

Indian Academy of Pediatrics (IAP)



GUIDELINES FOR PARENTS

When to Suspect Visual Impairment and Care of a Child with Visual Impairment?

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10 FAQs on WHEN TO SUSPECT VISUAL IMPAIRMENT AND CARE OF A CHILD WITH VISUAL IMPAIRMENT?

1. How do I know that my baby cannot see?
2. What causes my baby to have visual impairment?
3. Will my baby ever be able to see normally/without glasses?
4. Are there any food supplements that should be included in my baby's diet to prevent or treat low vision?
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6. Can my baby with low vision lead a normal life?
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8. Can my baby wear contact lenses instead of using glasses?
9. Does watching TV, reading from near, and using mobile phone cause visual impairment/refractive error?
10. What measures should I take to prevent worsening of the present visual status of my baby?

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When to Suspect Visual Impairment and Care of a Child with Visual Impairment?

Q1

How do I know that my baby cannot see?

A young child almost never complains of decreased vision herself, but a few indicators might help the parents to identify, if there is anything amiss.

- A baby with impaired vision would not follow face or an object or make eye contact with familiar faces.
- There might be jerky side-to-side movements of the eye (nystagmus), drifting of one or both eyes toward nose or outward (squint; **Fig. 1**), white spot in the black part of the eye, or absence of blinking reflex to bright light being turned on.
- Older children may hold things very close to their face, assume an abnormal head posture with face turn or head tilt or cover one eye or squint when focusing, frequently rub their eyes, have recurring eye infections such as stye, complain of eye pain and headache, or have trouble coping up with school-work.



Fig. 1: A 9-year-old child having inward deviation of both eyes, right more than left noticed by parents for 1 year.

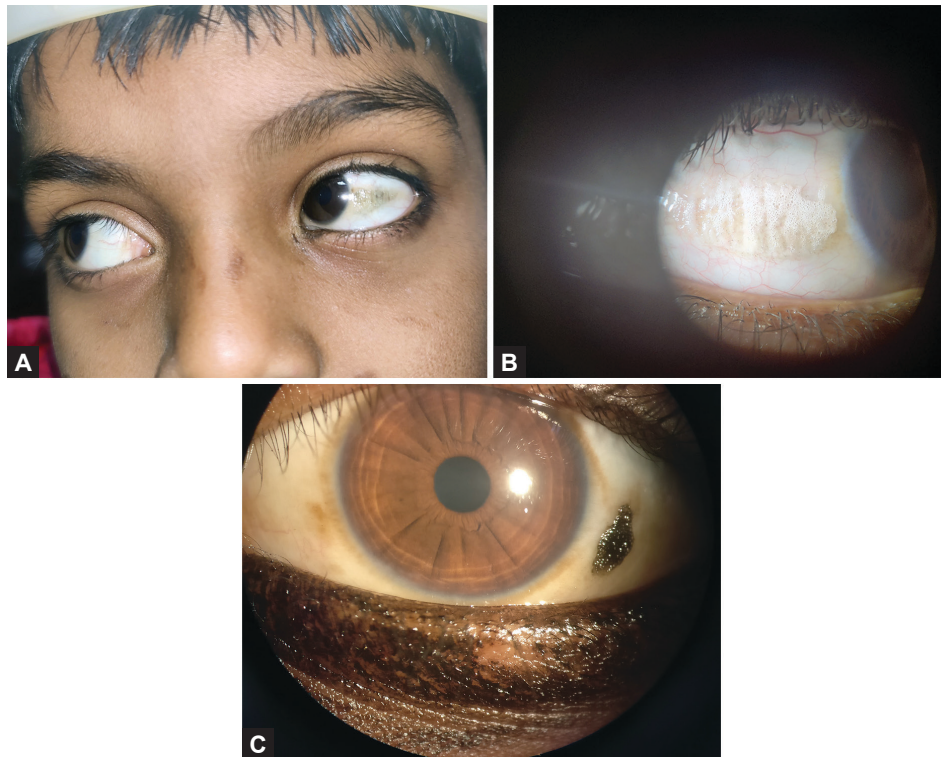
If not recognized in time or left untreated, visual impairment in children can lead to difficulties in development and education, and may result in permanent visual loss, even if the cause is treated.

Q2

What causes my baby to have visual impairment?

Vision impairment in your baby can be present at birth or it can develop later as a result of some eye disease, injury, or a general medical condition.

