

## **SPORTS EYE HEALTH & SAFETY**

- Wearing contact lenses during water activities increases the risk for Acanthamoeba keratitis. <http://www.preventblindness.org/acanthamoeba-keratitis-and-contact-lenses>

According to a recent study, "[Pediatric Sports- and Recreation-Related Eye Injuries Treated in US Emergency Departments](#):"

- Boys sustained 96.4% of eye injuries associated with wrestling, 92.6% associated with football, and 90.7% associated with nonpowder guns.
- The activity and equipment categories with the highest proportion of injured girls were the dance, gymnastics, cheerleading, or baton category (77.6%); volleyball (52.3%); and the swimming activity, pools and equipment category (41.7%).
- Eye injuries from any sport may include infection, corneal abrasions, fracture of the eye socket, swollen or detached retinas or a traumatic cataract. In the worst cases, some injuries may result in permanent vision loss.
- Using the right kind of eye protection while playing sports can help prevent serious eye injuries and even blindness.
- Sports eye protection comes in a variety of shapes and sizes. Eye gear designed for use in racquet sports is now commonly used for basketball and soccer and in combination with helmets in football, hockey and baseball. The eye gear you choose should fit securely and comfortably and allow the use of a helmet if necessary.
- For sports use, polycarbonate lenses must be used with protectors that meet or exceed the requirements of the American Society for Testing and Materials (ASTM). Each sport has a specific ASTM code, so look for the ASTM label on the product before making a purchase.
- Two important U.S. standards are:
  - ASTM F803- F803 is the strictest standard for protective eyewear.
  - ANSI Z87.1- The American National Standards Institute publishes standards for protective eyewear for occupational safety.
- There is no evidence that wearing eye protection hampers athletic performance.

- According to the National Eye Institute, every 13 minutes, an emergency room in the United States treats a sports-related eye injury.  
<https://nei.nih.gov/sites/default/files/nehpdfs/HVMPowerPoint.pdf>
- The JAMA-published study, “[Trends in US Emergency Department Visits for Pediatric Acute Ocular Injury](#)” found that although there was a decline in the rate of overall ocular injuries in the study period (2006-2014), there were increases during the study in injuries related to sports (12.8%) and household/domestic activities (20.7%).
- Data from the 2016 study published in JAMA, “[Epidemiology of Sports-Related Eye Injuries in the United States](#),” include:
  - Patients with primary sports-related ocular trauma were most commonly male
  - Mean patient ages were 20.1 years and 19 years for males and females, respectively
  - Age-specific rates of injury increased for every successive year from age 7 until age 15 years (among females) or age 17 years (among males), after which they were markedly reduced)
  - More than half of the males and females who sustained sports-related primary ocular injuries were 18 years or younger
  - Although only 3760 (3.1%) of all individuals who presented to the ER with a diagnosis of ocular trauma had impaired vision, rates of visual symptoms varied widely by sports-related activity, injury type, and age. The proportion of injuries resulting in impaired vision was highest for those injuries associated with paintball (10.2%), shooting an air gun (8.2%), racket sports (5.8%), and soccer (5.7%).
- The most common types of sports-related eye injuries are (from the American Academy of Family Physicians): <http://www.aafp.org/afp/2003/0401/p1494.html>

**Blunt trauma:** occurs when something hits you in the eye. Blunt trauma causes most sports-related eye injuries. Some serious examples are an orbital blowout fracture (a broken bone under the eyeball), a ruptured globe (broken eyeball) and a detached retina (the part of the eye that is sensitive to light and helps you see). Bruising of the eye and eyelid (a "black eye") looks bad but usually is a less serious injury.

**Penetrating injury:** occurs when something cuts into your eye. These injuries are not very common. You can get a penetrating injury if your eyeglasses break while you are wearing them or if another person's finger scratches you in the eye. Injuries range from mild to deep cuts. Fishing hooks can cause penetrating eye injuries.

**Radiation injury:** caused by exposure to ultraviolet light from the sun. These injuries are most common in sports such as snow skiing, water skiing and other water sports. <https://jamanetwork.com/journals/jamaophthalmology/fullarticle/2578714?alert=article>

Additionally, a “one-eyed athlete” has less than 20/40 vision in one eye, even with corrective lenses, while the other eye has normal vision. If such an athlete loses vision in the good eye because of injury, he or she could become legally or totally blind. Before playing a given sport, the athlete must know the risks of that sport, how well protective devices work, and if a typical eye injury can be treated successfully.