

Accommodative Esotropia

Accommodative esotropia is an eye alignment disorder wherein inappropriate eye crossing (*esotropia*) occurs in response to excessive focusing effort.

In a normal relaxed eye with no refractive error, distant objects are in focus but near objects are out of focus. In order to see a near object clearly, a person with normal eyes must exert *accommodative effort* to change the shape of the lens in the eye and bring the near object into focus.

In farsightedness (*hyperopia*), the eye is shorter than it should be. Distant objects are out of focus and near objects are even more out of focus. Farsighted persons can compensate for small amounts of hyperopia by subconsciously exerting accommodative effort to bring distant objects into focus. Even more accommodative effort must be exerted to bring near objects into focus. Children and younger adults can usually exert this extra effort without any problem. Higher amounts of hyperopia require proportionally greater amounts of accommodative effort to see clearly. In some persons this extra focussing effort can trigger an eye crossing reflex. The resulting inward crossing of the eyes is called *accommodative esotropia*.

What are the signs of accommodative esotropia?

The number one sign of accommodative esotropia is a noticeable inward crossing of the eyes. Sometimes this crossing is subtle and may only be noticeable when the child is concentrating on a near object or when the child is tired or ill. Occasionally a child may close or rub one eye. Rarely, some children may also complain of double vision. Accommodative esotropia can begin anywhere from six months to six years of age with most children presenting at two to three years of age.

How is accommodative esotropia treated?

In most cases, accommodative esotropia can be completely treated by glasses to correct farsightedness. As long as the child wears the proper corrective lenses he or she will no longer need to exert accommodative effort in order to see clearly. Thus, the crossing reflex will not be triggered and the eyes will remain straight. If the glasses are removed, the child will again have to exert accommodative effort, which will trigger the eye crossing reflex.

Why are bifocals sometimes necessary?

In some children the amount of eye crossing is greater when focussing on a near object than when focussing at distance.

In this situation, regular glasses will not fully correct the extra crossing that occurs at near and a bifocal may be necessary. If needed, bifocals usually must be worn for several years. The bifocals can usually be discontinued in the early teenage years after which most children can be maintained with standard glasses or contact lenses.

Is muscle surgery necessary?

Surgery is necessary only if glasses or bifocals do not fully straighten the eyes. In this situation, surgery is done to realign the eyes to keep them straight when glasses are being worn. Muscle surgery however does not eliminate the need for glasses.

Can my child outgrow this problem??

Farsightedness will often increase gradually until about age eight, after which it usually begins to decrease. By their teenage years a few children may be able to maintain straight eyes and good vision without glasses or contacts. Many children will need to wear glasses or contacts to control the crossing even into adulthood.

Is there a role for refractive surgery?

Once a child is fully grown and the eyes are no longer changing (usually by age 18 to 22), refractive surgery to correct mild to moderate amounts of farsightedness is an option. Standard LASIK surgery can comfortably correct up to four diopters of hyperopia and newer wave-front LASIK techniques can correct up to about six diopters. Continuing improvements in LASIK and other vision correction surgeries will allow correction of even larger amounts of hyperopia in the future.

What happens with no treatment?

If accommodative esotropia is not treated promptly and completely, vision and depth perception may not develop normally, resulting in amblyopia, or "lazy eye." In this event the poor vision may become permanent and be impossible to correct with glasses or surgery. It is therefore critical that children with accommodative esotropia wear their glasses at all times and be followed regularly by their ophthalmologist until such time as their visual system has fully developed and the risk of developing amblyopia has passed. 