

## **A car's middle back seat may be least desirable, but it's the safest**

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In a full car, some poor soul is relegated to the middle of the back seat, the least desirable, most uncomfortable, most "un-cool" spot in the vehicle. It also happens to be the safest.

University at Buffalo researchers studied all auto crashes involving a fatality in the U.S. between 2000 and 2003 where someone occupied the rear middle-seat.

They found that occupants of the back seat are 59 percent to 86 percent safer than passengers in the front seat and that, in the back seat, the person in the middle is 25 percent safer than other back-seat passengers.

"After controlling for factors such as restraint use, vehicle type, vehicle weight, occupant age, weather and light conditions, air-bag deployment, drug results and fatalities per crash, the rear middle seat is still 16 percent safer than any other seat in the vehicle," said Dietrich Jehle, M.D., UB associate professor of emergency medicine and lead author on the study.

Results of the study were presented at the May meeting of the Society for Academic Emergency Medicine in San Francisco, Calif.

Jehle and colleagues at the Center for Transportation Injury Research (CenTIR), conducted a retrospective cohort study of fatal crashes in which there were rear-seat occupants and at least one fatality in the vehicle. CenTIR is headquartered in the Erie County Medical Center and

is affiliated with the Calspan UB Research Center (CUBRC).

The data was obtained from the Fatality Analysis Reporting System of the National Highway Traffic Safety Administration.

The study involved two different sets of fatal crash data. Researchers first analyzed a special class of car crashes in which there were occupants in the front seat and in the middle of the back seat. Fatal crashes in which there was no occupant in the rear middle seat were excluded. This class of crashes involved 27,098 occupants. Researchers compared survival rates of front-seat versus back-seat positions.

The second data set compared survival rates of back-seat occupants only in crashes in which there was at least one fatality. The middle-seat group contained 5,707 occupants, while the "outboard" or window-seat group had 27,611 occupants, for a total of 33,318 back-seat passengers.

The fatality rate for the rear middle-seat occupant then was compared to that of the window-seat positions. The analysis produced some revealing statistics, aside from the issue of the safest place to be sitting during a crash. The average age of the 33,318 rear seat passengers was 20 years, while middle back-seat passengers were only 15.4 years on average.

Nearly half of the passengers in the back seat -- 46.9 percent -- were not wearing seat belts, results showed, and of these unrestrained passengers, 34.6 percent were fatally injured, compared to only 14.9 percent of seat-belt wearers.

In general, back-seat passengers who wore seat belts were 2.4 to 3.2 times more likely to survive a crash than their unbelted back-seat companions.

One reason the rear middle seat is the safest, Jehle noted, is because

passengers sitting in this position have a much larger "crush zone" than rear side-seat passengers in near-side impact crashes. The crush zone is an area of the car designed to collapse in an effort to absorb some of the impact from a collision.

"In addition, in rollover crashes there is potentially less rotational force exerted on the middle seat passenger than on those in the window seats," he said. "This study reinforces the importance of using seat belts in the back seat, as well as demonstrating that the rear middle seat is the safest," stated Jehle. "Legislation to require rear-seat belt use by all passengers should be strongly supported."

Source: University at Buffalo

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