

TREATMENT AIMS

Treatment of Amblyopia involves following steps:

- Treat the cause of visual deprivation
- Correct any significant refractive errors
- Force the use of amblyopic eye by limiting use of the better

eye

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TREATMENT OF THE CAUSE

- Prompt removal of corneal and lenticular opacities is advocated to prevent visual deprivation amblyopia.
- Correction of significant degree of strabismus helps in achieving binocular single vision (BSV) and eliminate the cause of strabismic amblyopia.

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REFRACTIVE CORRECTION

- Guidelines based on the results of Amblyopia Treatment Studies (ATS) conducted by **Paediatric Eye Disease Investigator Group (PEDIG)**

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REFRACTIVE CORRECTION

FULL CORRECTION

- Astigmatism
- Myopia and
- Hypermetropia(squint)
- Anisometropia
- to provide equally clear retinal images.

UNDERCORRECTION

- Hypermetropia (without esotropia)
- no more than +1.5 D spherical equivalent (SE) with any reduction in plus sphere reduced symmetrically in the two eyes.

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WHY UNDER CORRECT HYPERMETROPIA ?

- Treatment is plus (convex lenses)
- Relax the accommodation
- And child uses less accommodation
- Less near work (more blur at near)
- Aggravates amblyopia

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- Two ATS studies in **3 to <7 years** children have shown that refractive correction alone can lead to mean amblyopic eye visual acuity (VA) improvement by approximately **3 lines**

And

- **Resolution of amblyopia** (equal visual acuity in both eyes or amblyopic eye visual acuity within 1 line of sound eye visual acuity) occurred in 25–33% of cases

Cotter SA. Treatment of anisometropic amblyopia in children with refractive correction. *Ophthalmology*. 2006;113:895–903.

Cotter SA, Foster N. Optical treatment of strabismic and combined strabismic-anisometropic amblyopia. *Ophthalmology*. 2012;119:150–8.

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- **3 to <10 years** old children concluded the mean improvement in binocular VA of approximately **4 lines**

- Wallace DK, Chandler DL, Beck RW et al. Treatment of bilateral refractive amblyopia in children three to less than 10 years of age. Am J Ophthalmol. 2007; 144:487-96

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LIMITING THE USE OF BETTER EYE

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LIMITING THE USE OF BETTER EYE

When patients do not respond to refractive correction alone, or VA ceases to improve, the amblyopic eye can be forced to fixate by limiting the use of better eye in following ways:

OCCLUSION THERAPY (PATCHING)

PHARMACOLOGICAL PENALISATION

BANGERTER FILTERS



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PATCHING

Occlusion of the sound eye with :-

- Adhesive patches
- Spectacle mounted occluders



to obligate the use of amblyopic eye.

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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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PATCHING DURATION

- **2 hours** is as effective as **6 hours** of daily patching for *moderate amblyopia* (VA of 6/12 to 6/24 or 20/40 to 20/80).

6 hours of daily patching is as effective as full-time daily patching in *severe amblyopia* (VA of 6/30 to 3/60 or 20/100 to 20/400).

In case of residual amblyopia after 12 weeks of 2 hours patching, increasing the duration to 6 hours led to further improvement in 40% of children.

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PATCHING AGE GROUP

- **3-7 years** (76-93%)
- **7-12 years** (53%)
- **13-17 years** (25%)



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PROBLEM WITH PATCHING

- Itching
- Poor compliance
- Teased at school
- Requires persistent encouragement

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PHARMACOLOGICAL PENALISATION

Instilling a long-acting topical cycloplegic agent, atropine sulphate (1%), into the sound eye of a child with amblyopia

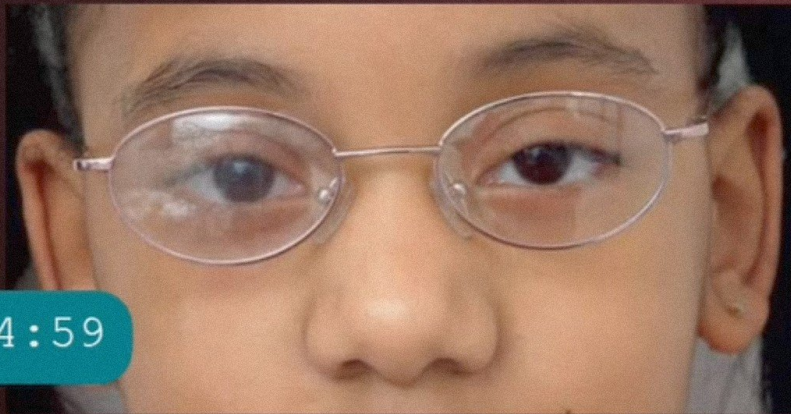
- **MODERATE AMBLYOPIA** :- daily administration of 1 drop of 1% atropine in the sound eye showed similar improvement to 6 hours of daily patching in children 3 to < 7 years old.
- **SEVERE AMBLYOPIA** of 20/125 to 20/400, weekend atropine administration led an average VA improvement of 4.5 to 5.1 lines in the age group 3 to <7 years, and 1.5 lines in the age group 7 to 12 years

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BANGERTER FILTER

- A Bangerter filter is a translucent filter that is applied to the sound eye's spectacle lens for full time wear for amblyopia treatment. Different densities of filters produce different degrees of defocus.



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APPROACH

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**DIAGNOSIS (refractive or
• strabismic)**

**Provide refractive
correction after
cycloplegia**

FOLLOW UP after 6-8 weeks

YES

NO

Continue spectacles and follow up

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**No
IMPROVEMENT**

2 hours daily patching

COMPLIANCE

Weekly once atropine

NO

**INCREASE PATCHING TO 6 hours
ATROPINE plus patching**

**Consider patching
Or
BARGERTER
FILTERS**

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**LOOK FOR ORGANIC
CAUSES OF AMBLYOPIA**

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