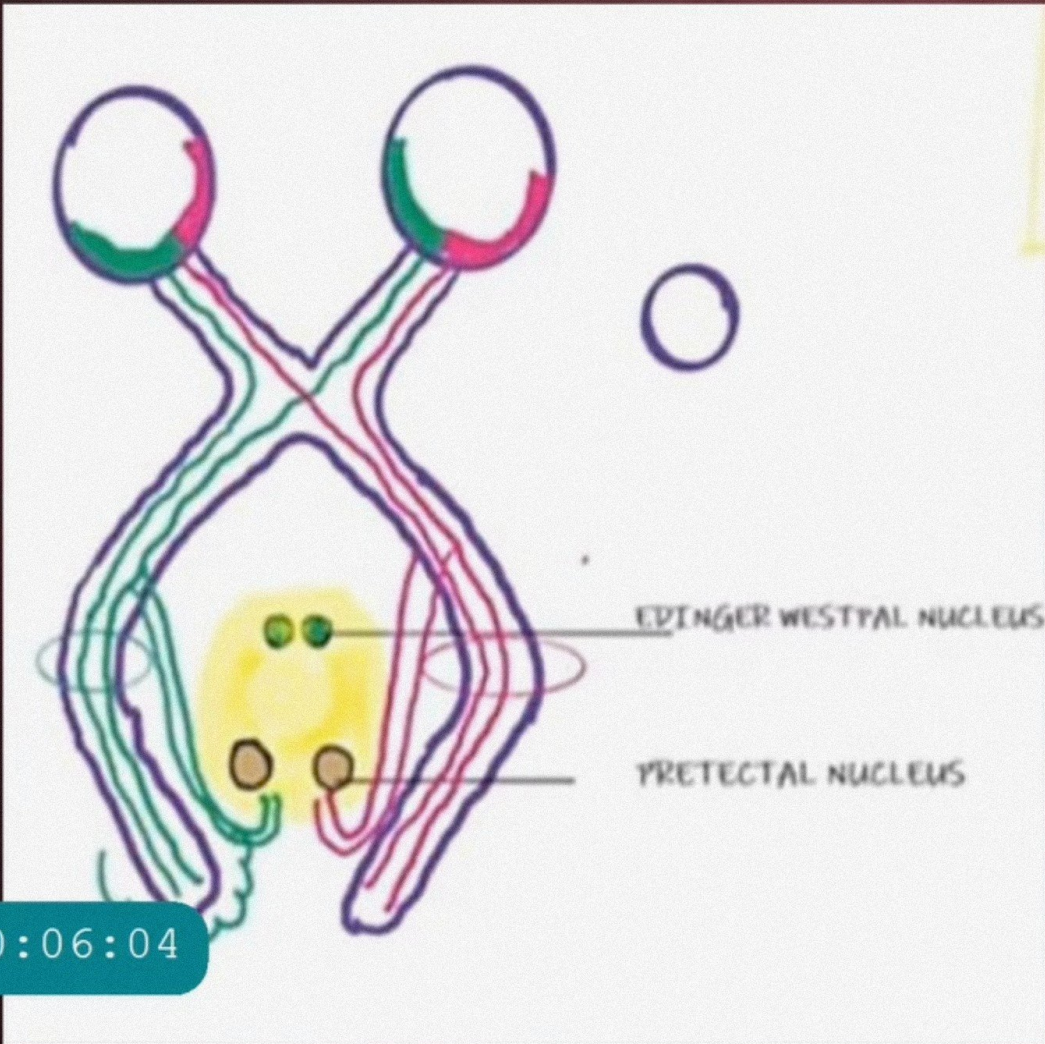
CRITICAL PERIOD OF VISUAL DEVELOPMENT

- 7-8 years
- Why is it called critical period?



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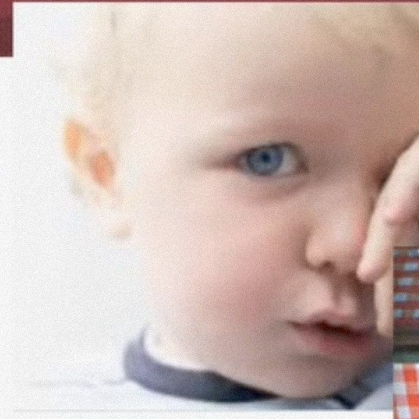


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SUSPECTING AMBLYOPIA

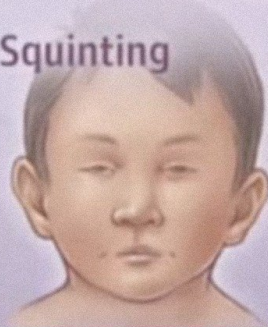
- Decreased visual acuity
- Decreased contrast sensitivity
- Poor hand eye coordination
- Depth perception



Tilting head



Squinting



Closing one eye



Strabismus: misalignment of the eyes that may be associated with amblyopia



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CLASSIFICATION OF AMBLYOPIA

Table 1. Classification of Amblyopia based on aetiology.

