

## Effectiveness of booster seats investigated

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*Summary:* Booster seats, car seats and seat belts are equally effective at saving the lives of children, while booster seats top the others at reducing minor injuries specifically among children ages 8-12, according to new research.

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Booster seats, car seats and seat belts are equally effective at saving the lives of children, while booster seats top the others at reducing minor injuries specifically among children ages 8-12, according to Montana State University economist D. Mark Anderson.

Anderson recently published two studies that investigated booster seats. One looked at their effectiveness relative to seat belts alone among children ages 8 to 12 in Washington. The other asked if booster seats were more effective than car seats or seat belts alone at reducing traffic fatalities among children ages 2 to 9 across the nation. |

Despite their differences in scope, the studies came to the same conclusion regarding fatal injuries "over and over and over again," said Anderson, an associate professor in MSU's Department of Agricultural Economics and Economics in the College of Agriculture.

"All three forms of restraint appear equally effective at reducing the likelihood of fatality," Anderson said. "There was even some evidence that booster seats may be the least effective form of restraint for children 2 to 5 years old."

The study warned against moving children too early into booster seats and adult seat belts.

"Because belt positioning is critical for the safety of the child, premature graduation from a child safety seat to a booster seat or from a booster seat to a seat belt could be hazardous," the study reported.

Booster seats are designed for children who are too large for car seats and too small for adult seat belts. They are meant to prevent injuries by elevating children so their seat belts are properly positioned. Instead of crossing the soft tissue of the neck, for example, seat belts should cross the bony clavicle.

Anderson said he was inspired to investigate booster seats for children after reading a 2008 paper by University of Chicago economist Steven Levitt that compared the effectiveness of car seats and adult seat belts. That paper was based on data collected prior to the boom in booster seats.

"In an effort to increase booster seat use among children, the National Highway Traffic Safety Administration is encouraging state legislators to promote stricter booster seat laws, yet there is a paucity of information on booster seat efficacy relative to other forms of restraint," Anderson said in his most recent paper.

Anderson published his paper, "Booster Seat Effectiveness Among Older Children: Evidence from Washington State," in the *American Journal of Preventive Medicine* in August. His paper "Are Booster Seats More Effective than Child Safety Seats or Seat Belts at Reducing Traffic Fatalities Among Children?" is forthcoming at the *American Journal of Health Economics* and was posted in November on the MIT Press website.

"I am very excited that the study is now coming out, as I believe the topic is extremely important," said Sina Sandholt, co-author of the national study. "Child safety seat laws-booster seat laws, as well as informational campaigns on the topic, ought to be backed by evidence, and I believe we are adding something important to the literature here, which I hope will influence policy decisions on the subject in the near future."

Sandholt is a former MSU undergraduate student from Norway. She said she came to Bozeman to compete on the MSU ski team but stayed because of MSU's economics program.

"The opportunity to learn and work with professors like Mark was a great experience. I really cannot recommend the MSU economics program enough," she said.

Sandholt earned her bachelor's degree in economics in 2015. In May 2017, she earned her master's degree in economic policy from Columbia University in New York. She now works as a market analyst for the Norwegian energy company Statoil outside of New York City.

Anderson and Sandholt's paper was based on 2008-2016 statistics from the Fatality Analysis Reporting System, or FARS. Anderson said the national study, which took about two years to complete, also involved painstaking work by Sandholt to collect information about booster seat laws in every state.

"She really nailed that," Anderson said. "I was extremely impressed."

As of November 2017, every state but South Dakota had passed booster seat legislation, Anderson said. He added that the laws vary from state to state. Montana, for example, passed its original booster seat law in 2003. It required booster seats for children under age 6 and under 60 pounds. Wyoming required booster seats for children under age 9 and weighing less than 81 pounds. Fines for first-time violations ranged from \$25 in several states to \$500 in Nevada.

"Getting the information about state laws on child restraint was quite difficult and involved state law librarians across the country, looking through a tremendous amount of data, papers and speaking to lots of people who in some capacity were working on these issues in different states -- either as law librarians, researchers, analysts or law enforcement agents," Sandholt said. "It took some time, but we eventually were able to collect the necessary data."

Anderson, a Lewistown native who earned bachelor's degrees in mathematics and economics from MSU and a master's degree and doctorate in economics from the University of Washington, said booster seats were a new topic for him to research. In the past, he has published papers on such things as medical marijuana laws, Montana's Meth Project and the four-day school week.

### Story Source:

Materials provided by **Montana State University**. Original written by Evelyn Boswell. *Note: Content may be edited for style and length.*

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2. D. Mark Anderson, Sina Sandholt. **Are Booster Seats More Effective than Child Safety Seats or Seat Belts at Reducing Traffic Fatalities among Children?** *American Journal of Health Economics*, 2017; DOI: 10.1162/ajhe\_a\_00114

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