



# Eye Consultants OF PENNSYLVANIA, PC

## ATROPINE TREATMENT FOR AMBLYOPIA

Name:

Date:

Directions: Place one drop of Atropine in the \_\_\_\_\_ eye

Saturdays and Sundays

Once per week

Once every other week

### AMBLYOPIA

Amblyopia is also known as "lazy eye." A child with amblyopia does not see well with an eye that is otherwise healthy. If not treated during childhood, amblyopia or "lazy eye" may result in permanent visual loss!

### CAUSES OF AMBLYOPIA

1. Amblyopia can be caused by strabismus, a misalignment of the eyes. In some children with this condition, the child will prefer to always use one eye instead of switching between eyes. The child may then lose vision in the eye which is not being used. This loss of vision occurs because the child's brain "shuts down the unused eye" and "forgets" how to use the eye.
2. Amblyopia may also occur if one or both eyes are very out of focus because of a need for strong glasses. A child with an eye that is far-sighted, very near-sighted, or have a large amount of astigmatism will never see a clear image. Therefore, the child's brain will never learn to correctly use this blurry eye. Treatment must include glasses or contact lenses to focus the image correctly. Glasses or contact lenses will often improve the brain's use of the eye. However, in some cases, further treatment for amblyopia is necessary.
3. In unusual circumstances, amblyopia can be caused by conditions which prevent clear light from entering the eye. These conditions include cataracts, abnormalities of the upper lid which cover the pupil, and opacities of the cornea. If not corrected in early infancy, these conditions will cause severe and permanent amblyopia.

### TREATMENT OF AMBLYOPIA

If possible, the underlying cause of the amblyopia should be corrected. Glasses or contact lenses are prescribed to focus the image correctly on the eye. Any eye disease which obstructs vision is also treated. In some cases, the child must be forced to use the amblyopic eye in order to learn to see correctly with that eye. In a sense, this exercises the child's brain and teaches the brain to use the eye properly. To teach the child's brain to use the eye properly, amblyopia treatment may involve either patching the better seeing eye or the use of eye drops to blur the vision in the better seeing eye. Patching is effective, but can be difficult in some children. Older children often resist the use of patches because of concerns about their appearance and difficulty functioning with an occluded eye.

Instead of patching, drops may be placed in the better seeing-eye in a process called pharmacologic penalization. These drops dilate the pupil of the better seeing-eye. More importantly, these drops prevent the eye from focusing properly when looking at near. Hopefully, the child will then be forced to use the amblyopic eye for near activities. In most cases, atropine drops are used for pharmacologic penalization. Atropine drops leave the pupil dilated for several days. In some children, other dilating drops will be used and their effect only lasts for a day or two.

## **LIMITATIONS OF EYE DROP TREATMENT FOR AMBLYOPIA**

The prescribed drops cause blurry vision in the better seeing-eye for near work. However, if the vision in the poorer seeing-eye is very limited, usually 20/80 or worse, the child may not switch to using the eye with the limited vision. The child will still see better with the dilated eye. In those cases, this treatment will not be effective. A follow-up visit is needed after prescribing pharmacologic penalization. At this follow-up visit, Dr. Goldberg will determine if the child has really switched to using the amblyopic eye at near. Please use the drops the night before the planned follow-up visit so your eye doctor can see if the drops are being effective.

It can be very difficult to patch an older child with very poor vision in an amblyopic eye. These older children are often very resistant to wearing a patch. Unfortunately, these are the very children in which eye drop therapy for amblyopia will not be effective.

Atropine's effect comes from blurring the vision of the better seeing eye for near work. Therefore, the drops will not effectively treat amblyopia if the child is wearing a bifocal. The child will still be able to use the bifocal to see well at near despite the use atropine.

Atropine does not blur distance vision as much as vision at near. Therefore, most children can function in school. Please discuss with Dr. Goldberg and the school any concerns about your child's function in class while using the drops.

Atropine eye drop treatment for amblyopia has mainly been studied in children 3 years of age and older. In younger children, Dr. Goldberg may recommend the use of weaker dilating drops or patching.

Atropine drops have been associated with the development or worsening of "crossed eyes" or esotropia. If you think your child's eyes are crossing, or crossing more, with the drops, please contact your eye doctor.

Prolonged use of atropine can cause amblyopia in the eye receiving the medication. Regular monitoring is essential to ensure the drops do not cause amblyopia in the better seeing-eye.

## **USE OF ATROPINE DROPS**

The eye drops are applied by having the child look up. The lower lid is then pulled down to make a "pocket" between the eye and lower lid. One drop is then placed in this pocket between the lower lid and eye. Please do not touch the tip of the dropper bottle to the eye. Store the bottle out of the reach of young children. Only one drop is needed. After placing the drop, the child should close the eyes. Apply pressure to the tear duct between the eye and nose for one minute to prevent the drops running down the tear duct and into the nose. This will prevent absorption of the drops into the nasal mucosa and blood stream. In young children, it is much easier to have two adults apply the drops. While your child's pupil is dilated, your child should wear sunglasses outdoors. If your child's resists the drops, you can place the drops in the child's eye while sleeping. The drops will still be effective the next day. Do not put the drops in your own eye or your pupil will remain dilated for several days. Eye drops can occasionally cause side effects. If side effects occur, please stop using the drops and contact Dr. Goldberg. The drops can cause fever or flushing, particularly in younger children. Prolonged use can occasionally lead to a topical allergic reaction. The skin of the eyelids may become red. If this occurs, stop the drops and contact Dr. Goldberg. Very occasionally, treatment with dilating drops may cause behavioral changes. Please stop the drops if you feel your child is having any change in behavior due to the drops.

If you have any questions or concerns please contact  
Dr. Goldberg  
at Eye Consultants of PA  
610-378-1344.