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## Kids' brain injuries from basketball may be rising

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By Amy Norton

NEW YORK (Reuters Health) - Nearly 400,000 U.S. children and teenagers go to the emergency room for basketball-related injuries each year -- with the number of concussions and other brain injuries on the rise in recent years, researchers reported Monday.

Using government data collected from a national sample of U.S. hospitals, the researchers estimate that more than 4.1 million kids between the ages of 5 and 19 visited an ER for a basketball injury between 1997 and 2007.

Muscle strains and joint sprains accounted for 45 percent of the injuries, while fractures and dislocations made up 22 percent.

Traumatic brain injuries, including concussions and skull fractures, accounted for less than three percent of all injuries -- or about 109,000 ER visits nationally per year, the researchers estimate.

But the number of brain injuries climbed 70 percent over time, from just over 7,000 in 1997 to almost 12,000 in 2007. They also accounted for a growing proportion of all injuries over time -- from less than two percent in 1997, to almost four percent in 2007.

The report, published in the journal *Pediatrics*, is not meant to turn parents and kids off from basketball, the researchers stress.

"We would keep encouraging kids to play basketball. There are a lot of benefits from physical activity," said senior researcher Dr. Lara B. McKenzie, of the Center for Injury Research and Policy at Nationwide Children's Hospital in Columbus, Ohio.

And, she noted in an interview, most types of physical activity -- not just basketball -- carry "some inherent risks."

But, McKenzie said, future studies should try to uncover the reason for the increase in traumatic brain injuries over time.

It's possible, she said, that greater awareness has played a role. Parents, coaches and trainers may have become better able to recognize the signs of a concussion or other brain injury -- such as dizziness, confusion, balance problems and vision disturbances -- and are more often taking kids to the ER for those symptoms.

On the other hand, the findings may reflect a true increase, McKenzie said. The game may be getting "rougher," for example, or kids today may be bigger relative to years past, which could be making the game more physical.

In basketball, brain injuries may happen when players collide with each other, for instance, or when a player falls and hits his head on the ground, according to McKenzie. The data used for this study, however, did not include information on the precise mechanisms of kids' injuries, she pointed out.

The findings are based on information collected from about 100 U.S. hospitals by the U.S. Consumer Product Safety Commission. Between 1997 and 2007, ERs reported 118,718 basketball-related injuries among 5- to 19-year-olds.

Extrapolating that to the general population, McKenzie's team estimates that more than 4.1 million kids in that age range visited an ER for a basketball injury. That translates to 375,350 visits per year.

Strains and sprains to the lower extremities, particularly the ankle, were most common, accounting for 30 percent of the injuries. That's a pattern that would be expected with basketball, McKenzie said.

Teenagers between the ages of 15 and 19 sustained the largest number of injuries -- accounting for an estimated 2.1 million nationally over the study period. Children ages five to 10 had the fewest, at just over 400,000.

Overall, 36 percent of the injuries were sustained at a sports facility, with schools being the second-most common locale. But the researchers estimate that about 335,000 injuries over the study period happened at home -- with young children, not surprisingly, being more likely to suffer an injury at home than older kids were.

One way parents can help protect younger children is to make sure they play with a basketball designed for their age, McKenzie said. Injuries to the fingers were among the most common in younger children, and a smaller, "age-appropriate" basketball could help prevent those, she explained.

She also suggested that parents, coaches and others involved in youth sports visit the U.S. Centers for Disease Control and Prevention's Web site on traumatic brain injuries ([www.cdc.gov/traumaticbraininjury](http://www.cdc.gov/traumaticbraininjury)). It contains information and a free online training course on preventing sports-related brain injuries in young athletes.

McKenzie pointed out that this study probably significantly underestimates the number of basketball-related injuries among U.S. kids each year, as it looked only at injuries treated in an ER. Many more children may see their regular doctor or other healthcare providers.

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