

OPTION 1

Squint or strabismus: Causes and treatment

A squint, or strabismus, is a condition in which the eyes do not align properly. One eye turns inwards, upwards, downwards, or outwards, while the other one focuses at one spot.

It can happen all the time or intermittently.

This usually occurs because the muscles that control the movement of the eye and the eyelid, the extraocular muscles, are not working together.

As a result, both eyes are unable to look at the same spot at the same time.

It can also happen because a disorder in the brain means that the eyes cannot correctly coordinate.

Strabismus also makes binocular vision impossible, so it is harder for the person to appreciate depth perception.

Types of strabismus

There are different types of strabismus. They can be described by the cause or by the way the eye turns.

The following terms describe strabismus by the positions of the eye:

- **Hypertropia** is when the eye turns upwards
- **Hypotropia** is when the eye turns downwards
- **Esotropia** is when the eye turns inwards
- **Exotropia** is when the eye turns outwards

An early diagnosis of strabismus will enable more effective treatment. In the past, it was thought that after a "critical period", strabismus could not be treated.

While treatment up to the age of 6 years is believed to be most effective, strabismus can be treated at any time.

Signs and symptoms in children

The sign of a squint is fairly obvious from an early age. One of the eyes does not look straight ahead. A minor squint may be less noticeable.

Infants and newborns may go cross-eyed, especially if they are tired. This does not mean that they have a squint. Parents can check with their doctor.

If a child has one eye closed, or turns their head when looking at you, this could be a sign of double vision, and a possible squint. It is a good idea to see a doctor.

Strabismus is normally either present at birth or it develops in the first 6 months after birth.

Lazy eye

Untreated, it can lead to amblyopia, or "lazy eye," in which the brain starts ignoring input from one of the eyes.

The brain ignores one of the eyes to avoid double vision.

If there is poor vision in the affected eye, a child may benefit from wearing a patch over the other eye to encourage the vision to develop.

Sometimes a squint that was treated successfully in childhood returns later in adulthood.

This may lead to double vision in the adult because, by that time, the brain has been trained to gather data from both eyes, so it cannot ignore one of them.

Causes

Strabismus can be:



- **congenital**, meaning a person is born with it
- **hereditary**, or running in families, suggesting a genetic link
- the result of an illness or long-sightedness
- due to a lesion on a cranial nerve

If the eye cannot focus the light as it comes in through the lens, this is known as a refractive error.

Other problems that can lead to strabismus include:

- **myopia**, or short-sightedness
- **hypermetropia**, or long-sightedness
- **astigmatism**, where the cornea is not curved properly

A refractive error tends to make the affected eye turn inward, in an attempt to get better focus.

Strabismus that results from refractive errors tends to emerge later on, usually around the age of 2 years or older.

Diagnosis and treatment

Children and babies should have routine eye checks as they develop. It can be started with eye tests at 9 months, or earlier if the child has a constant eye turn.

If there are signs of strabismus, the physician or optician will refer the child to an ophthalmologist.

The ophthalmologist will probably use eye drops that dilate the pupils before the test is done.

The Hirschberg test, or Hirschberg corneal reflex test, is used to assess whether the patient has strabismus.

The ophthalmologist shines a light in the eye and observes where the light reflects from the corneas.

If the eyes are well-aligned, the light will go to the center of both corneas. If it does not, the test can show whether the patient has exotropia, hypertropia, esotropia or hypotropia.

Some people may have more than one tropia at the same time.

Treatment options

Prompt treatment reduces the risk of complications, such as amblyopia, or lazy eye. The younger the patient is, the more effective treatment is likely to be.



Treatment options include:

- **Glasses:** If hypermetropia, or long-sightedness, is causing the squint, glasses can usually correct it.
- **Eye patch:** Worn over the good eye, a patch can get the other eye, the one with the squint, to work better.
- **Eye drops** and **eye exercises** may help.

Surgery is only used if other treatments are not effective. It can realign the eyes and restore binocular vision. The surgeon moves the muscle that connects to the eye to a new position. Sometimes both eyes need to be operated on to get the right balance.

OPTION 2

Paediatric Ophthalmology & Squint

The Pediatric ophthalmology and strabismus department treats premature infants and children less than 16 years. Our Kids Vision Club has all required facilities to treat and manage complex vision problems among children. The ailments treated are refractive errors needing eye glasses, amblyopia (lazy eye), strabismus (crossed eyes), eye infections, eye allergies, watering from the eyes due to blocked tear ducts and childhood cataract, besides others.

