

Pediatric Ophthalmology



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There are many common childhood eye problems such as infection, injury, disorders such as amblyopia, or "Lazy Eye", or vision problems like nearsightedness, farsightedness or astigmatism. Observing your child's eyes and paying attention to how your child behaves is very important. Unusual behavior such as closing one eye or tilting the head to see things can be a warning sign. School-age children may complain of things looking blurry or not being able to see the chalkboard. Fortunately, most childhood eye problems can be corrected if detected early. To help protect your child's sight, watch for warning signs and take your child to a doctor at the first sign of a problem.

Guidelines for Childhood Eye Exams

The American Academy of Pediatrics and the American Association for Pediatric Ophthalmology and Strabismus agree that all children should have their eyes examined by the pediatric or family doctor at birth and at all regular check-ups before school. At the age of 3 to 4, the exams should include vision testing using acuity charts.

Test your eyesight by performing a visual acuity test using the [Interactive Visual Acuity Chart \(IVAC\)](#).

Children with certain medical or family risk factors should have comprehensive ophthalmic examinations. Please follow the direction of your pediatrician or family medical doctor.

Urgent or more frequent eye exams should take place if you see one or more of the following warning signs:

1. Lack of eye fixation
 - A normal baby should be able to look at your face and follow your eyes as you move from side to side.
2. Misalignment of the eyes
 - As early as 2 to 3 months after birth a baby's eyes should be aligned on interesting objects, near and far, left and right, and up and down.
3. Jerking eye movements
 - The eyes should rest steadily without jerking side to side or up and down.
4. White pupil

- The pupil is the hole in the iris through which light enters the back of the eye and the retina. Under normal conditions, the pupil should be black.
- 5. Swelling around the eyelids
 - Lumps, changes in color or swelling around the eyes and lids can be caused by tumors or infections.
- 6. Excess tearing
 - Serious inflammations, blurry vision and nerve problems are possible reasons for excess tearing.
- 7. Drooping lid
 - Abnormalities of the brain or tissue around the eye may cause one or both lids to droop or retract. Some children have drooping lid at birth, which may cause vision loss as well.
- 8. Squinting or frequent blinking
 - Partially closed eyelids may produce temporary improvement or some types of blurry or double vision. Frequent blinking may occur with eye inflammation or allergies or with neurologic disorders.
- 9. Irregular pupil
 - Pupil should be round and reactive to bright light. Irregular pupil can signal an eye problem.

What to Expect During Your Child's Exam

1. Visual Acuity Testing
 - Visual acuity will be checked. This is possible even in children who are not old enough to speak. For older children, picture charts, letter games and letter recognition can be used.
2. Eye Alignment (Muscle Balance) Testing
 - Various methods are used to test the alignment of the eyes and to make sure the muscles that move the eye are functioning normally. This may be done using light reflexes or alternately covering each eye to make sure that they do not move from the straight-ahead position.
3. Binocular Vision Testing
 - These tests are used to make sure that the eyes are not only aligned correctly, but that the brain is using them together as well.
4. Refraction Testing
 - Refraction is used to measure the "power" of the eye. It determines if your child is nearsighted, farsighted or has astigmatism. This can even be performed in infants when they cannot cooperate to tell us how well they are seeing. In young children, the focusing power of the eye must be eliminated to allow an accurate measurement. Therefore, drops are placed into the eye to dilate the pupil and eliminate their focus mechanism. These drops often take 30–60 minutes to work and do not wear off for 8–12 hours.
5. Fundus Examination
 - During a fundus examination, the examiner uses a special light, often worn on his or her head, to look into the back of your child's eye. The retinal blood vessels and the optic nerve, an extension of the brain, can be seen. Because this is an area where blood vessels and portions of the brain can be seen, it is very valuable in helping to diagnose many disorders that can affect the entire body. Once the examination is complete, your child may be prescribed glasses. Treatment for other problems may also be addressed.

Common Childhood Eye Disorders

Amblyopia

Amblyopia, also known as "lazy eye" is reduced vision in an eye that has not received adequate use during early childhood. It is estimated that 4% of children suffer from this form of visual impairment. If not treated

early enough, an amblyopic eye may never develop good vision and may even become functionally blind. Amblyopia has many causes. Most often, amblyopia results from either a misalignment of a child's eyes, such as crossed eyes, or a difference in image quality between the two eyes, meaning one eye focuses better than the other. With early diagnosis and treatment, the sight in the "lazy eye" can be restored. Glasses are commonly prescribed to improve focusing or misalignment of the eyes. Patching or covering the better-seeing eye may be required for a period of time. This forces the "lazy" eye to work harder, thereby strengthening its vision. Medication may also be used to blur the vision of the good eye in order to force the weaker one to work. Surgery may be performed on the eye muscles to straighten the eyes if nonsurgical means are unsuccessful. Eye exercises may be recommended before or after surgery as well.

