

STRABISMUS (in children)

What is strabismus?

Strabismus is a visual defect in which the eyes are misaligned and point in different directions. One eye may look straight ahead, while the other eye turns inward, outward, upward, or downward. The eye turn may be constant, or it may come and go. Which eye is straight (and which is misaligned) may switch or alternate. Strabismus is a common condition among children.

About 4 percent of all children in the United States have strabismus. It can also occur later in life. Strabismus occurs equally in males and females. It may run in families; however, many people with strabismus have no relatives with the problem.

How do the eyes work together?

With normal vision, both eyes aim at the same spot. The brain then combines the two pictures into a single three-dimensional image. This three-dimensional image gives us depth perception. When one eye is out of alignment, two different pictures are sent to the brain. In a young child, the brain learns to ignore the image of the misaligned eye and sees only the image from the straight or better-seeing eye. The child then loses depth perception.

Adults who develop strabismus often have double vision because their brains have already learned to receive images from both eyes and cannot ignore the image from the turned eye. A child generally does not see double.

Amblyopia:

Good vision develops during childhood when both eyes have normal alignment. Strabismus may cause reduced vision, or amblyopia, in the misaligned eye. The brain will pay attention to the image of the straight eye and ignore the image of the crossed eye. If the same eye is consistently ignored during early childhood, this misaligned eye may fail to develop good vision, or may even lose vision.

Strabismic amblyopia occurs in approximately half of the children who have strabismus. Amblyopia can be treated by patching the “good” eye to strengthen and improve vision in the weaker eye. If amblyopia is detected in the first few years of life, treatment is usually successful. If treatment is delayed, amblyopia may become permanent. As a rule, the earlier amblyopia is treated, the better the result for vision.

What causes strabismus?

The exact cause of strabismus is not fully understood. Six eye muscles, controlling eye movement, are attached to the outside of each eye. In each eye, one muscle moves the eye to the right, and one muscle moves the eye to the left. The other four muscles move it up or down and at an angle. To line up and focus both eyes on a single target, all of the muscles in each eye must be balanced and working together. In order for the eyes to move together, the muscles in both eyes must be coordinated. The brain controls these eye muscles. Strabismus is especially common among children with disorders that may affect the brain, such as:

- cerebral palsy;
- Down syndrome;
- hydrocephalus;
- brain tumors;
- prematurity.

A cataract or eye injury that affects vision can also cause strabismus. The vast majority of children with strabismus, however, have none of these problems. Many do have a family history of strabismus.

What are the signs of strabismus?

The main sign of strabismus is an eye that is not straight. Sometimes children will close one eye in bright sunlight or tilt their head to use their eyes together.

How is strabismus diagnosed?

Strabismus can be diagnosed during an eye exam. It is recommended that all children between 3 and 3½ years of age have their vision checked by their pediatrician, family practitioner, or an individual trained in vision assessment of preschool children. Any child who fails this vision screening should then have a complete eye exam by an ophthalmologist. If there is a family history of strabismus or amblyopia, or a family history of wearing thick eyeglasses, an ophthalmologist should check vision even earlier than age 3.

What is pseudostrabismus?

The eyes of infants often appear to be crossed, though actually they are not. This condition is called pseudostrabismus. Young children often have a wide, flat nose and a fold of skin at the inner eyelid that can make the eyes appear crossed. This appearance of pseudostrabismus generally improves as the child grows. A child will not outgrow true strabismus. An ophthalmologist can distinguish true strabismus and pseudostrabismus.

How is strabismus treated?

After a complete eye examination, an ophthalmologist can recommend appropriate treatment. In some cases, eyeglasses can be prescribed for your child to straighten the eyes. Other treatments may involve surgery to correct the unbalanced eye muscles. Covering or patching the strong eye to improve amblyopia is often necessary. Treatment for strabismus works to straighten the eyes and restore binocular (two-eyed) vision.

Most common types of strabismus:

congenital esotropia

Congenital esotropia, where the eyes turn inward, is the most common type of strabismus in infants. Congenital esotropia first appears sometime within the first six months of life.

In the first months of life, it is common for the eyes to intermittently become misaligned. If a misalignment of the eyes persists after the first few months, a consultation with an ophthalmologist is necessary. In most cases, early surgery can align the eyes.

accommodative esotropia

Accommodative esotropia is a common form of esotropia that occurs in children usually 2 years or older. In this type of strabismus, when the child focuses the eyes to see clearly, the eyes turn inward. This crossing may occur when focusing at a distance, up close, or both. Glasses reduce the focusing effort and often straighten the eyes. Sometimes bifocals are needed for close work. If crossing of the eyes persists with the glasses, surgery may be required.

exotropia

Exotropia, or an outward-turning eye, is another common type of strabismus. It occurs most often when a child is focusing on distant objects. The exotropia may occur only from time to time, particularly when a child is daydreaming, ill, or tired. Parents often notice that the child closes or partially closes one eye in bright sunlight. Although glasses, exercises, patching, or prisms may reduce or help control the outward turning eye in some children, surgery is often needed.

How is strabismus surgery done?

The eyeball is never removed from the socket during any kind of eye surgery. The ophthalmologist makes a small incision in the tissue covering the eye to reach the eye muscles. The eye muscles are detached from the wall of the eye and repositioned, depending which way the eye is turning. It may be necessary to perform surgery on one or both eyes. When strabismus surgery is performed on children, a general anesthetic is required. Recovery time is rapid. Children are usually able to resume their normal activities within a few days.

After surgery, glasses may still be required. In some cases, more than one surgery may be needed to straighten the eyes. As with any surgery, eye muscle surgery has certain risks, but surgery is usually a safe and effective treatment for strabismus. It is not, however, a substitute for glasses or amblyopia therapy.