- Some treatable causes of decreased vision in your child could be refractive errors (need for glasses), vitamin A deficiency (**Figs. 2A to C**), squint, congenital cataract (opacity of lens; **Figs. 3A and B**), congenital glaucoma (raised eye pressure and optic nerve damage; **Fig. 4**), eye tumor, retinal diseases (especially in premature babies who needed hospitalization or ICU care after birth as they are at risk of developing retinopathy of prematurity), eye infections, and eye injuries.
- Some viral infections in mothers during pregnancy (rubella, cytomegalovirus, and toxoplasmosis) can also lead to incomplete structural and functional development of eye resulting in visual loss.
- Other causes can be related to conditions that affect the parts of the brain that control sight (cortical vision impairment), damage to pathways between eye and brain (tumor, trauma, or infection) or genetic diseases (retinitis pigmentosa, color blindness, and retinal dystrophies).



Figs. 2A to C: Bitot spot (A) seen as a sign of vitamin A deficiency. It is white-colored triangular lesion (B), but due to prevalent practice of applying kajal, black deposits are often seen (C).

All these suspected cases should undergo a complete eye examination for screening, as early detection is the key to effective treatment.



Figs. 3A and B: White reflex in the center of the eye due to congenital cataract of the left eye (A). Both eyes having congenital cataract with squint as a result of sensory deprivation (B).



Fig. 4: A 1.5-year-old child with congenital glaucoma. The parents noticed that the child has large cornea, excessive watering from eye, and he keeps his face buried in the pillow or mother's shoulder (due to marked photophobia).

Q3

Will my baby ever be able to see normally/ without glasses?

In cases of uncorrected refractive errors (myopia, commonly known as *short sightedness*; hypermetropia, commonly known as *farsightedness*), glasses help your baby to see normally.

- If there is delay in identification of refractive error, even with glasses your child might have a poor vision in one or both her eyes (*amblyopia* or lazy eye).
- It is important at this stage to make her wear glasses regularly and start amblyopia therapy (patching the good eye and performing visual tasks with glasses on), for normal visual development and prevention of permanent visual impairment.
- Visual acuity develops rapidly within the first year of life and remains plastic within the first decade. Amblyopia occurs, if this rapid maturation process is disturbed due to any reason (clear image not being formed on the retina). The degree of visual system plasticity lessens as the child grows, and so do the chances of recovering vision. Therefore, the earlier amblyopia is detected, the more successful treatment will be.

As a parent, your primary concern should be a good vision in your child, and not cosmetic relief to get rid of the glasses in these years of maturation.

Q4

Are there any food supplements that should be included in my baby's diet to prevent or treat low vision?

It is widely believed that eating carrots can dramatically improve vision and help to get rid of glasses. Carrots are rich in beta-carotene which is converted into vitamin A by the body.

Vitamin A is necessary for maintaining normal vision and most children get enough in their regular diet. But, growing children with poor diet, malabsorption problems, or intestinal infections can have low levels of vitamin A enough to affect vision. In such situations, including rich sources of vitamin A in your child's diet can be helpful. Some common sources of vitamin A are green leafy vegetables, dark-colored fruits and vegetables (carrots and papaya), and fortified rice.

It is also important to remember that vitamin supplementation will help only in cases of vitamin A deficiency which have specific signs and symptoms (e.g., dryness, Bitot spot, corneal melting, and night blindness). Those who do not have deficiency will not gain any benefit from added vitamin A.

No food supplement can dramatically improve your child's eyesight or provide spectacle independence.

Q5

Are there any eye drops or exercises to correct visual impairment/refractive errors?

Irrational use of eye drops can result in microbial resistance, poor treatment outcome, adverse reactions, disease progression, delay in diagnosis, and finally may lead to loss of vision.

- Misuse of eye drops such as steroids can aggravate existing infections and may lead to blindness (steroids can cause glaucoma and cataract).
- *You are strictly advised against any self-medication practice or use of home remedies to apply rose water, kajal, honey, juice of squeezed plant leaves, lime juice, turmeric, kerosene, toothpaste, breast milk and urine into the eyes of the baby. Use of these substances may cause permanent damage to different parts of eye or may introduce infection.*

If you have used any non-prescribed medication in your baby's eye, you need to consult an eye specialist immediately, even if there are no obvious signs of damage.

Q6

Can my baby with low vision lead a normal life?

