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Overweight children at increased risk of arm and leg injuries following motor vehicle crash

First study to look at impact of body mass index on older kids involved in car crashes

Children who are overweight or obese are over two and a half times more likely to suffer injuries to their upper and lower extremities following a motor vehicle crash compared with normal weight children, according to a new report from the Johns Hopkins Bloomberg School of Public Health's Center for Injury Research and Policy. Overweight and obese children were overall more likely to experience injury to any body part following a crash; however this difference was not statistically significant. The results are available online at the website of the journal *Injury Prevention* and published in the December print edition of the journal.

"Our findings document yet another risk associated with overweight and obesity in children," said study lead author Keshia M. Pollack, MPH, PhD, an assistant professor with the Bloomberg School's Center for Injury Research and Policy. "Previous research has shown that poor-fitting car safety seats can put overweight children at greater risk for injury. We found that being overweight negatively impacts older kids involved in motor vehicle accidents as well." The study included a national sample of children 9 to 15 years old who were at least five feet tall; this height cutoff was chosen so researchers could look at the impact of crash on kids not using booster seats.

Pollack and colleagues analyzed data collected between 2000-2006 from the Partners for Child Passenger Safety (PCPS) study, a large child-focused crash surveillance system. All children in the study were riding in parent-operated vehicles at the time of crash. Ninety-six percent of the children were restrained at the time of the crash, with most using a lap/shoulder belt, and over half of the children were seated in the front row of the vehicle. Adjustment was made for potential confounders, including age and gender of the child, direction of initial impact, vehicle type, seating position of the child, child restraint status, age of driver, exposure of child to passenger airbag, and crash severity.

While the causes behind the increased risk in injury to extremities are not known, Pollack hypothesized that it may be due to a combination of physiology and biomechanical factors. "As weaker bone strength is associated with increased risk for fractures—the primary cause of extremity injuries—it seems likely that overweight and obese children are more prone to fractures following a crash compared to children of normal weight," explained Pollack. "As motor vehicle crashes are a leading cause of death for children in the U.S., and one out of every three kids in the U.S. is overweight or obese, programs to reduce the burden of injuries following motor vehicle crashes must take into account the impact of children's body mass."

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Additional authors of "Body Mass Index and Injury Risk Among U.S. Children 9-15 Years Old in Motor Vehicle Crashes" are Dr's Dawei Xie, Kristy B. Arbogast and Dennis R. Durbin.

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