

Identification of Visual Problems

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Abstract: Identifying and addressing vision problems in children is paramount for their overall development and well-being. This comprehensive exploration emphasizes the importance of early detection and intervention in managing childhood vision issues, including refractive errors, myopia, hyperopia, and strabismus. Regular vision screenings play a crucial role in identifying problems that, if left untreated, can lead to academic challenges and social adjustment difficulties. Corrective measures such as glasses, contact lenses, and in certain cases, surgery, are discussed as vital solutions to improving visual acuity. The significance of fostering healthy vision habits from an early age is also highlighted, advocating for awareness and proactive measures among parents and educators to ensure optimal vision development in children. Moreover, the paper delves into the specifics of various vision conditions, their symptoms, diagnosis, and treatment options, underscoring the necessity of comprehensive eye care and the potential life-changing impact of timely and appropriate interventions.

Keywords: Childhood vision problems, Refractive errors, Vision screening, Corrective measures, Early intervention

1. Introduction

Normal eyesight is a gift too often taken for granted. Studies have shown that 1 in 4 children of school age and 1 in 20 pre-primary children suffer from visual problems that could affect their performance. Eye problems can deny the child access to knowledge, cause learning problems and affect his or her social adjustment at school and in later life. Impaired vision may even indicate a life-threatening disease. It is therefore vital that teaching staff are aware of vision problems, and of what to do when they are detected.

Visual problem:

Early detection plays a crucial role in identifying and addressing vision problems in children. In India, vision issues among children are a significant concern. According to recent statistics, a substantial number of children in the country experience vision problems. Accordingly, recognizing these issues is highly significant for parents and caregivers. and Vitamin A is essential for enabling our eyes to see, as it plays a role in producing certain pigments for the retina

Signs and Symptoms:

- Excessive tearing,
- Complaints of headaches or eye strain/blurred vision.
- Behavioural cues such as sitting too close to the TV,
- Holding books too close while reading,

Diagnosis: Regular eye exams are crucial for children, even if they don't display any apparent vision issues. These screenings help detect potential problems early on and ensure timely intervention

Red Flags for Childhood Vision Problems

Include misaligned eyes

- Abnormal eye movements,
- Chronic eye rubbing,
- Excessive tearing, and
- Complaints of double vision.

- Any sudden changes in behavior or academic performance should also raise concerns.

How to Spot Vision Problems in School - Age Children

- Parents and teachers should be attentive to indicators such as frequent headaches, difficulty reading, squinting, holding books too close, or avoiding near work.
- Observations in the classroom, such as a child losing their place while reading or struggling to see the board, can provide valuable insights into potential vision issues.

Vision Tests for Children

- These tests assess visual acuity, eye alignment, color vision, and depth perception.
- Common tests include the visual acuity test, where children identify letters or symbols, and the cover test, which assesses eye alignment.

Treating Vision Problems in Children

- Corrective measures such as glasses or contact lenses may be prescribed to improve visual acuity.
- In some cases, vision therapy or rehabilitation programs might be recommended to enhance eye coordination and visual processing skills.
- Early intervention and consistent adherence to treatment can significantly improve a child's vision and overall quality of life.

Promoting Healthy Vision Habits for Children

- Maintain good eye health in children is crucial for long-term vision care.
- Parents can foster healthy habits by ensuring proper lighting when reading or using electronic devices and promoting regular breaks during screen time.
- Encouraging outdoor activities and eye exercises, such as focusing on distant objects or tracking moving targets, can contribute to optimal vision development.

Refractive Errors:

Refractive errors are a type of vision problem that makes it hard to see clearly. They happen when the shape of your eye

keeps light from focusing correctly on your retina (a light - sensitive layer of tissue in the back of eye).

Refractive errors are the most common type of vision problem. More than 150 million Americans have a refractive error — but many don't know that they could be seeing better. That's why eye exams are so important.

Types of refractive errors:

There are 4 common types of refractive errors:

- Nearsightedness (myopia) makes far - away objects look blurry
- Farsightedness (hyperopia) makes nearby objects look blurry
- Astigmatism can make far - away and nearby objects look blurry or distorted
- Presbyopia makes it hard for middle - aged and older adults to see things up close.

