

MEDICOLEGAL NEWS

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US DEPARTMENT OF TRANSPORTATION ISSUES NEW VEHICLE HEAD RESTRAINT REQUIREMENTS – ANALYSIS IN AGREEMENT WITH OUR ANALYSIS OF WHIPLASH INJURIES

The U.S. Department of Transportation National Highway and Traffic Safety Administration on December 14, 2004 issued its “Final Rule” which “upgrades NHTSA’s head restraint standard in order to reduce whiplash injuries in rear collisions.” The following are key points from the Rule.

- ! “The relatively short-term symptoms are associated with muscle and ligament trauma, while the long-term ones associated with nerve damage.”
- ! Following a rear end collision, “First, from the occupant’s frame of reference, the back of the seat moves forward into his or her torso, straightening the spine and forcing the head to rise vertically. Second, as the seat pushes the occupant’s body forward, the unrestrained head tends to lag behind. This causes the neck to change shape, first taking on an S-shape and then bending backward. Third, the forces on the neck accelerate the head, which catches up with – and, depending on the seat back stiffness and if the occupant is using a shoulder belt, passes – the restrained torso.”
- ! “Despite a lack of consensus with respect to whiplash injury biomechanics, there is research indicating that reduced backset (the distance between the back of the head and the front of the headrest) will result in reduced risk of whiplash injury.”
- ! “Staged low speed impacts indicate that mild whiplash symptoms can occur without a person’s head exceeding the normal range of motion. This means that our previous focus on preventing neck hyperextension is insufficient to adequately protect all rear impact victims from risks of whiplash injuries. Instead, to effectively prevent whiplash, the head restraint must control smaller amounts of rapid head and neck movement relative to the torso.”
- ! “The consensus within the biomechanics community is that the backset dimension has an important influence on forces applied to the neck and the length of time a person is disabled by an injury.”
- ! “. . . whiplash injury symptoms do not manifest themselves until 12 to 72 hours after the accident. Additionally, unlike other spinal injuries, **whiplash has no linear relationship to crash severity**. Low speed crashes may nevertheless result in whiplash. Many low speed rear end collisions resulting in whiplash are never reported to the police, because little physical damage to the actual vehicles and lack of immediate injury symptoms.”

(Emphasis added.)

Source: U.S. Department of Transportation National Highway and Traffic Safety Administration 49 CFR Part 571 Federal Motor Vehicle Safety Standards; Head Restraints; Final Rule, issue December 14, 2004, Part III. If you would like a copy of this standard, please send an email request to amimmerman@direcpc.com.

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