

Shoulder belts are excellent safety devices, but they are not a panacea.
Precautionary action when initially putting on the shoulder belt is advised!
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Numerous steps towards enhanced automobile safety have taken place from the time the car became a commonplace item in the American home.

The original cars had very marginal mechanical brakes; they were changed to much improved hydraulics systems. The hydraulic brakes, when they were introduced, had one master [brake fluid] master cylinder, which when failed caused the loss of all braking capability. The single master cylinder was replaced with a dual master cylinder that to large extent took care of that problem. The dual master cylinder was followed by disk brakes (less fading by virtue of improved heat dissipation) that were then followed by the addition of ABS brakes capability.

Seatbelts were one of the most significant safety devices that was borrowed from automobile racing (as were the disk brakes.) The seat, or initially “lap” belts, proved to be an improvement over cars without such a system, but they also caused new problems. Seatbelts, in harsh frontal crashes, caused lower back injuries. The seatbelts also caused upper body problems as occupants in a frontal crash, or rapid stopping, would bend forward and hit objects in front of them. The shoulder belts were a significant improvement over seatbelts; they protect the whole torso, not just its bottom part. Later airbags were designed to enhance safety and in combination with shoulder belts to also overcome the shortcomings of the original seatbelts.

Other items worth mention are: Front crumple zones, padded dashes, breakable steering coulombs, backrests, etc. Padded dashes, and the removal sharp objects in front of front seat occupants were particularly important in avoiding early seatbelt issues.

Seatbelts, which constrain the occupant movement, especially when evolving into the more advanced form of shoulder belts, is perhaps the single most effective safety device that was introduced in recent years. Even airbags, as effective as they have proven to be, are not effective unless they are used in conjunction with shoulder belts. Without the belts, what airbags may cause is occupant to “submarine,” or sliding under the airbag, potentially a very damaging situation.

As effective as seat/shoulder belts may be, they are not a panacea. Unless they function properly, they may well add to severity of injuries in frontal crashes. Let me site a recent personal experience.

In frontal crashes, or otherwise rapid stopping, shoulder belts **MUST** allow for an initial forward movement, allowing the inertial-switch to release after some amount of rapid forward movement. If the inertial-switch locks at the onset of a rapid deceleration, the occupant may be pushed into the belt that for all practical purposes becomes something resembling a solid barrier. Such motion could, and offer causes the occupant to suffer

sever injuries in the area that the shoulder belt contacts the body; more often than not, the ribs, and the entire ribcage, may be damaged.

About a year ago I personally suffered such an injury in a single vehicle incident. Coming to a rapid stop in order to avoid an animal on the road, my shoulder belt did not move at the early stage of a very quick stop, that improper shoulder-belt action caused my cartilage, the one that that connects the rib to the ribcage, to be damaged. That event allowed a rib to be pulled away from the ribcage, a serious condition, at best. The condition required a serious surgery to correct, even then, the “fix” is not complete, and will never likely be ever set right.

In order to avoid from such potential injury, after putting on shoulder belts, one must pull the shoulder-belt forward from its source to make sure that there is some “give.” If there is not free initial forward movement, it is important for one to undo the belt and exercise the inertial switch to make sure that there is sufficient slack when the shoulder belt is initially pulled without quick initial motion.

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