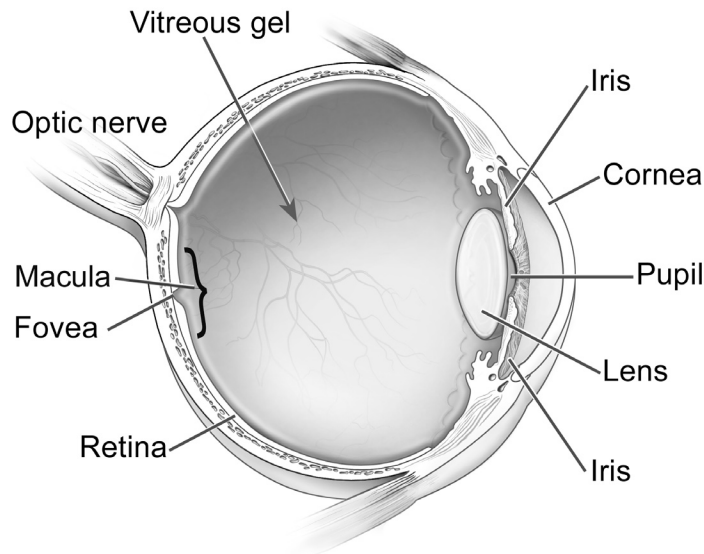


Amblyopia



Amblyopia is a leading cause of vision impairment in children and usually begins in infancy or childhood. It is a condition resulting in poor vision in an otherwise healthy eye due to unequal or abnormal visual input while the brain is developing in infancy and childhood. The condition is sometimes called “lazy eye.” The condition affects as many as three percent of children in the United States.

● What is amblyopia?

The brain and the eye work together to produce vision. Light enters the eye and is changed into nerve signals that travel along the optic nerve to the brain. Amblyopia is the medical term used when the vision in one of the eyes is reduced because the eye and the brain are not working together properly. The eye itself looks normal, but it is not being used normally because the brain is favoring the other eye. This condition is also sometimes called lazy eye.

● How common is amblyopia?

Amblyopia is the most common cause of visual impairment in childhood. The condition affects approximately 2 to 3 out of every 100 children. Unless it is successfully treated in early childhood, amblyopia usually persists into adulthood, and is the most common cause of monocular (one eye) visual impairment among children and young and middle-aged adults

○ **What causes amblyopia?**

Amblyopia may be caused by any condition that affects normal visual development or use of the eyes. Amblyopia can be caused by strabismus, an imbalance in the positioning of the two eyes. Strabismus can cause the eyes to cross in (esotropia) or turn out (exotropia). Sometimes amblyopia is caused when one eye is more nearsighted, farsighted, or astigmatic than the other eye. Occasionally, amblyopia is caused by other eye conditions such as cataract.

○ **How is amblyopia treated in children?**

Treating amblyopia involves making the child use the eye with the reduced vision (weaker eye). Currently, there are two ways used to do this:

Atropine

A drop of a drug called atropine is placed in the stronger eye once a day to temporarily blur the vision so that the child will prefer to use the eye with amblyopia. Treatment with atropine also stimulates vision in the weaker eye and helps the part of the brain that manages vision develop more completely.

Patching

An opaque, adhesive patch is worn over the stronger eye for weeks to months. This therapy forces the child to use the eye with amblyopia. Patching stimulates vision in the weaker eye and helps the part of the brain that manages vision develop more completely.

Previously, eye care professionals often thought that treating amblyopia in older children would be of little benefit. However, surprising results from a nationwide clinical trial show that many children age seven through 17 with amblyopia may benefit from treatments that are more commonly used on younger children. This study shows that age alone should not be used as a factor to decide whether or not to treat a child for amblyopia.

● **Can amblyopia be treated in adults?**

Studies are very limited at this time and scientists don't know what the success rate might be for treating amblyopia in adults. During the first six to nine years of life, the visual system develops very rapidly. Complicated connections between the eye and the brain are created during that period of growth and development. Scientists are exploring whether treatment for amblyopia in adults can improve vision.

● **National Eye Institute-Supported Research**

Findings from the clinical study, *An Evaluation Of Treatment Of Amblyopia In Children 7 To <18 Years Old (ATS3)*, show that many children age seven through 17 with amblyopia (lazy eye) may benefit from treatments that are more commonly used on younger children. Previously, eye care professionals often thought that treating amblyopia in older children would be of little benefit. Read more about the ATS3 at www.nei.nih.gov/ats3/.

The NEI is currently supporting the *Amblyopia Treatment Study: Occlusion Versus Pharmacologic Therapy for Moderate Amblyopia (ATS)* to determine whether patching or eyedrops is a better treatment for amblyopia. Recent results for the ATS found that the atropine eyedrops, when placed in the unaffected eye once a day, work as well as eye patching and may encourage better compliance. The study was conducted at 47 clinical sites throughout North America. Read more about the ATS at www.nei.nih.gov/amblyopia/.

In addition, A Randomized Trial Comparing Part-time Versus Minimal-time Patching for Moderate Amblyopia (Two v. Six) is being conducted to determine whether the visual acuity improvement obtained with part-time (6 hours) patching is equivalent to the visual acuity improvement obtained with minimal patching (2 hours) for moderate amblyopia. Recent findings show that patching the unaffected eye of children with moderate amblyopia for two hours daily works as well as patching the eye for six hours. Shorter patching time should lead to better compliance with treatment and improved quality of life for children with amblyopia. Read more about the Two v. Six study at www.nei.nih.gov/TwovSix/.

The NEI is also supporting other clinical studies on amblyopia: www.nei.nih.gov/neitrials/all-alpha.aspx

- Amblyopia Treatment Study: Occlusion Versus Pharmacologic Therapy for Moderate Amblyopia
- Amblyopia Treatment Study: A Randomized Trial to Evaluate 2 Hours of Daily Patching for Amblyopia in Children 3 to < 7 Years Old
- An Evaluation of Treatment Of Amblyopia In Children 7 To <18 Years Old (ATS3)
- An Observational Study on Recurrence of Amblyopia After Discontinuation of Treatment
- A Randomized Trial Comparing Daily Atropine Versus Weekend Atropine
- A Randomized Trial Comparing Part-time Versus Full-time Patching for Severe Amblyopia
- A Randomized Trial Comparing Part-time Versus Minimal-time Patching for Moderate Amblyopia
- Vision In Preschoolers Study (VIP Study)

● Resources

Resources can be found in the National Eye Institute's Eye Health Organizations Database at www.nei.nih.gov/health/resourceSearch.asp?Disp=1&strKey=Amblyopia.

For additional information, you may wish to contact a local library.

● Medical Literature

For information on your topic, you may wish to conduct a search of the medical literature. The National Library of Medicine (NLM) coordinates PubMed, a computerized medical literature database. You can conduct your own free literature search by accessing PubMed through the Internet at www.pubmed.gov. You may also get assistance with a literature search at a local library.

Please keep in mind that articles in the medical literature are usually written in technical language. We encourage you to share articles with a health care professional who can help you understand them.

The information provided in this Resource Guide was developed by the National Eye Institute to help patients and their families search for general information about amblyopia. An eye care professional who has examined the patient's eyes and is familiar with his or her medical history is the best person to answer specific questions.

The National Eye Institute (NEI) conducts and supports research that leads to sight-saving treatments and plays a key role in reducing visual impairment and blindness. The NEI is part of the National Institutes of Health (NIH), an agency of the U.S. Department of Health and Human Services.



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