



Eye Injury and Safety

WHAT CAUSES EYE INJURIES?

An eye injury can occur at any time, in any place: at home, school, play, or sports. Close to 50% of eye injuries occur during sports and entertainment activities -- more often in children and teens than any other age group.

Injuries to the eye and the area around the eye can be caused by blunt trauma, sharp trauma or a chemical splash.

Blunt trauma from: sport balls, fists, or airsoft/pellet/paintball guns

Sharp trauma such as: sticks, hooks, or knives

Chemical trauma like: a splash from strong cleaning fluid, alcohol-based hand sanitizer, or pool cleaning supplies.

HOW CAN BEING STRUCK WITH A BALL OR ELBOW DURING PLAY CAUSE EYE INJURY?

Blunt trauma (from a ball or fist or elbow) can cause bleeding inside the eye, which is called a [hyphema](#). Blood in the eye can cause high eye pressure and inflammation, which can lead to permanent vision loss. A hyphema needs to be evaluated urgently and often needs treatment with eye drops, frequent follow-up, limitations on activity, and in rare cases, surgery. Blunt trauma that causes other problems like swelling of the eyelid, red eye, pain, vision loss, or discharge, should also be evaluated by an ophthalmologist soon after the injury.

Sports with high-speed ball action are the most likely to cause damage to the eye -- racquetball, squash, tennis, soccer, golf, baseball and softball, basketball, field hockey, lacrosse, water polo, and hockey.

WHAT COMMON ITEMS ARE DANGEROUS TO THE EYES?

Household items such as bungee cords, forks, coat hangers, rubber bands, gardening tools, and kitchen gadgets can cause significant injury to the eyes.



Chemicals used around the home like bleach, cleaning products, and even soaps, shampoos, and perfumes, can cause extreme eye irritation and/or eye damage.

Laundry and dishwashing pods can be especially dangerous as they seem fun to play with but can easily explode into a child's eyes.

Gardening tools and lawn mowers may shoot rocks or dirt toward the eyes.

Even acid from car batteries can explode, spraying chemicals toward the eye. This can be especially dangerous when trying to "jump-start" a car.

WHAT KIND OF TOYS CAN CAUSE INJURIES?

Sharp toys are especially dangerous. Pencils, pens, darts, knives, fishing hooks, and scissors can easily cut the eye. As mentioned before, paintball guns, pellet guns, and BB guns can also cause very serious eye injuries.

DO FIREWORKS STILL CAUSE EYE INJURIES?

Fireworks are extremely dangerous to the eyes; children should never be allowed to use them. Each year many people (often children) suffer serious eye injuries from fireworks used without appropriate supervision and precautions. Children should never have access to either legal or illegal fireworks.

WHICH PART OF THE EYE CAN BE INJURED?

Injuries to the eye can involve the eyelids, the tear drainage system, the bones surrounding the eye, and the eyeball itself.

WHAT ARE SOME INJURIES TO THE EYELIDS?

Eyelid injuries usually come from sharp trauma from things like sticks or thrown objects during play or while working around the house. Dog bites from even family dogs can also cause severe eyelid injuries.

If the eyelid becomes cut or torn, the cut may involve not only the eyelid but the tear drainage system around the eye. Cuts to the eyelid or the tear drainage system often need to be seen by an ophthalmologist and may need repair in the operating room. Repairing an eyelid wound often uses stitches and may need a tube to repair the tear drainage system. Any injury to the eyelid can also have an injury to the eyeball itself. A complete



examination of the eye can make certain there is no other eye injury in addition to the eyelid injury.

HOW CAN THE BONES AROUND THE EYE BE DAMAGED?

Bones around the eye can be broken (or fractured) with injury. Usually, this type of injury occurs from blunt trauma, such as a sports injury or a fall with injury to the nose and cheekbone (called a blow-out fracture).

