

Study Confirms: Rear Facing is Best for Children up to Age 2

“Children are five times safer riding rear facing than forward facing into the second year of life.”

Dr. Marilyn Bull and Dr. Dennis Durbin

There is new, unequivocal, real-world evidence that children under age 2 are best protected riding in a rear-facing (RF) car seat (CR). Injuries to rear- and forward-facing children under age 2 were studied in crashes from 1998 to 2003. Rear-facing CRs were given an effectiveness rating of 93 percent, while forward-facing (FF) CRs were rated at only 78 percent, 15 points lower. This appears to confirm Swedish research that has shown the benefits of the RF position over many years.

An unexpected finding was the degree to which the RF position benefited children. The study looked at various vehicle types, crash types, and where the child was seated in the vehicle. While the most basic benefit in terms of how the body moves in a crash occurs in a frontal crash, **there was considerable benefit found in side impacts.** The researchers suggest that this may be because most side impacts also involve some frontal-impact forces. The researchers described the benefit to the RF child in a side-impact as a “cocoon” effect, because the frontal forces hold the child’s head confined in the headrest area and the side-wings of the CR shell, despite the sideward forces. For a FF child, the frontal forces thrust the child’s head out of the area where side-wings would be of any use to resist the sideward forces.

The benefit of the RF position was also found when the different ages (0-12 and 13-24 months) were each looked at separately. Thus RF CRs for children from 13 to 24 months continued to have a marked benefit despite the children’s physical development beyond the more fragile infant stage.

The researchers called on CPS advocates and educators as well as health care providers to put greater emphasis on continuation of the rear-facing position to the second birthday—within the size/weight limits of current child restraints. They also noted the need to design larger RF restraints and mentioned the potential need for revision of FMVSS 213 to accommodate testing of innovative designs, such as those already made in Europe to hold larger children rear facing.

***Pediatrics* Commentary Encourages Rear-Facing to 24 Months**

In commentary in the journal *Pediatrics*, Dr. Marilyn Bull of the Department of Pediatrics, Indiana University School of Medicine, and Dr. Dennis Durbin of the Center

for Injury Research and Prevention, The Children’s Hospital of Philadelphia, urged their fellow pediatricians to put greater emphasis on keeping children rear facing beyond the first birthday. The two eminent researchers in the field of childhood injury prevention and CR use called for “a significant change in counseling ... that may greatly improve the safety of infants and young children.”

They suggested telling parents, “Children are five times safer riding rear facing than forward facing into the second year of life.” They also stated that **current data do not support the myth that riding RF in a crash can lead to leg injuries if the child’s legs reach the seatback.** They urged physicians to refer families to local CPS technicians for further information.

References:

Bull, MJ and Durbin, DR, “Rear-facing Car Safety Seats — Getting the Message Right,” *Pediatrics*, March 2008, 121:619-620.

Henary, B, Sherwood, CP, Crandall, JR, Kent, WR, Vaca, FE, Arbogast, KB, Bull, MJ, “Car Safety Seats for Children: Rear Facing for Best Protection,” *Injury Prevention*, 2007, 13:398-402.

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