1.	<i>Strabismic amblyopia</i>
2.	<i>Refractive amblyopia</i> a) <i>Anisometropic amblyopia</i> b) <i>Isoametropic amblyopia</i> c) <i>Meridional amblyopia</i>
3.	<i>Visual deprivation amblyopia</i>
4.	<i>Organic amblyopia</i>
5.	<i>Reverse amblyopia</i>
6.	<i>Idiopathic amblyopia</i>

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STRABISMIC AMBLYOPIA

STRABISMIC

- Most common type
- Who strongly favour one eye for fixation
- Unilateral rather than an alternating fixation pattern
- Common in esotropes than in exotropes

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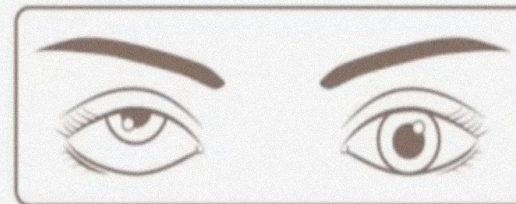
Normal



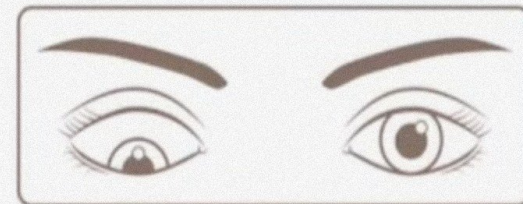
Esotropia



Exotropia



Hypertropia

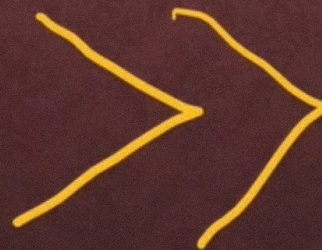
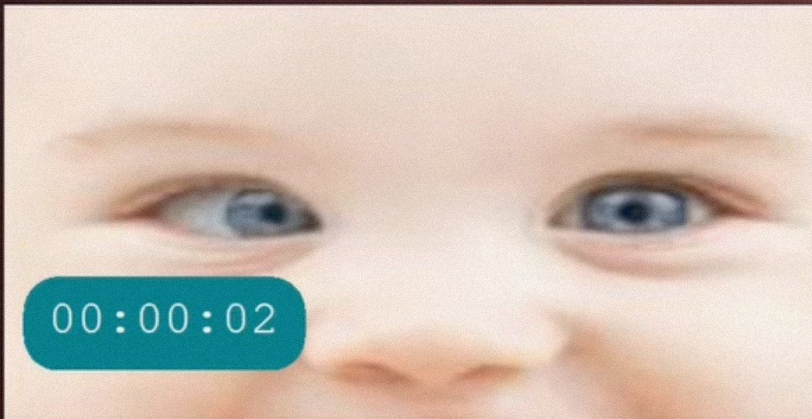


Hypotropia



WHY ESOTROPIA HAS MORE AMBLYOPIA

- Esotropia the fovea of the deviating eye has to compete with the strong temporal hemifield (nasal retina) of the fellow eye
- IN Exotropia the fovea competes with the weaker contralateral nasal hemifield (temporal retina).



