

**Instructor Notes:** The most important safety device in a tow truck is the driver, but the driver requires training. Use this Safety Meeting as an opportunity to help educate drivers on the importance of seat belts by discussing the value and benefits of wearing one each and every time they are behind the wheel. As a supervisor, it's their safety and your company's bottom line. Your job is to protect them both.



# Safety Meeting 2016 #12 – Three Collisions in a Crash



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A vehicle crash imposes a great deal of force on the occupants of the vehicle regardless of whether they are driving a car or truck, but it does differ depending on the speed and weight of the vehicle. Consider this: An average car traveling at 40 mph would hit a tree with the same force as hitting the ground after falling off a 50-foot cliff. Even worse, an unsecured object in the vehicle would hit the windshield with the same force as hitting the ground after a fall from a five-story building. While this sounds like two collisions in a crash, there are actually three: the “vehicle” collision, the “human” collision and the “internal” collision.

## Vehicle Collision

The vehicle collision is when the vehicle collides with another object, rapidly decelerates and begins to stop. The time from crash to full stop in a 30-mph crash is about one-tenth of a second. During the first phase of the crash, the vehicle's kinetic energy (energy due to motion) is transferred into the vehicle. Some of the energy is dispersed as the vehicle's metal bends, twists and breaks absorbing the energy, but some is transferred to the driver and occupants of the vehicle.

## Human Collision

During the human collision, the driver and occupants continue to move forward toward the point of impact at the same speed even though the vehicle they are in begins

to stop once the crash occurs. Only when the occupants hit an object in the vehicle will their forward motion begin to stop. For most people, their human collision will likely be with their seatbelt ... if they're lucky. However, for those occupants who are not wearing a seatbelt, their human collision is likely to be with the steering wheel, dashboard or windshield. And if you think that you have a strong enough grip to avoid striking the windshield, think again. The force needed to restrain an occupant roughly equals their weight multiplied times the pre-crash vehicle speed. For example, a 200-lb. driver in a vehicle moving at 30 mph would require at least 6,000 lbs. of force to keep from moving. You might be strong – but no one is that strong.

## Internal Collision

During the internal collision, the occupant's internal organs continue to move forward toward the point of impact until they hit other organs, bones or the skull to eventually stop. Even though a person may not appear to be seriously injured, their internal organs such as the liver, spleen, heart, etc., may have been torn, ruptured or bruised by the internal impact. Impacts to the head may cause a “closed head injury” from the brain hitting the inside of the skull as it stops. Internal injuries are very serious and should be treated by a medical professional as soon as possible.

## Seat Belts Save Lives

Since mandated by a Federal law in 1968, every car and truck must now be equipped with seat belts for good reason. Seat belts increase crash survivability rates by more than 50 percent and save approximately 15,000 lives in the U.S. each year. Seat belts help you stay in the driver's seat and in control of your truck during a crash. Three of every four people killed in an auto crash are unrestrained drivers thrown from their vehicles. Seat belts protect you by absorbing the forces of a crash by flexing slightly during impact, and prevent you from contacting the steering wheel, dash or windshield during a crash.

## Conclusion

Seat belt safety is a bargain and all you have to do is use them and request the same from your customers. Avoid the worst and put safety first.

*If you need ideas on how to prepare and present this information to your drivers, please call me at 847-894-0042 or email me at [patrick@towingexpert.com](mailto:patrick@towingexpert.com).*

This article is a part of TowSafe, a safety program designed for towing operators. For more information contact April at 407-706-6796.