The department co-manages disorders like lid-drooping and retinopathy of prematurity with other specialty departments.

The department has a fully functional Orthoptic facility with computerized vision therapy to treat eye muscle weakness.

Low vision aids and visual rehabilitation facilities are also available for those with very poor vision and developmental issues.

[Childhood cataract](#) [Vision Therapy](#) [Refractive Error](#)

Childhood cataract

Cataract is one of the leading causes of childhood blindness

What is a cataract?

Cataract is a clouding or opacification of the eye's lens. This prevents light rays from reaching the retina and thus impairs vision.

What are the causes of childhood cataract?

While in most cases there is no specific cause, some children may have associated diseases involving other parts of the body. These may be investigated for if suspected by the doctor

How do I get to know that my child has a cataract?

While an advanced cataract may be obvious with a white reflex from the pupil of the eye, an early cataract may be difficult to identify, unless the child is evaluated by an ophthalmologist.

In cases in which the cataract affects only one eye, it may be even more difficult to suspect, since the child carries out all his activities with the normal fellow eye.

What is the treatment? If surgical, can I wait for my child to grow up before I consider getting him operated?

While certain types of cataract do not progress and need just monitoring to detect any increase in the opacification of the lens, there are others that would need immediate surgery. Any child with a significant cataract needs **prompt** surgery as soon as it is detected. This would ensure that the child's vision develops to its maximum potential. Delay in surgery can cause irreversible loss of vision.

Will my child need glasses after the surgery?

Yes. Even if an intraocular lens (IOL) has been put in the eye, the child will need glasses. (See PIL on eyeglasses in children)

However, if an IOL has not been put the child would need thick glasses (aphakic) to see clearly. Contact lenses are also an option.

After surgery, will he need any further medical or surgical treatment?

Yes. Some children with a cataract in one eye may need treatment for 'lazy eye' (See PIL on amblyopia). All children need to be regularly monitored for glaucoma and the need for change of glasses.

Further, at a later date, some may develop a membrane in the eye after the surgery, that may need to be removed by laser or surgery.

When should you bring your child for a check-up?

Your pediatrician should examine your child's eyes during the first year of life. If he suspects any abnormality or there is a family history of squint, childhood cataract or any other eye disorder, your child needs a thorough evaluation by a pediatric ophthalmologist at the earliest

Even in a child with apparently normal vision a comprehensive eye examination by the 4th birthday is recommended and every 2 years thereafter. **Certainly by pre-school your child should have regular eye examinations to maintain proper eye health.**

Some of the warning signs that should prompt a visit to the ophthalmologist are-

1. One eye turns in toward the nose or wanders outwards, either constantly or occasionally; eyes that do not appear to look in the same direction
2. Child tilts or turns head or chin when looking intently
3. One eye closes occasionally, especially when the child is outside
4. Eyes vibrate
5. Child covers one eye to look at things
6. Squeezes eyes nearly closed to see
7. Cannot identify things across the room or farther away
8. Frequent rubbing of eye
9. Discharge from eyes or teary eyes, when not crying
10. Droopy eyelids
11. A white pupil in either or both eyes

1. What is strabismus /"squint"?

When both the eyes are not aligned together as they are expected to be, we call it a strabismus. (Commonly called 'cross eyes')

2. At what age does it occur?

Strabismus can occur at any age, sometimes even at birth.

3. Can strabismus be seen by the caregivers?

While some cases of strabismus are very obvious, others occur intermittently or are mild and may not be as obvious to caregivers.

4. How can one prevent strabismus?

One cannot prevent strabismus. It is essential to detect it at the earliest by a routine eye evaluation by a specialist.

5. What is the treatment of strabismus?

Strabismus is of many types. Depending on the type of strabismus treatment may be eye muscle exercises, eyeglasses and or surgery.

6. What if one does not get strabismus treated?

Delay in treatment could lead to decrease of vision and depth perception.

Vision Therapy

Vision Therapy uses specific [computerized treatment programs](#). to successfully treat many eye related problems, like “lazy eye”, mild squint, weakness in eye muscles, Computer Vision Syndrome, difficulty in depth perception and learning disabilities due to defective vision.

How does vision therapy help your eyes?