REFRACTIVE AMBLYOPIA

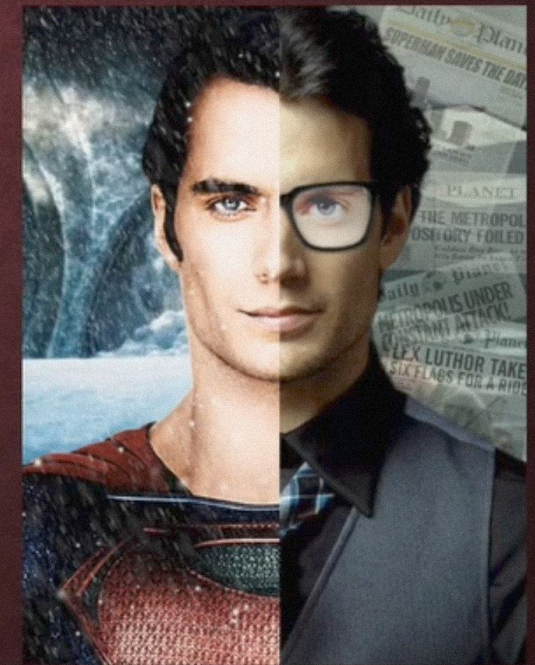
- ANISOMETROPIC
- ISOAMETROPIC
- MERIDIONAL

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ANISOMETROPIC AMBLYOPIA

- In anisometropic amblyopia, dissimilar refractive errors in the 2 eyes cause the image on 1 retina to be chronically defocused.
- **Anisohyperopia > 1.5 D**
- **Anisomyopia of > 3.0 D**
- **Anisoastigmatism > 2.0 D is amblyopiogenic.**

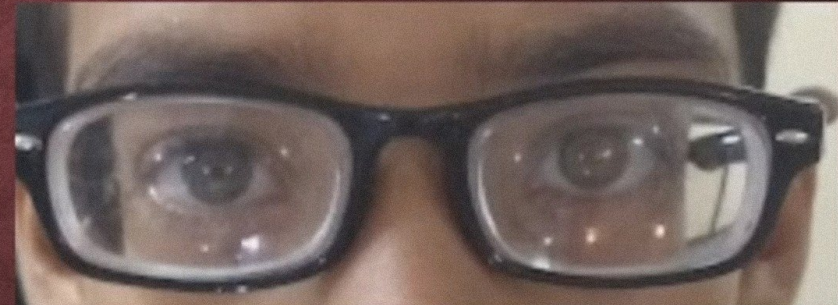


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ISOAMETROPIC AMBLYOPIA

- Isoametropic amblyopia (**bilateral ametropic amblyopia**) is a bilateral decrease in visual acuity that results from large, approximately equal, uncorrected refractive errors in the 2 eyes.
- **Hyperopia exceeding 4.00–5.00 D**
- **myopia exceeding 5.00–6.00D**

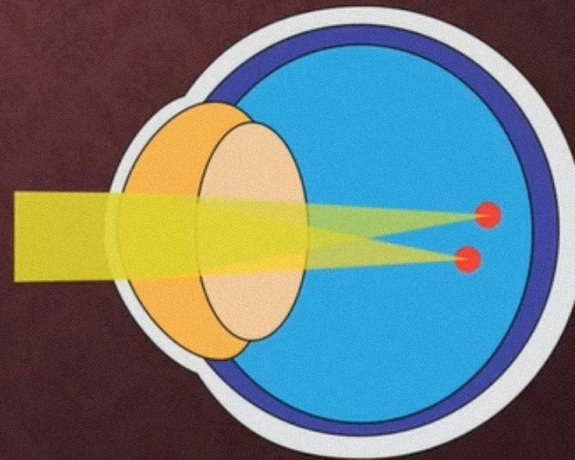


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MERIDIONAL AMBLYOPIA

- Meridional amblyopia results from uncorrected bilateral astigmatism in early childhood leading to a loss of resolving ability limited to the chronically blurred meridians.
- ❖ **more than 2.00–3.00 D of cylinder.**

