



CHILDREN'S EYE HEALTH

AMBLYOPIA

By Dr Christolyn Raj

What is amblyopia?

Amblyopia is the term given to poor vision or decreased vision in one or both eyes due to abnormal development of the visual system during early childhood. In amblyopia, there may not be an obvious problem of the eye and often a child will not complain of blurred vision. Poor vision develops because of underdeveloped pathways between the eye and the brain and as a result, the brain sees a blurry image. This can be fixed and the eye can be stimulated to develop with certain treatments.

What causes amblyopia?

Common causes include:

- **Strabismus:** Esotropia or exotropia or other misalignments can cause the vision in one eye to be poor
- **Refractive error:** A large or unequal amount of refractive error (glasses strength) between a child's eyes can lead to the brain processing information from one eye and not the other
- **Other factors:** Cataracts, a droopy eyelid that is worse on one side, and a scar on the cornea can all result in one eye becoming 'weaker' than the other

When should amblyopia be treated?

Early treatment is always best. Children's visual development plateaus at 8 years of age, so any treatment for amblyopia should be done before this age. For this reason, every school-age child should receive a vision screening assessment by an optometrist or ophthalmologist to assess for the presence of amblyopia.

How is amblyopia treated?

Treatments for amblyopia may include one or more of the following:

- **Glasses:** Glasses are needed to treat near-sightedness, far-sightedness, or astigmatism. These are often the first things to be treated
- **Eye patches:** This will be the next step. Depending on the severity of the amblyopia, eye patches may be worn over the 'good eye' to stimulate the weaker eye to function better. This may be done for a few hours a day usually for a number of months
- **Eye drops:** In some cases, in place of the patches a special eye drop may be used in the good eye to blur the image so that the weaker eye can be stimulated to focus. This is often done for 24-48 hours

Your ophthalmologist will discuss which is the best course of treatment for your child.



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What types of patches are available and when should they be used?

Patching is a very effective way of treating amblyopia as it allows the weaker eye to get stronger. However, it is very hard to make a young child wear a patch – it requires a lot of effort, persistence and encouragement from the parents.

An ophthalmologist should regularly check how the patch is affecting the child's vision and provide instructions on further patching. There are a variety of patches available.

Should patching be performed during school hours?

In many instances, school is an excellent time to patch, taking advantage of a non-parental authority figure. While in most instances children may not need to modify their school activities while patching, sometimes adjustments, such as sitting in the front row of the classroom, will be necessary. If the patient, teacher and classmates are educated appropriately, school patching shouldn't be a socially stigmatising experience. After school patching is also effective as parents can be vigilant in monitoring the wearing of the patch.

What if my child refuses to wear the patch?

Many children will resist wearing a patch at first (this is a common scenario). Successful patching may require persistence and plenty of encouragement from family members, neighbours, teachers, etc. Children will often throw a temper tantrum but will eventually learn not to remove the patch. Another way you can help is to provide a reward-based system where if a child patches well over a designated period they receive a treat.

Is there an alternative to patching to treat amblyopia?

Sometimes the stronger eye can be blurred to help the weaker eye get stronger. Atropine drops will temporarily blur the vision in the stronger eye and work as a great alternative to patching in selected cases. This forces the child to use the weaker eye. Your paediatric ophthalmologist will help you select the treatment regimen that is best for your child.

Can surgery be performed to treat amblyopia?

There is currently no surgery available to improve vision for amblyopia. Patching or using eye drops is the best way to improve vision in the affected eye. Surgery for misaligned eyes may be provided later for better cosmetic appearance but does not affect vision.

What happens if amblyopia is not treated?

If amblyopia is not treated, the vision in the affected eye/s will be permanently decreased causing deficits in depth perception and peripheral vision. In addition, if the stronger eye becomes injured or affected by a disease, significant lifetime disability may result. Treating amblyopia requires a team effort from ophthalmologists, eye care staff, teachers and parents to achieve a successful outcome.



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