Fractures are often seen on x-rays or a CT scan. This testing can help determine if there are fractures and if tissues/muscles surrounding the eye are trapped in the fractures. Depending on the type of fracture, surgery may be needed to prevent long-term problems like double vision, loss of vision, and abnormal facial appearance.

WHAT ARE SOME COMMON INJURIES TO THE EYEBALL ITSELF?

The front, clear surface of the eye, called the cornea, can be scratched. This scratch (called a [corneal abrasion](#)) often causes pain, redness, and tearing and is one of the most common eye injuries. A corneal abrasion can be shown by placing a yellow dye (fluorescein) onto the eye, highlighting the scratch. Treatment of a corneal abrasion often involves using antibiotic eye drops or ointment and occasionally a pressure patch on the eye.

Blunt injury from a ball or fist can cause a hyphema, as mentioned before. (see above)

WHAT IF THE SCRATCH GOES DEEPER THAN THE SURFACE?

Sharp objects (such as a stick, piece of glass, or piece of metal) can actually cut all the way through the surface of the eye, causing a full-thickness cut or laceration. This type of injury puts a child at risk for permanent vision loss. Lacerations require urgent examination by an ophthalmologist and often need surgery to prevent complications and maximize vision.

WHAT SHOULD BE DONE IF A CHILD HAS AN EYE INJURY?

This depends on the type of injury!

If there is a [chemical](#) splash or spray in the eye, immediate rinsing with water is very important. Flush the eyes and face with any available water for at least 10-15 minutes.



Rinsing the chemical out of the eye reduces the chance of long-term problems. The next step is to contact your doctor or go to the emergency department for an evaluation immediately. It is important to take the chemical or a picture of the chemical with you to the evaluation to help make sure it is treated appropriately.

If a sharp object has cut through the eye or eyelid (like a fishhook), do not pull it out. Leave it in place, and do not allow the child to touch it. It may be necessary to tape a clean empty plastic or foam cup over the eye to protect it until you can get to the hospital. Transport the injured child to the emergency room as soon as possible.

Other blunt or sharp injuries should be examined by an ophthalmologist since the severity of the injury may not be easy to see.

It is also important to keep the child from having any food or drink after an eye injury in case anesthesia is needed to get a good look at the eye or to repair the eye injury.

HOW CAN EYE INJURIES BE PREVENTED? WHAT KINDS OF EYE PROTECTION ARE AVAILABLE?

Protective eyeglasses or face shields are available for most activities to help prevent eye injuries.

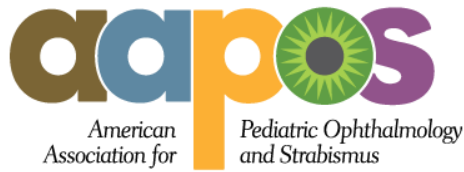
The best protective eyewear for sports activities is a sports frame (not daily wear glasses) with polycarbonate (or shatter-resistant) lenses. Sports such as hockey, baseball, lacrosse, field hockey, racquetball, squash, and shooting may require goggles or a full face mask. If a child needs better vision with glasses, the glasses prescription can be placed in the sports frame. Although many athletes wear contact lenses, contact lenses do not provide any protection from eye injury.

Safety glasses should also be worn while working with potentially eye-damaging materials around the home. Children should be kept away from possible exposure to vision-threatening situations. In addition, all dangerous chemicals should be stored safely away from children.

WHAT PROTECTION NEEDED IF A PERSON HAS POOR VISION IN ONE EYE?

Children (and adults) with poor vision in one eye should **ALWAYS** wear glasses to protect the better-seeing eye from injury. In addition, regulation sports glasses are necessary when participating in gym or sports when there is poor vision in one eye.

ADDITIONAL RESOURCES



Krystin N. Miller, Christy L. Collins, Thitphalak Chounthirath and Gary A. Smith. Pediatric Sports- and Recreation-Related Eye Injuries Treated in US Emergency Departments. Pediatrics February 2018, 141 (2) e20173083; DOI: <https://doi.org/10.1542/peds.2017-3083>

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