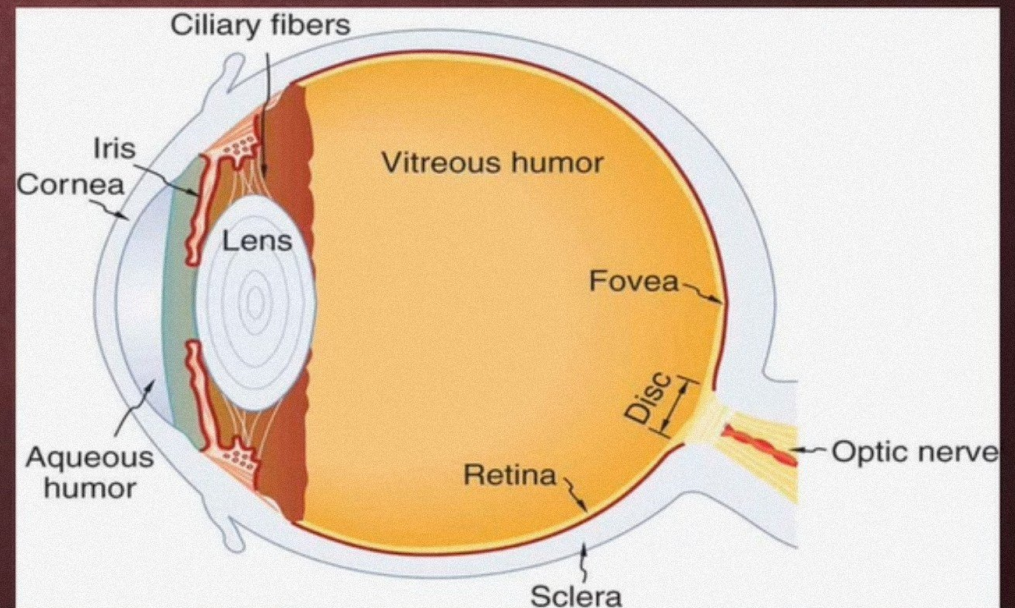


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Visual deprivation amblyopia

- **Amblyopia ex anopsia**
- Eye abnormality that obstructs the visual axis or otherwise interferes with central vision

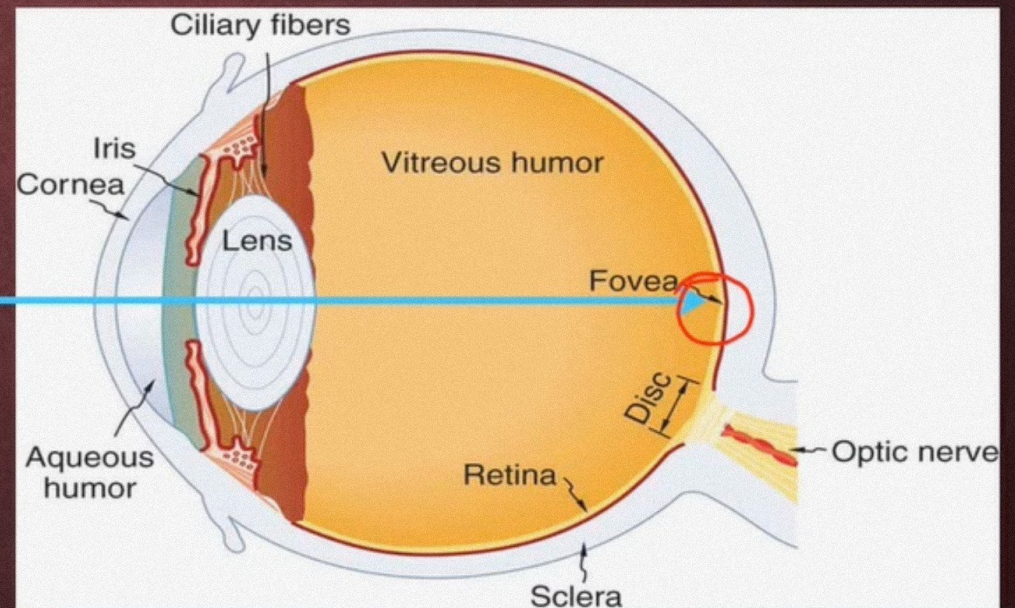


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Visual deprivation amblyopia

- **Amblyopia ex anopsia**
- Eye abnormality that obstructs the visual axis or otherwise interferes with central vision



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1. Congenital or early-acquired cataract
2. Blepharospasm
3. Surgical lid closure,
4. Unilateral complete ptosis,
5. Corneal opacities, and
6. Vitreous haemorrhage



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ORGANIC AMBLYOPIA

- Absence of gross, readily detectable anomalies in an eye with subtle, sub-ophthalmoscopic morphologic retinal damage.
- Retina is essentially normal on ophthalmoscopic evaluation but retinal or neurological damage is uncovered on further testing.

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REVERSE AMBLYOPIA

- Reverse amblyopia is a form of visual deprivation amblyopia that develops in the fellow eye as a result of patching (occlusion amblyopia) or penalization.



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IDIOPATHIC AMBLYOPIA

- Apparently normal patients with a negative history for strabismus, uncorrected refractive errors, or visual deprivation
- Von Noorden postulated that binocularly provoked inhibition has been conditioned during infancy by an amblyopiogenic factor, such as **transient anisometropia that persists** even though this original obstacle to bifoveal fusion is no longer evident

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