Symptoms of refractive errors:

- Double vision
- Hazy vision
- Seeing a glare or halo around bright lights
- Squinting
- Headaches
- Eye strain (eyes feel tired or sore)
- Trouble focusing when reading or looking at a computer

Risk for refractive errors:

- Family members who wear glasses or contact lenses.
- Most types of refractive errors, like nearsightedness, usually start in childhood.
- Presbyopia is common in adults ages 45 and older.

Causes of refractive errors:

Refractive errors can be caused by:

- Eyeball length (when the eyeball grows too long or too short)
- Problems with the shape of the cornea (the clear outer layer of the eye)
- Aging of the lens (an inner part of the eye that is normally clear and helps the eye focus)

How will doctor check for refractive errors eyes ?

- Eye doctors can check for refractive errors
- The eye exam is simple and painless.
- Eye drops to dilate (widen) pupil and check for other eye problems.

Treatment for refractive errors:

Eye doctors can correct refractive errors with glasses or contact lenses, or fix the refractive error with surgery.



Glasses: Eyeglasses are the simplest and safest way to correct refractive errors. Eye doctor will prescribe the right eyeglass lenses to give the clearest possible vision.



Contacts: Contact lenses sit on the surface of eyes and correct refractive errors. Eye doctor will fit for the right lenses and show how to clean and wear them safely.



Surgery. laser eye surgery, can change the shape of cornea to fix refractive errors.

Excimer Laser Surgery for Children:

Excimer Laser Surgery is used to treat near or farsightedness (focusing disorders). These focusing disorder often cause lazy vision (amblyopia) in one eye, or impaired vision in both eyes. The laser uses cool, ultraviolet light energy to reshape the surface of the cornea (clear, front part of eye).

By reshaping the cornea, the laser can reduce or eliminate near or far sightedness.

Benefit of laser surgery:

- Correcting the focusing disorder helps to improve lazy vision, especially in children under 10 years of age.
- Depth perception and the field of vision usually improve after surgery
- In children with neurobehavioral disorders who will not wear glasses, visual attention and interest in others may improve substantially.

Nearsightedness (Shortsightedness/ Myopia):

Introduction

- Myopia, or nearsightedness, is a common vision problem that often begins between the ages of 6 and 14.
- It affects an estimated 5% of preschoolers, about 9% of school aged children and 30% of adolescents.

Meaning:

Inability to see thing clearly unless they are relatively close to the eyes.

Causes:

- Myopia happens when your child's eyeball is too long from front to back.
- The size or power of the eye is greater than normal so images do not form on the retina but in front of it.

Symptoms:

- Distant objects are blurred so the child cannot see the blackboard and will watch television from close by.
- Squinting
- Frequent eye rubbing
- Frequent headaches

Diagnosis of myopia:

- Ophthalmologists have a degree in medicine (MD or DO). They do eye exams and prescribe glasses and contact lenses.

Treatment:

- Some recent studies suggest that the use of atropine combined with bifocals slows the progression of myopia.
- A child with myopia can wear eyeglasses or contact lenses

Prevention:

- It is not possible to totally prevent its occurrence. However, there are steps you can take to minimize its effect.
- Make sure child is examined early, especially if there is a family history of progressive nearsightedness or other eye conditions.
- Another type of contact lens treatment called orthokeratology, or Ortho - K, is worn overnight to flatten the cornea. During the day, the reshaped cornea helps focus light properly on child's retina to improve blurry vision.
- More time outside

Spending time outdoors can also help with myopia management.

FARSIGHTEDNESS (HYPEROPIA):

Hyperopia (hypermetropia or farsightedness) in childhood appears as a refractive defect whereby the image is focused behind the retina, and vision is blurred. It may be because the optical power of the cornea and lens is less than necessary. There is also a certain hereditary component. There is greater difficulty in seeing near objects.

Symptoms:

- **Headache:** It usually increases in intensity as the day progresses and improves on weekends.
- **Eye pain, stinging and tearing:** that cause the child to rub his eyes, blink frequently or wrinkle his forehead.
- **Difficulty reading and writing:** poor school performance and difficulty concentrating.

Treatment:

- Hypermetropia is corrected by prescribing spectacles with convex or plus power lens.
- They may need correction if farsightedness is high for their age.
- Once the power has stabilized, contact lenses may be used.