Strabismus



Strabismus

Strabismus, commonly known as crossed eye, is a misalignment of the eye due to muscle imbalance. This misalignment substantially reduces depth perception. Strabismus occurs in approximately 4% of children and young adults. Strabismus has an inherited pattern and is much more common in children who have one or more parents that were affected. Treatment of strabismus may include patching of one eye or corrective lenses. However, the majority of children with strabismus will eventually require surgery to better align the eyes. Strabismus surgery commonly entails recession or resection of eye muscles to different sections of the eye to either weaken or strengthen them depending on the case. Strabismus surgery is generally successful in realigning the eyes as close to normal as possible.

Congenital Ptosis



Congenital Ptosis

Congenital Ptosis refers to a drooping of the eyelids that is present at birth. The drooping is due to improper development of the levator muscle, a major muscle responsible for elevating the upper eyelid. The lid may partially or fully cover the eye, and it may occur in one or both eyes. Children affected by congenital ptosis may need to tilt their head back, lift their eyelid with a finger, or raise their eyebrows to see from under their drooping lid. Congenital ptosis is treated surgically and is generally performed during a child's preschool years.

Pediatric Cataract

The diagnosis of a congenital cataract, or a clouding of the eye's natural lens, can be made on the first day of life by a pediatrician in the newborn nursery. Early diagnosis and referral are important. Irreversible damage will occur if a congenital cataract is not treated in the first few months of life. If the cataract is determined to be visually significant, surgery is indicated to remove the lens.

Child Eye Safety

Each year, thousands of children have eye accidents at home, at play or in the car. These eye injuries can damage a child's sight and even cause blindness. Parents are urged to acquaint themselves with

potentially dangerous situations at home and in school and to insist that their children use protective eyewear when participating in sports or other activities.

To provide the safest environment for your children:

1. Select games and toys that are appropriate for your child's age and responsibility level.
2. Provide adequate supervision and instruction when children are handling potentially dangerous items, such as pencils, scissors and utensils.
3. Be aware that even common household items such as paper clips, elastic cords, wire coat hangers, rubber bands, and fishhooks can cause serious eye injury.
4. Keep all chemicals and sprays out of reach of small children.
5. Do not allow children to ignite fireworks or stand near others who are doing so. All fireworks are potentially dangerous for children of any age.
6. Do not allow children in the yard while a lawnmower is being operated. Stones and debris thrown from moving blades can cause severe eye injuries.
7. Demonstrate the use of protective eyewear to children by always wearing protective eyewear yourself while using power tools, rotary mowers or lawn trimmers.
8. When participating in shop or some science labs, students should wear protective goggles that meet the American National Standards Institute (ANSI) Z87 safety code.



Eye Protection

According to Prevent Blindness America, more than 40,000 people each year are treated for eye injuries related to sports activities. For all age groups, sports-related eye injuries occur most frequently in baseball, basketball and racquet sports. Almost all sports-related eye injuries can be prevented. Whatever your game, whatever your age, you need to protect your eyes. While protective eye gear may not be the latest craze in tennis or baseball, think for a moment about what could happen if we fail to protect our eyes. We wear helmets to protect our head and pads or braces to protect our bones and joints. Extra precautions are taken to prevent concussions, broken bones, bruises and chipped teeth, so what about our eyes? What can we do to prevent the possibility of permanent vision loss, a scratched cornea or fractured eye socket? Broken bones and bruises will usually heal, but a serious eye injury can put you on the disabled list for life.

The following guidelines can help you find a pair of eye guards right for you:

1. If you wear prescription glasses, ask your eye doctor to fit you for prescription eye guards.
2. Buy eye guards at sports specialty stores or optical stores. At the sports store, ask for a sales representative who's familiar with eye protectors to help you.

3. Don't buy sports eye guards without lenses. Only "lensed" protectors are recommended for sports use. Make sure the lenses either stay in place or pop outward in the event of an accident. Lenses that pop in against your eyes can be very dangerous.
4. Fogging of the lenses can be a problem when you're active. Some eye guards are available with anti-fog coating. Others have side vents for additional ventilation. Try on different types to determine which is most comfortable for you.
5. Check the packaging to see if the eye protector you select has been tested for sports use. Also check to see that the eye protector is made of polycarbonate material. Polycarbonate eye guards are the most impact-resistant.
6. Sports eye guards should be padded or cushioned along the brow and bridge of the nose. Padding will prevent the eye guards from cutting your skin.
7. Try on the eye protector to determine if it's the right size. Adjust the strap and make sure it's not too tight or too loose. If you purchased your eye guards at an optical store, an optical representative can help you adjust the eye protector for a comfortable fit.
8. Until you get used to wearing a pair of eye guards, it may feel strange, but stick with it! It's a lot more comfortable than an eye injury.