

# New study finds large increase in non-powder gun-related eye injuries

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A new study conducted by researchers in the Center for Injury Research and Policy of the Research Institute at Nationwide Children's Hospital investigated sports- and recreation-related eye injuries during a 23-year period and found a slight decrease in eye injuries overall; however, the rate of eye injury associated with non-powder guns (including BB, pellet and paintball guns) increased by almost 170%.

The study, published online today in *Pediatrics*, found that from January 1990 through December 2012, almost 442,000 children were treated in United States hospital emergency departments for sports- and recreation-related eye injuries. This averages more than 19,200 children annually or about two every hour. Children 10 to 17 years of age had the highest rate of [injury](#), and about three-fourths of injuries were experienced by boys. The most common types of injury were a scratched eye (27%), pinkeye (10%) and foreign body in the eye (9%). About 5% of children with eye injuries were admitted to the hospital for treatment.

While the overall rate of sports- and recreation-related eye injury decreased slightly during the study period, the rate of injury associated with non-powder guns increased by nearly 170%. Non-powder gun-related eye injuries accounted for 11% of eye injuries and almost half of hospitalizations reported in this time period. Of the hospitalizations, about 79% were associated with BB or pellet guns and about 19% were associated with paintball guns.

The two most common sports and recreation activities associated with

eye injury were basketball (16%) and baseball/softball (15%).

Recommendations by the American Academy of Pediatrics and American Academy of Ophthalmology include the use of eye protection with polycarbonate lenses in basketball and facemasks and faceguards in baseball/softball.

"Eye injuries associated with sports and recreation are common, but preventable," said Dr. Gary Smith, Director of the Center for Injury Research and Policy at Nationwide Children's Hospital and senior author of the study. "These injuries happen in an instant and can have significant life-long effects."

"We want children to participate in sports," said Tracy Mehan, Manager of Translational Research at the Center for Injury Research and Policy at Nationwide Children's. "Wearing appropriate eye protection will help prevent injury and keep them in the game."

Increased prevention efforts are needed, especially for [eye injuries](#) associated with non-powder guns. Increased child, parent, and coach education, as well as adoption of consistent rules that require the use of eye protective equipment can help prevent many of these injuries. Below are some sport-specific recommendations:

### **Non-powder guns (including BB, pellet, and paintball guns):**

- Always wear eye protection that meets appropriate national standards when using non-powder guns.
- Teach children to shoot BB and pellet guns at paper or gel targets with a backstop that will trap BBs or pellets and prevent ricochet.
- Make sure that parents and children are educated on proper safety precautions for handling and using non-powder guns.

- Ensure that there is always appropriate adult supervision.

## **Basketball:**

- While not required by the National Federation of State High School Associations, both the American Academy of Pediatrics and the American Academy of Ophthalmology recommend that players wear [eye protection](#) with polycarbonate lenses.

## **Baseball/softball:**

- The American Academy of Pediatrics and the American Academy of Ophthalmology recommend that players wear protective eyewear, which includes facemasks attached to batter and base runner helmets as well as polycarbonate faceguards for fielders.

Data for this study were obtained from the National Electronic Injury Surveillance System (NEISS) database, which is maintained by the U.S. Consumer Product Safety Commission. The NEISS database provides information on consumer product-related and sports- and recreation-related injuries treated in hospital emergency departments across the country.

Provided by Nationwide Children's Hospital

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