You can think of vision therapy as physical therapy for the eyes and the brain. We see with our brain and mind, and not just our eyes. In vision therapy, there is vision training and rehabilitation of eye brain connections, to enable the eyes to become stronger permanently.

How does one recognize the need for vision therapy?

1. If you suffer from eyestrain, headaches, blurred vision, double vision, difficulty in concentrating while reading, you could be suffering from weakness of the eye muscles. Vision therapy can definitely help you.
2. If your child has 'lazy eye' due to any reason, whether a squint, previous eye surgery, or a high glass number, vision therapy is likely to be beneficial.
3. If your child has difficulty in perceiving letters due to any neurological problem, it is worthwhile trying vision therapy to improve vision.

How is vision therapy done?

Vision therapy is a form of graded exercise program on the computer, specifically tailored to address the visual needs of a particular patient.

The patient can either do the exercises in the hospital with us on a ½ hour basis daily or take a CD home and have daily ½ hourly sessions at home, which are customized. The usual duration of the treatment is 3 to 4 months.

We can monitor the therapy from the hospital over internet and communicate with the patient.

The patient may be asked to come over for evaluation on a weekly or a fortnightly basis to assess the improvement.

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Spectacles for children and infants Guidelines for parents/caregivers

What is refractive error?

Refractive error is a condition wherein the rays of light do not form a focused image at the correct plane in the eye. Myopia or 'far sightedness' is seen in about 30 out of every 100 persons in the population, with a much higher prevalence in school going children.

Hypermetropia or 'near sightedness' is less common, but if not detected early it is more damaging to vision. Both show a familial tendency. So families with history of these disorders should get their children evaluated early.

Why is it important to treat it at the earliest?

This is usually a minor disorder, as it can be easily rectified with the use of glasses. However, if undetected for long, it can permanently affect development of vision.

What is the treatment?

Use of spectacles is the simple answer in a vast majority. However, if it has been detected late in a child with either a 'high number' or a significant difference in the spectacle number between the two eyes, there may be a significant weakness in the vision of the eye with the larger number-the so called 'lazy eye.' This may need occlusion therapy. (Described below)

When should you suspect that your child has a refractive error?

If you find that your child is unable to see things that are at a distance clearly, rubs or squeezes his eyes often, has repeated styes' in the eye, adopts a different head posture with tilting of the head or chin when focusing on anything intently, it is quite likely, that your child needs to be evaluated to rule out a refractive error.

Can a baby's eyes be tested satisfactorily for glasses?

Yes, after using dilating drops to dilate the pupil, the baby's eyes are checked up with an instrument called retinoscope. This method can assess accurately if the baby has a need for glasses.

What are the kinds of frames that are suitable for children?

Plastic glasses with plastic frames are safe for children, though plastic is more prone to scratches. Rolled or flared nose pads ensure that the glasses do not slide down the child's nasal bridge.

Cable temples secure glasses by curling around the ears. They are very convenient especially in hyperactive children.

In infants' glasses, straps are used in place of ear pieces. These straps go around the back and over the top of the head. This ensures stability of the glasses in all positions.

Plastic or polycarbonate lenses are lighter and safer than glass lenses and hence preferable in children.

Those children who play a lot of contact sports or activities associated with a high risk of injury, should get special protective glasses and frames.

How can you care for your child's glasses?

Children should be taught to remove their glasses with both hands, to avoid wear and tear on the temples. Cleaning should be done with water or a liquid soap and soft cloth. The glasses should not be kept with face down.

When should your child undergo a regular eye check- up to assess vision and the need for spectacles?

According to the guidelines laid down by American Academy of Ophthalmology, all children should have a comprehensive eye examination by their 4th birthday, if vision appears to be developing normally, and every 2 years thereafter.

Certainly by pre-school your child should have regular eye examinations to maintain proper eye health.

When should you bring your child for a check-up?

Your pediatrician should examine your child's eyes during the first year of life. If he suspects any abnormality or there is a family history of squint, childhood cataract or any other eye disorder , your child needs a thorough evaluation by a pediatric ophthalmologist at the earliest.

Even in a child with apparently normal vision a comprehensive eye examination by the 4th birthday is recommended and every 2 years thereafter. Certainly by pre-school your child should have regular eye examinations to maintain proper eye health.

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9. Discharge from eyes or teary eyes, when not crying
10. Droopy eyelids
11. A white pupil in either or both eyes
12. Any difference in size, shape or color of any part of the eye (i.e. pupil) or eyelids