

Most pediatric spinal fractures related to not wearing seatbelts

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Two thirds of all pediatric spinal fractures, especially in the adolescent population, occur in motor vehicle accidents (MVAs) where seatbelts are not utilized, reports a study in *Spine*.

"Over 60 percent of pediatric spinal fractures occur in children ages 15 to 17, coinciding with the beginning of legal driving," according to the new research by Dr. Vishal Sarwahi, MD, of Cohen Children's Medical Center, New Hyde Park, NY, and colleagues. They emphasize the need for measures to increase seatbelt usage, particularly by younger drivers, and outline the potential trauma that can be avoided through proper seatbelt use.

Seatbelts save lives... and spines

Motor vehicle accidents are the leading cause of death amongst teenagers in the United States. Many previous studies have reported rising rates of pediatric spinal injuries, especially in teens aged 15 and older. This new study confirms that MVAs, in fact, cause most spinal fractures in children and adolescents, with high rates of other injuries. Spinal fractures in young patients are also associated with a three percent mortality rate, with many deaths occurring in unrestrained drivers and passengers.

Using the American College of Surgeons' National Trauma Data Bank, Dr. Sarwahi and his colleagues studied 34,563 [pediatric patients](#) (younger than 18 years) who sustained spinal fractures between 2009 and 2014. Many of the patients had multiple spinal fractures, with a total of 45,430 fractured vertebrae.

Overall, teenagers between age 15 and 17 years accounted for about 63 percent of spinal fractures, two-thirds of which occurred in MVAs. These findings show that around the time teens get their drivers' license, drivers and passengers are at highest risk for MVA resulting in spinal fracture.

Fifty-eight percent of the injured patients were male. Pediatric spinal fractures were found to be most common in the South: 38 percent, probably due to a lack of public transport resulting in more vehicles on the road.

The study also shows the impact of seatbelt use on these devastating injuries. "Nearly two-thirds of pediatric spinal fractures sustained in MVAs occurred in children who did not use belts," Dr. Sarwahi and co-authors write. Without seatbelts, the risks of severe or multiple injuries and death are substantially increased, with a significantly increased death rate from 29.3 percent to 70.7 percent—more than doubled.

Data on seatbelt use was available for nearly 19,000 patients, with approximately two-thirds of patients (65.9 percent) unrestrained. Almost half (44.2 percent) of unrestrained patients in MVAs were teenagers. Despite a larger percentage of MVAs occurring in the South overall, the percentage of spinal fractures from MVAs for unrestrained drivers and passengers was similar across all regions of the United States; approximately two-thirds of all teenagers across all regions—Northeast, Midwest, West, South—involved in MVAs did not wear seatbelts. This demonstrates the universality of teenage risk-taking behavior and identifies at-risk groups for risk modification strategies.

When seatbelts were worn, the rate of [spinal fractures](#) was substantially lower for all drivers and passengers. Seatbelt use lowered the risk of death by more than 20 percent. For young patients in MVAs, wearing seatbelts was also associated with lower rates of multiple vertebral fractures, other types of [fractures](#) in addition to spinal fracture, and head and brain injury.

While the percentage of drivers wearing seatbelts has risen steadily over the years, adolescents and young adults remain less likely to use these

lifesaving devices. Dr. Sarwahi and colleagues discuss targeted approaches using technology and media awareness campaigns to increase [seatbelt](#) use among young people, as well as studies showing the importance of societal and cultural norms related to seatbelts. The researchers conclude: "Ensuring our new, young drivers wear protective devices can greatly reduce morbidity/mortality associated with MVA and can help save lives, and spines."

More information: Vishal Sarwahi et al. Seatbelts Save Lives, and Spines, in Motor Vehicle Accidents, *Spine* (2021). DOI: [10.1097/BRS.0000000000004072](https://doi.org/10.1097/BRS.0000000000004072)

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