

# Ocular Injury

## WHAT CAUSES EYE INJURIES?

Pediatric eye trauma can happen at home, school, play or sports. Injuries to the eye and surrounding structures can be caused by blunt trauma from sport balls, fists, or airsoft/pellet/paintball guns; sharp trauma such as a stick, projectiles or knives; or chemical trauma such as a splash from a caustic substance like cleaning material, alcohol based hand sanitizer, or pool supplies.

## 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 occur as a result of sharp trauma from sticks or projectiles during play or while working around the house. Dog bites from even family dogs can cause severe eyelid injuries. If the eyelid tissue becomes cut or torn it may involve not only the eyelid, but the structures that drain tears from the eye. Lacerations of the eyelid or the tear drainage system require evaluation by an ophthalmologist and may require repair in the operating room with stitches and potentially a tube in the drainage system. Any injury to the eyelid can also be associated with injury to the eyeball so a complete examination of the eye must be performed to make certain there is no injury deeper than on the surface of the eye.

## HOW CAN THE BONES OF THE EYE BE DAMAGED?

Fractures of the bones around the eye usually occur from blunt trauma, such as a sports injury or a fall with injury to the nose and cheekbone (blow-out fracture). Fractures are often detected by x-rays or a CT scan which can help determine if tissues/muscles surrounding the eye are trapped in the fractures. If there is muscle or soft tissue entrapment, these injuries often require prompt surgery to prevent long-term complications such as double vision, loss of vision, and abnormal appearance.

What are some common injuries to the eyeball itself?



The front, clear surface of the eye called the cornea can be scratched and often causes pain, redness and tearing. The physician usually makes the diagnosis by placing a yellow dye (fluorescein) into the eye, which highlights the scratch. Treatment involves using antibiotic eye

drops/ointment and occasionally a pressure patch on the eye. These injuries require close follow up with the ophthalmologist.

### **WHAT IF THE SCRATCH GOES DEEPER THAN THE SURFACE?**

Sharp objects (such as a stick, shard of glass, or metallic item) can actually cut the surface of the eye causing a full thickness cut (laceration). This type of injury places a child at risk for permanent loss of vision. Lacerations require urgent examination by an ophthalmologist and often needs surgery to prevent complications and maximize vision potential.

### **CAN BEING STRUCK WITH A BALL OR ELBOW DURING PLAY CAUSE DAMAGE INSIDE THE EYE?**

Yes. Blunt trauma can cause bleeding inside the eye which is called a hyphema. The blood in the eye can cause increased pressure, which can result in permanent vision loss. This needs to be evaluated urgently and requires multiple eye drops, frequent follow up, limitations on activity and in rare cases, surgery. Trauma causing swelling of the eyelid, red eye, pain, or discharge, should be evaluated by an ophthalmologist promptly.

### **WHAT SHOULD HAPPEN IF A CHEMICAL OR CLEANING SOLUTION SPLASHES INTO A CHILD'S EYE?**

The first thing to do when any abnormal liquid gets into the eye is to immediately flush the eye with a lot of water. Rinsing the chemical out of the eye decreases the chance of long-term problems. The next step is to promptly contact your doctor or go to the emergency department for evaluation. It is important to take the chemical or solution to the evaluation to help the doctor determine appropriate treatment.

### **DO FIREWORKS STILL CAUSE EYE INJURIES?**

Each year hundreds of individuals (often children) sustain serious eye injuries from fireworks used without appropriate supervision and precautions. Children should never have access to either legal or illegal fireworks.



## WHAT SHOULD HAPPEN WHEN A CHILD GETS AN EYE INJURY?

A child that sustains an eye injury should seek immediate medical attention from an ophthalmologist to assess the visual function and carefully examine all the structures of the eye. Frequent examinations until the eye is completely healed are often necessary.

## HOW CAN EYE INJURIES BE PREVENTED?

Approved and tested eye and face protection is essential to prevent injuries. Safety glasses should be worn at all times while playing with airsoft/pellet/paintball guns and these should never be pointed at anyone's face. Sports such as hockey, baseball, lacrosse, field hockey, racquet ball, squash, and shooting require protective eye protection such as goggles or full-face mask at all times.

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>

[Gilles C Martin 1](#) , [Gael Le Roux 2 3](#) , [Damien Guindolet 1 4](#) , [Etienne Boulanger 1](#) , [Denis Hasle 5](#) , [Emilie Morin 2](#) , [Dominique Vodovar 6 7 8](#) , [Catherine Vignal 1](#) , [Eric Gabison 1 4](#) , [Alexis Descatha 2 3](#) , [French PCC Research Group](#). Pediatric Eye Injuries by Hydroalcoholic Gel in the Context of the Coronavirus Disease 2019 Pandemic. *JAMA Ophthalmol.* 2021 Mar 1;139(3):348-351. doi:.1001/jamaophthalmol.2020.6346

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