

## Definition

Amblyopia describes poor vision attributable to improper visual development. During childhood, proper visual stimulus is required for good vision to develop. Amblyopia has three potential causes: out-of-focus vision, a turned eye, and visual deprivation. Out-of-focus vision results when one or both eyes have a substantial degree of myopia, hyperopia, or astigmatism. When a large asymmetry in focusing exists between the two eyes, the most out-of-focus eye can develop amblyopia. When one eye is turned inward or outward, the brain will suppress vision out of that eye to prevent double vision. However, the turned eye becomes amblyopic. For out-of-focus vision or an eye turn, glasses, eye patches, and sometimes dilating eye drops can strengthen the amblyopic eye when prescribed early. A less-common cause of amblyopia is visual deprivation, which may be caused by a congenital cataract or a congenitally droopy eyelid. Cataract surgery or eyelid surgery in these cases can minimize the development of amblyopia.

## Symptoms

The symptoms and signs associated with amblyopia include the following:

1. Reduced acuity in affected eye
2. Poor depth judgment
3. Head tilt/turn
4. Inco-ordination, reduced ability to direct and coordinate movement visually
5. Anisometropia
6. Strabismus

### Esotropia (crossed eye)



### Exotropia (wall-eye)



## Diagnostic Factors

Amblyopia is characterized by one or more of the following diagnostic findings:

1. Reduced acuity in the affected eye that does not normalize with the appropriate refractive prescription
2. Inability to maintain stable foveal fixation
3. Suppression of binocular vision
4. Spatial distortion
5. Reduced stereopsis
6. Reduced accommodative facility
7. Inaccurate ocular motor efficiency
8. Asymmetry in performance between the two eyes in the areas of ocular motor and visual information processing skills



NOTE: Additional testing may be appropriate as part of the differential diagnostic workup for amblyopia to rule out other concurrent medical conditions and differentiate associated visual conditions.

## Therapeutic Considerations

### A. Management

The optometrist determines appropriate diagnostic and therapeutic modalities and frequency of evaluation and follow-up on the basis of the urgency and nature of the patient's condition and unique needs. The management of the case and duration of treatment are affected by the following factors:

1. The severity of symptoms and diagnostic factors, including onset and duration of the problem
2. Implications of the patient's general health and associated visual conditions
3. Extent of visual demands placed on the individual
4. Patient compliance
5. Prior interventions
6. Other associated anomalies such as anisometropia or strabismus

### B. Treatment

A small percentage of cases are successfully managed by prescription of therapeutic lenses and/or prisms. However, most amblyopia requires orthoptics/vision therapy. Optometric vision therapy usually incorporates the prescription of specific treatments to achieve the following:

1. Eliminate any anisometropia
2. Stabilize central foveal fixation
3. Normalize visual acuity
4. Normalize monocular skills, including oculomotor, accommodative, and reaction time
5. Minimize spatial distortion
6. Eliminate suppression
7. Eliminate any strabismus
8. Integrate visual function with appropriate and accurate motor response
9. Normalize binocular function

### Duration of Treatment

The following treatment ranges are provided as a guide for third-party and review purposes. Treatment duration will depend on the particular patient's condition and associated circumstances. The NHS has only small scope for an optometrist to help a child at risk of Amblyopia, however MyEyes has the latest computer based technique for treatment.

1. The most commonly encountered amblyopia usually requires 28 to 40 hours of office therapy.
2. Amblyopia complicated by:



- a. Associated visual adaptations (e.g., abnormal retinal correspondence, eccentric fixation, spatial distortion) require additional office therapy.
- b. Associated visual anomalies (e.g., strabismus, nystagmus, and cataract) require additional office therapy.
- c. Associated conditions such as birth defects and strabismus surgery require substantially more office therapy.

### Follow-up Care

At the conclusion of the active treatment regimen, periodic follow-up evaluations should be provided at appropriate intervals. Therapeutic lenses may be prescribed at the conclusion of vision therapy for maintenance of long-term stability. Some cases may require additional therapy because of decompensation.

The cost of private treatment for Amblyopia starts from £495 – which includes access to the latest software, comfortable patches and up to 20 hours of practice time.

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