

# Only 40% of Youth Concussions Caused by Contact Sports

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Only a minority of all concussions in children are the result of contact sports, a new study suggests.

The findings indicate that strategies to prevent such injuries in children will have to extend outside youth sports, the researchers say.

"While sports concussions have been important in raising awareness of concussions, it is important to remember that many nonsports/life activities can result in concussion as well and that it is a common injury in childhood and not just in sports," senior study author, Christina Master, MD, pediatric primary care sports medicine specialist at Children's Hospital of Philadelphia (CHOP), Pennsylvania, told *Medscape Medical News*.



Dr Christina Master

Researchers at CHOP and the Centers for Disease Control and Prevention (CDC) examined the mechanism of injury for concussion in children aged 0 to 17 years seen for at least one clinical visit with an *International Classification of Diseases, Ninth Revision, Clinical Modification* diagnosis of concussion in CHOP's electronic health record system between July 1, 2012, and June 30, 2014. Of 8233 selected, 20% were randomly selected for manual record review (n = 1625 after exclusions).

Although most concussions (70%) were related to sports and recreation activities, 30% were due to nonsports and nonrecreational mechanisms, including falls, motor vehicle crashes, and assault.

Notably, say the researchers, only 40% of all concussions were from contact sports, including football, soccer, basketball, and hockey. The remaining concussions occurred in limited or noncontact sports and recreation activities (playground, recess, gym) and nonsports and nonrecreation activities.

The mechanism of injury varied considerably by age. "Sports and recreation-related activities become the primary source of concussions beginning at age 6, increase in proportion up to age 10, remaining constant until age 16, then take a small dip at age 17, which may be due to an uptick in motor vehicle crash injury and attrition from sports," Master explains in a news release.

The study was [published online](#) April 4 in the *Journal of Pediatrics*.

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## Think Beyond Contact Sports

The researchers also found that only about one sixth of the children (15.2%) were seen on the same day of their injury. Most children were seen 2 or more days after injury (58.3%). The time from injury to clinical visit was unknown for 9.8% of cases.

"This study tells us that we need to extend traumatic brain injury prevention and management outside of youth sports to ensure all children who sustain a concussion receive the necessary care to return to daily childhood activities including school and play," lead author, Juliet Haarbauer-Krupa, PhD, from the CDC's National Center for Injury Prevention and Control, said in the release.

"It's important to remember that life concussions can also have a big impact on return to activities, similar to sports concussion, and should receive as much attention and active management as sports concussion," Master told *Medscape Medical News*.

Reached for comment on the study, Jamie Ullman, MD, director of neurotrauma at North Shore University Hospital in Manhasset, New York, noted that "while the article does not offer much surprise in terms of injury mechanisms for concussions sustained in children at various ages, the article does underscore the need for awareness of head injury risk in the daily life of children (and adults, for that matter)."

"With recent emphasis on sports-related concussion, caregivers and teachers should also be aware of the same signs and symptoms of concussion that also occur out of the context of sports," Ullman told *Medscape Medical News*.

"At the Northwell Health Concussion Program, when a child in elementary grades suffers concussions, we also include exclusion from recess activities as part of the instructions while awaiting concussion symptoms to resolve, as recess involves activity with other children and playground activities. Additionally, children's use of helmets to mitigate head injury while using mobile recreational devices (eg bicycles, skateboards, skates, hover boards) should be emphasized," said Ullman.

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