

## Strabismus

### What is strabismus and how common is it?

Strabismus is any misalignment of the eyes. It is estimated that 4% of the U.S. population has strabismus.

### Are there different types of strabismus and if so, how are they named?

There are many different types of strabismus. Strabismus is most commonly described by the direction of the eye misalignment. Common types of strabismus are [esotropia](#), [exotropia](#), and hypertropia.

Strabismus can also be described by its cause. Three of the twelve cranial nerves (III, IV, VI) are responsible for eye movement can be weak or palsied and cause [strabismus](#). Some examples of this type of strabismus include [third nerve \(III\) palsy](#) and [superior oblique \(IV\) palsy](#).

Special patterns of strabismus can have unique names such as [Brown syndrome](#), and [Duane syndrome](#).

### What are the types of horizontal strabismus?

Esotropia is inward turning of the eyes (aka "crossed eyes"). Types of esotropia include [infantile esotropia](#), [accommodative esotropia](#) (related to farsightedness) and [sixth nerve palsy](#). Exotropia is the term used to describe outward turning of the eyes (aka "wall-eyed") [See figures 1 and 2].



**Fig. 1:** Large-angle infantile-onset esotropia.



**Fig. 2:** Child with exotropia of the right eye.

### **What are the types of vertical strabismus?**

The terms [hypertropia](#) and hypotropia are used to describe vertical misalignment. Hypertropia is an abnormal eye higher than the normal eye. Hypotropia is when the abnormal eye is lower than the normal eye. The terms can generally be interchanged depending upon which eye is being described.

### **What causes strabismus?**

Most strabismus is the result of an abnormality of the neuromuscular (including brain) control of eye movement. Our understanding of these control centers in the brain remains incomplete. Less commonly, a problem with the actual eye muscle may cause strabismus.

### **How is strabismus related to poor vision?**

Eye misalignment can cause [amblyopia](#) in children. When the eyes are oriented in different directions, the brain receives 2 different visual images. The brain may ignore the image from the misaligned eye to avoid double vision, resulting in poor vision development of that eye. Also, an eye that sees poorly may become misaligned.

### **Who develops strabismus as a child?**

Strabismus often occurs in children who are otherwise completely normal. However, disorders that affect the brain such as cerebral palsy, [Down syndrome](#), hydrocephalus and brain tumor are more likely to develop strabismus.

### **What adult disorders cause strabismus?**

Stroke or vascular problems may cause strabismus in adults. Trauma, neurological problems, and Graves disease ([thyroid eye disorders](#)) are other common causes of strabismus.



## **How does trauma cause strabismus?**

Trauma can cause strabismus by:

1. brain damage that impairs control of eye movement,
2. damage of the nerves that control eye movement and/or
3. damage of the eye muscles either directly or secondarily from trauma to the eye socket.

## **How is strabismus treated?**

The goal of strabismus treatment is to improve eye alignment which allows for the eyes to better work together (binocular vision). Treatment may involve eye glasses, eye exercises, prism, and/or eye muscle surgery. Problems associated with strabismus (including [amblyopia](#), [ptosis](#), and [cataract](#)) are usually treated prior to eye muscle surgery.

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