



Focusing on Children's Eye Health and Safety

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Young children with vision problems often do not know that the way they see the world is not the way everyone sees it. Yet more than 12.1 million school-age children, or one in four, has a vision impairment, and among preschool-age children, more than one in 20 has a vision problem that can cause permanent sight loss if left untreated. Without early detection and treatment, children's vision problems can lead to permanent vision loss and learning difficulties.

Critical Stage of Visual Development

Healthy children without any known risk factors for eye disease should undergo age-appropriate screening examinations with their pediatricians and primary care physicians, and should be referred to an ophthalmologist as needed. "Screening begins with newborns," says [Richard L. Levy, MD](#), Director of Pediatric Ophthalmology at the Weill Cornell Medical College, who also has training in neuro-ophthalmology. "A neonatologist or the child's pediatrician shines a light into the child's eyes that reflects off the retina in back of the eye. This is very similar to the red eye in a photograph."

According to Dr. Levy, the way that the light appears can tell the examiner different things about the child's eyes. "If the light is absent, that could indicate a cataract, retinal detachment or a tumor," he says. "If it is asymmetric between the eyes, that could indicate that the eyes are aligned improperly, or that one eye is more farsighted or nearsighted than the other."

Early Screening is Crucial

While the majority of infants do not have vision problems identified at this age, it is critical that those that do be identified. In some situations, such as congenital cataracts, timing is crucial. "Unlike with adults, children born with cataracts must have them removed very early in life," says Dr. Levy. "A critical stage of visual development occurs in the first few months, during which time the brain must receive clear visual messages

from both eyes. After this critical stage, it becomes too late for the normal connections between the eye and brain to develop."

Screening exams should take place at least twice during the first year and include an assessment of visual function and an inspection of the eyes with a hand-held light or microscope. This screening will trigger if either eye is off target or if one eye is different from the other. "These are risk factors for not developing good vision in both eyes and signal to the pediatrician to refer the child to a pediatric ophthalmologist," says Dr. Levy.

"A Sensitive Period of Development"

At about the age of 3, pediatricians can begin to perform formal visual acuity exams with the child's cooperation. "The visual system of a three-year-old is more plastic than that of a five-year-old, so if a problem is developing, it's important to catch it early," says Dr. Levy.

A sensitive period for the development of vision happens up until about the age of 8 during which the connections between the eye and the brain are still getting fine-tuned, says Dr. Levy, who recommends annual checkups after the age of 5. Poor vision, eye pain, changes in the shape or size of an eye, crossed or wandering eyes, or an abnormal appearance to the pupil of one or both eyes can all be signs of serious eye conditions and should be evaluated by a pediatric ophthalmologist.

Common Pediatric Eye Problems

"A child should be seen by an ophthalmologist if a parent or sibling has [strabismus](#), the abnormal alignment of one or more eyes caused by muscle problems, or **amblyopia**, otherwise known as 'lazy eye.' Having a first degree relative with these conditions may put the child at increased risk," says Dr. Levy. Other medical conditions that warrant being seen by an ophthalmologist include certain genetic diseases or conditions, including neurofibromatosis, diabetes, and eye trauma.

It is estimated that two to three percent of the population of the United States has amblyopia, the most common cause of vision loss, and the most treatable with the right screening and treatment. Amblyopia has many causes, and most often it results from either a misalignment of a child's eyes, such as crossed eyes, or a difference in image quality between the two eyes (one eye focusing better than the other). In both cases, one eye becomes stronger, suppressing the image of the other eye. If this condition persists, the weaker eye may become useless.

"Amblyopia begins in early childhood, and children won't tell you that they can't see well or that they can't see out of one eye, because for them it's normal. Screening is really the only way to discover that there is a problem," says Dr. Levy.

Most Common Causes of Eye Injuries in Children 14 and Under

In general, the most common causes of eye injuries to children age 14 and younger include:

- toys not suitable for the child's age or abilities
- broken toys
- pens and pencils
- adhesives
- household cleaners
- furniture
- flatware and table settings
- paper and cardboard products

Preventing Sports-Related Eye Injuries

More than 40,000 adults and children suffer eye injuries each year related to sports activities. For all age groups, sports-related eye injuries occur most frequently in baseball, basketball and racquet sports. Using the right kind of eye protection can help prevent serious eye injuries and even blindness. Taking the following precautions can prevent many sports-related eye injuries:

- Wear proper safety goggles (lensed polycarbonate protectors) for racquet sports or basketball.
- Use batting helmets with polycarbonate face shields for youth baseball.
- Use helmets and face shields approved by the U.S. Amateur Hockey Association when playing hockey.
- Be aware that regular glasses don't provide adequate protection.

"Paintball is one of the most dangerous games for the eyes," notes Dr. Levy. "When a child is hit with a paintball, the results can be devastating. Even taking the goggles off for a second can end in a disaster. However, the regulations for this sport have become more stringent, and we are seeing fewer of these types of eye injuries."

Dr. Levy believes that common sense should prevail. "Not every sport requires safety goggles at all times, but if a patient does not have two good eyes, I would want them to wear safety goggles whenever playing sports," he says. "Children who have poor vision also have an increased risk of further eye injury, simply because an eye that can't see as well can't defend itself."

[Original Article at Weill Cornell Pediatrics](#)