Eye Injury and Safety

WHAT CAUSES EYE INJURIES?

Eye injuries can happen anywhere, including at home, school, during play, or while playing sports. About half of eye injuries happen during sports and recreation activities. Children and teens are affected more often than other age groups. Eye injuries can be caused by blunt injuries, sharp injuries, or chemical splashes. Blunt injuries can happen from sports balls, fists, elbows, or airsoft, pellet, and paintball guns. Sharp injuries can be caused by sticks, hooks, knives, or other pointed objects. Chemical injuries can happen from cleaning products, alcohol-based hand sanitizer, pool chemicals, and other strong liquids.

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

A hit to the eye from a ball, fist, or elbow can cause bleeding inside the eye. This is called a hyphema. Blood inside the eye can raise eye pressure and cause swelling, which may lead to permanent vision loss if not treated. A hyphema needs urgent medical care. Treatment may include eye drops, follow-up visits, activity limits, and, in rare cases, surgery.

Any eye injury that causes eyelid swelling, redness, pain, discharge, or vision changes should be checked by an ophthalmologist as soon as possible.

Sports with fast-moving balls are more likely to cause eye injuries. These include racquetball, squash, tennis, soccer, golf, baseball, softball, basketball, field hockey, lacrosse, water polo, and hockey.

WHAT COMMON ITEMS ARE DANGEROUS TO THE EYES?

Many common household items can injure the eyes. These include bungee cords, forks, coat hangers, rubber bands, gardening tools, and kitchen tools.

Household chemicals such as bleach, cleaning products, soaps, shampoos, and perfumes can cause severe eye irritation or damage.

Laundry and dishwasher pods can be especially dangerous because they may burst and spray chemicals into a child's eyes.

Gardening tools and lawn mowers can throw rocks, dirt, and other objects into the eyes.

Car batteries can also spray harmful chemicals if they burst while a car is being jump-started.

WHAT KIND OF TOYS CAN CAUSE INJURIES?

Sharp toys and objects can easily injure the eye. Pencils, pens, darts, knives, fishing hooks, and scissors can cut the eye.

Paintball guns, pellet guns, and BB guns can cause severe eye injuries and vision loss.

DO FIREWORKS STILL CAUSE EYE INJURIES?

Yes. Fireworks can cause serious eye injuries. Children should never use fireworks. Many people, especially children, are injured by fireworks each year. Children should not have access to either legal or illegal fireworks.

WHICH PART OF THE EYE CAN BE INJURED?

Eye injuries can affect the eyelids, the tear drainage system, the bones around the eye, and the eyeball itself.

WHAT ARE SOME INJURIES TO THE EYELIDS?

Eyelid injuries often happen from sharp objects, thrown objects, or accidents during play or work. Dog bites can also cause serious eyelid injuries.

Cuts to the eyelid may also damage the tear drainage system. These injuries should be examined by an ophthalmologist and may need surgery. Treatment often includes stitches and sometimes a small tube to repair the tear drainage system.

Because an eyelid injury may occur with an injury to the eyeball, a complete eye examination is important.

HOW CAN THE BONES AROUND THE EYE BE DAMAGED?

The bones around the eye can break during an injury. This often happens from a sports injury, a fall, or a hard blow to the face.

A CT scan may be used to look for broken bones and to check whether muscles or other tissues are trapped. Some fractures need surgery to help prevent double vision, vision loss, or changes in facial appearance.

WHAT ARE SOME COMMON INJURIES TO THE EYEBALL ITSELF?

The clear front surface of the eye, called the cornea, can be scratched. This is called a corneal abrasion. It often causes pain, redness, and tearing.

A corneal abrasion can be seen using a yellow fluorescein dye placed in the eye. Treatment often includes antibiotic eye drops or ointment. Sometimes an eye patch may be used.

A hard blow to the eye can also cause a hyphema, which is bleeding inside the eye.

WHAT IF THE SCRATCH GOES DEEPER THAN THE SURFACE?

Sharp objects such as sticks, glass, or metal can cut all the way through the eye. This serious injury can cause permanent vision loss.

A deep cut to the eye requires urgent care by an ophthalmologist and often needs surgery to help save vision and prevent further damage.

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

The treatment depends on the type of injury.

If a chemical gets into the eye, immediately rinse the eye and face with clean water for at least 10 to 15 minutes. This helps lower the risk of lasting damage. After rinsing, contact a doctor or go to the emergency department right away. Bring the chemical container or a picture of it if possible.

If a sharp object is stuck in the eye or eyelid, do not remove it. Do not let the child touch the eye. Place a clean empty plastic or foam cup over the eye if available and go to the emergency room immediately.

Any blunt or sharp eye injury should be examined by an ophthalmologist because serious damage may not always be easy to see.

Do not give the child food or drinks after a serious eye injury because anesthesia may be needed for an examination or surgery.

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

Many eye injuries can be prevented by wearing protective eyewear.

For sports, the best protection is sports safety glasses with shatter-resistant polycarbonate lenses. Some sports may also require goggles or a full face mask.

If a child wears prescription glasses, the prescription can often be placed into sports safety frames. Contact lenses do not protect the eyes from injury.

Safety glasses should also be worn when working with tools, chemicals, or other materials that may damage the eyes. Dangerous chemicals should always be stored out of the reach of children.

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

Children and adults who have poor vision in one eye should always wear glasses to protect the stronger eye from injury.

They should also wear approved sports safety glasses during gym activities and sports.

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. 2018.

Gilles C. Martin, Gael Le Roux, Damien Guindolet, and colleagues. *Pediatric Eye Injuries by Hydroalcoholic Gel in the Context of the Coronavirus Disease 2019 Pandemic*. JAMA Ophthalmology. 2021.

Summary

Eye injuries can happen during sports, play, work, or everyday activities. Common causes include balls, sharp objects, chemicals, fireworks, and household tools. Some eye injuries can lead to permanent vision loss if not treated quickly. Any child with an eye injury should be checked by a doctor, especially if there is pain, vision changes, bleeding, or a chemical splash. Wearing safety glasses, sports goggles, or face shields can help prevent many eye injuries and protect vision.