

# MEDICAL-LEGAL FLIER BI-MONTHLY

## Trauma Series #96

### Seatbelt Injuries and Spinal Fractures

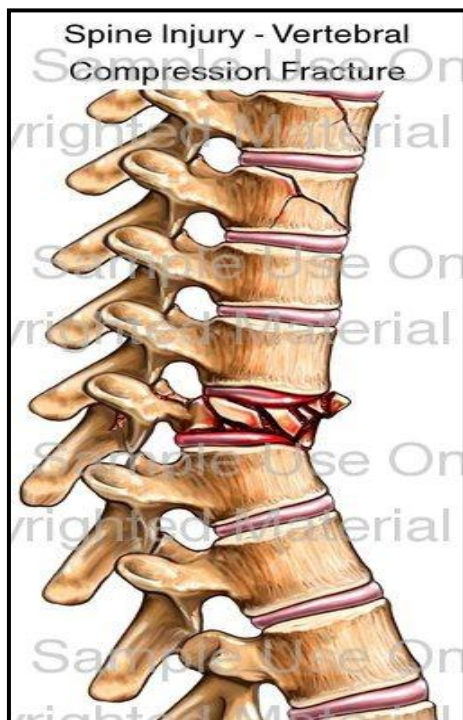


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Advances in the design of automobiles to reduce the number of injuries also pose unique problems for the driver or passenger. One of the most common product liabilities found in the automobile today is the 3-point seat belt restraint. The 3-point system has been instrumental in reducing fatalities, but can also contribute to injuries such as rib fracture, shoulder dislocation and spinal fracture. Very little research has been published on these cases and the mechanism of injury.

Nourbakhsh, Patil, Vannemreddy and Smith (2009) reported their research in, “*A Noncontiguous 2-Level Spinal Injury in a Young Female Driver Due to a 3-Point Seat Belt Restraint,*” a paper published in a peer reviewed medically indexed scientific journal. This paper’s focus was “to describe noncontiguous fracture and dislocations of the thoracolumbosacral spine in a 23-year-old female driver with a 3-point seat belt restraint” (Nourbakhsh et al., 2009, p. 592).

The authors stated, “To our knowledge, this case is the first report in the literature of a seat belt safety restraint causing 2 noncontiguous fracture dislocations of the spine. Although the consensus is that seat belts can prevent most spine injuries, this case shows that the seat belt can be a contributor to spine injury. It shows that the shoulder-lap restraint can act as 2 fulcrums at the upper and lower bands causing 2

separate fracture dislocations. *A thorough radiologic evaluation of the spine with respect to the clinical findings is mandatory in seat belt-restrained road traffic accidents cases*” (Nourbakhsh et al., 2009, p. 592).

It is critical that trauma patients receive proper diagnoses and treatment the authors reported. “In this case, despite the presence of 2 considerable fracture dislocations, only minimal neurologic deficit was detected” (Nourbakhsh et al., 2009, p. 595). In conclusion, the 3-point system remains a liability for some passengers and drivers and the astute clinician understands these issues. The authors commented on this point by stating, “*Emerging research suggests that after an MVA, persons considerably larger than the Hybrid III Crash Dummy, specifically obese adults, may be at higher risk of death and may have different injury patterns compared with occupants of normal weight.* The exact mechanism for this increase in risk is unknown, but one possibility involves the improper use of seat belts” (Nourbakhsh et al., 2009, p. 595).

**Premier Health Center  
2109 S. Bowen Road  
Arlington, TX 76013  
Phone 817-261-6100  
Fax 817-460-7550**