Crossed Eye (Strabismus):

Strabismus (crossed eyes) is a common eye condition among children. It is when the eyes are not lined up properly and

they point in different directions (misaligned). One eye may look straight ahead while the other eye turns in, out, up, or down.

Six Eye Muscles Control Eye Movement:

There are six muscles that attach to each eye and control its movement. One muscle moves the eye to the right, and one muscle moves the eye to the left. The other four muscles move the eye up, down, and at an angle. In order to focus on a single image, all six eye muscles in each eye must work together.

Strabismus affects vision because both eyes must aim at the same spot together to see properly. If someone's eyes are lined up properly during childhood, vision should develop well. But if the eyes are not aligned, a condition called amblyopia can develop. This is when the misaligned eye has weaker vision.

Causes Strabismus (Crossed Eyes):

- One of the most common reasons is if the child is nearsighted or farsighted.
- Strabismus can be caused by problems with the eye muscles, the nerves that transmit information to the muscles, or the control centre in the brain that directs eye movements.

Other causes:

- premature birth
- neurological (brain - related) disorders
- Down syndrome

Signs and symptoms

- **Accommodative esotropia:** may include seeing double, closing or covering one eye when doing close work, and tilting or turning of the head.
- **Intermittent exotropia:** may experience headaches, difficulty reading, and eye strain. They also may have a tendency to close one eye when viewing at distance or in bright sunlight.
- Eyes look in different directions at the same time.
- May also notice that child closes one eye or tilts their head when looking at an object.
- Pseudostrabismus

When children are less than a year old, their eyes may look crossed when they really are not. This is called "pseudostrabismus." It usually happens if the child has a wide, flat nose or a fold of skin at the inner eyelid. A child can outgrow pseudostrabismus, but not strabismus.

Strabismus Types:

There are three common types of strabismus.

- **Esotropia** is when one of the eyes crosses inward toward the nose.
- **Exotropia** is where one of the eyes drifts outward toward the ear.
- **Hypertropia** is when one eye points higher than the other eye.

Strabismus (Crossed Eyes) Treatment:

- Eyeglasses
- Glasses can correct the strabismus in these children.
- Patching or eye drops
- Sometimes an ophthalmologist may recommend patching or eye drops to strengthen a child's weaker eye.
- Sometimes surgery of the eye muscles is necessary to straighten the eyes.

Strabismus (crossed eyes) surgery

- Surgery is often done to correct the alignment of a child's eyes. Pediatric ophthalmologists are specially trained to do this surgery safely and effectively on children's eyes.
- After surgery, most children can get back to their daily routine in about 2 to 3 days.
- Strabismus surgery is usually a safe and effective way to treat eye misalignment.

2. Conclusion

Identifying vision problems in children requires awareness, observation, and proactive measures. Detecting and intervening early can make a big difference in a child's vision, school performance, and general state of being. By prioritizing regular vision screenings, recognizing red flags, and seeking professional help when needed, parents can ensure that their children receive the necessary care and support for healthy vision development. Remember, child's eyesight is precious, so stay vigilant, advocate for their eye health, and provide them with the best opportunities to see the world clearly and thrive.

References

- [1] <https://optometry.dpu.edu.in/blogs/how-to-identify-vision-problems-in-children>.
- [2] <https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/refractive-errors#:~:text=What%20are%20refractive%20errors%3F,the%20back%20of%20your%20eye>.
- [3] <https://testbook.com/objective-questions/mcq-on-eye-632da66a515969aaa8dd117d>
- [4] <https://ophthalmology.wustl.edu/items/pediatric-refractive-surgery/>
- [5] <https://www.healthychildren.org/English/health-issues/conditions/eyes/Pages/Myopia-Nearsightedness>.
- [6] Piyush Gupta; Essential pediatric nursing; 2nd edition; 234 - 235.
- [7] <https://icrcat.com/en/eye-conditions/hyperopia-in-children/#:~:text=Correction%20of%20hyperopia-,What%20is%20hyperopia%3F,lens%20is%20less%20than%20necessary>.
- [8] <https://www.aao.org/eye-health/diseases/strabismus-in-children>.