

Answering Concerns About Safety Belts

Kyle David Miller--40 pounds, 3 years old, and riding in a booster--was ejected in a rollover crash and died 5/29/05. His almost-5-year-old sister, restrained in the same system, survived all 4 rolls.

Christine Miller memorializes her son on a YouTube video ("Importance of a 5-Point Harness Carseat"), promoting the use of 5-point-harness safety seats with tethers far beyond 40 pounds. Other goals are to raise awareness that safety belts may fail and to encourage testing the use of both LATCH attachments and safety belts to hold safety seats in place. A foundation in Kyle's name supports access to safety seats for low-income youngsters.

Kyle's story ignited concern and generated interest in resuming use of 5-point-harness safety seats for older kids. But because of Miller's contention that the safety belt holding Kyle into his booster failed, the video implies parents should avoid using vehicle belts to protect children, either to attach harness-equipped safety seats or with a booster.

Data do not indicate frequent instances of belt failure/buckle unlatching. Investigations conducted through the Center for Injury Research & Prevention at Children's Hospital of Philadelphia (CHOP) of 800 crashes in which appropriately restrained children were injured or killed, did not turn up any such cases.

Their 2003 paper examining subsets of children ages 4 to 8 riding unrestrained, belted, or in boosters, shows a 38% reduction of injury for kids in belts compared to those unrestrained. A more recent study showed that using a booster instead of just a belt reduced injuries by 45% for children ages 4 to 8.

Since the 1970s, reported effectiveness of forward-facing safety seats has been based on a comparative study of kids in crashes 1974-84. Much has changed since then, including a drop in unrestrained kids from 54% to 9%! Examining outcomes for children 12-47 months in the back seats of vehicles, excluding pickups, which were towed away post-crash, the CHOP team compared those in safety seats, virtually all restrained by belts, and kids in belts alone. The reduction in injury risk was 71%. The overall risk to the safety-seat kids was less than 1%, despite 80% incorrect use.

SBS USA turned to Chip Chidester, National Center for Statistics & Analysis of National Highway Traffic Safety Administration (NHTSA), to pursue data on belt failure. He reports that data from National Automotive Sampling System-Crashworthiness Data System (CDS) indicate belt failure, of any kind, for children is rare, possibly occurring once or twice annually.

Overall results for a recent 8-year period for kids 14 and under in CDS crashes was about .05%; such failures may result from any aspect of the crash, from massive destruction of the belt in the crash to a buckle release. Using these nationally representative data, NHTSA calculated unrestrained children 0 to 4 years, 5 to 7 years, and 8 to 14 years were 6.6, 14.9, and 10 times more likely respectively to receive serious-to-fatal injury compared to those restrained, a statistically significant finding at $p < .05$ level.

NHTSA investigates reports of failures due to equipment malfunction through the Office of Defects Investigation where all such incidents should be sent.

However, there have been data collected indicating problems of buckle release either due to the mechanism being activated by flailing arms or legs or flying objects, by particular "pulses" from webbing elongation, or by deterioration of internal springs. Certain designs have been recalled over the years, so the issue should not be ignored.