A child with low vision can have difficulty in regular social activities such as:

- Playing, talking, and communicating with other children
- Decrease in school performance such as difficulty in learning to read and write
- Poor hand-eye coordination (difficulties with sports, poor handwriting, difficulty in playing throw-catch with a ball, tying shoelaces or copying from the blackboard)
- Even day-to-day activities such as sitting, walking, and eating might be hampered with severe vision loss

Low vision aids which help the child in coping up with schoolwork are available but can only help if there is some amount of functional vision. In cases of blindness, it is advisable to register your baby for special education.

Children with visual impairment or blindness can attend regular schools with separate instruction from a teacher who is certified in the education of such children. There are also special schools with targeted programs that specialize in blindness and visual impairment.

Q7

Can my baby get any surgery for spectacle removal?

Refractive surgeries [laser-assisted in situ keratomileusis (LASIK), implantable contact lens (ICL), etc.] work by altering the structure of the eye in such a manner that a focused image is formed on the retina without the use of glasses. The baby's eye develops and grows throughout the first 18 years of his/her life. As long as this procedure of maturation continues, there may be changes in the refractive error even after surgery and he/she might need to use glasses again. Therefore, *refractive surgeries for spectacle removal are not advisable in children routinely.*

Only when your child has matured, after 18 years of age, with a stable spectacle correction for at least a year, refractive surgery can be planned, provided prerequisites for surgical fitness are fulfilled on eye examination. Till then, it is prudent to focus on giving your child the best vision with glasses and preventing amblyopia.

Q8

Can my baby wear contact lenses instead of using glasses?

Contact lenses can be a great convenience, especially for kids who have a distorted vision with a high spectacle number. However, these should be bought with an ophthalmic prescription and must be treated with adequate care and hygiene. If they are not handled responsibly, there could be serious eye infections.

In certain ophthalmic conditions, contact lenses are medically advised. It is suggested that you learn and teach your child the correct method of applying and removing contact lenses to prevent any hazardous complication.

Contact lenses come with a solution designed for storage and cleaning; do not store or wash the contact lenses in regular tap water. Do not buy over-the-counter contact lenses for your child, always consult with your eye doctor for a contact lens prescription as it is different from the spectacle prescription.

Q9**Does watching TV, reading from near, and using mobile phone cause visual impairment/refractive error?**

Children have a better ability to focus up close without any eyestrain. They often come into the habit of viewing television from quite near or holding mobile phones and books very close to their eyes. The studies have shown that there is no direct causal relationship of screen work or excessive near work with developing refractive error.

However, your child might be sitting close to the TV or holding reading material close to the eye because of an uncorrected refractive error and may need an eye examination. Also, during prolonged screen exposure (online classes, projects, video games, viewing television, and mobile gaming), or while performing tasks requiring focus (like reading and writing), the eyes blink less than normal causing the protective tear film to keep breaking easily. This makes the eyes dry, which may lead to a feeling of foreign body sensation, irritation, eyestrain, tiredness, or even headache.

So, you should advise your child to take frequent breaks during this time, place consistent limits on the time spent on screen, and encourage outdoor activities.

Q10

What measures should I take to prevent worsening of the present visual status of my baby?

- If your child is diagnosed with vision impairment, you should get special care and regular follow-ups for them.
 - There are specialists such as ophthalmologists, optometrists, optician, special education teachers, physiotherapists, orientation and mobility specialists or occupational therapists who are trained to work with children having low vision.
 - You may need to consult either or all of them depending on the severity of impairment:
 - *Ophthalmologists* are doctors specialized in comprehensive medical and surgical eye care.
 - *Pediatric ophthalmologists* are doctors having additional special training to treat eye problems in children.
 - *Optometrists* provide services similar to ophthalmologists with some specializing in pediatric eye care, but they do not perform surgery.
 - *Opticians* fit and adjust eyeglasses. All these people can help you to learn how to do things to support your child's development in your everyday play and communication together.
 - In cases of visual impairment amenable to treatment, be compliant to medical advice, and do not self-medicate.
 - If refractive error is detected, then spectacle correction and a minimum of 6-monthly follow-up thereafter is needed.
 - If amblyopia (lazy eye) is present, then eye patching of the good eye so as to strengthen the weak eye is done.
 - In case of pediatric cataract, cataract surgery with intraocular lens (IOL) implantation followed by refractive correction for distance as well as near is given.
 - In case of squint, appropriate refractive correction, if any, followed by surgical correction for residual squint is done.
- Be sure to make eye care and vision assessment a part of your child's routine medical care.