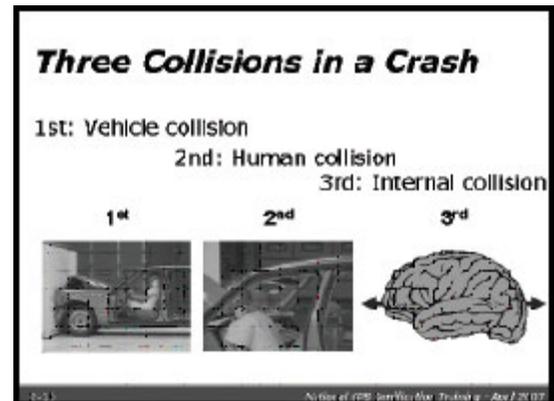


There are three collisions in a crash.

The *first collision* is the vehicle collision.

- The vehicle begins stopping as it collides with another object.
- The time from crash to full stop in a 30-mph crash is about one-tenth of a second.
- As the vehicle slows, the front of the vehicle crushes, taking some of the energy of the crash.



The *second collision* is the human collision.

- In the human collision, the occupant continues to move toward the point of impact at the same speed even though the vehicle begins to stop once impact occurs.
- The occupant will begin to stop once he or she connects with an outside force.
- An unrestrained occupant will hit the inside of the vehicle, such as a window or other object in the path of motion.
- As that individual collides with the vehicle interior, he or she slows down from 30 mph to a stop in a few hundredths of a second, with only the body to absorb the energy of the crash
- For a restrained occupant, however, the outside force will be met by a seat belt or the harness of a CR.

The *third collision* is the internal collision.

- In the internal collision, the occupant's internal organs move toward the point of impact and hit other organs, bones, and the skull.
- Even though the body may appear uninjured, the liver, spleen, heart, or other organs may be torn, bruised, and/or caused to bleed.
- Impacts to the head may cause "closed head injuries" resulting from the soft tissue of the brain hitting the skull or being torn as the skull fractures.

Any of these injuries may be hard to see immediately, yet they can be deadly. In any crash, even a minor one, the people in the vehicle can be seriously injured.

Most people don't know how much force a moving vehicle has. Consider this: A car going 40 mph would hit a tree with the same force as hitting the ground after falling off a 50 foot cliff. A person inside the car would hit the windshield with the same force as hitting the ground after a fall from a five-story building.

It is important for parents/caregivers to understand that the forces involved in a crash can kill or cause serious injuries to their child.

The force needed to restrain an occupant roughly equals the weight of the occupant times the pre-crash vehicle speed. For example a 10-pound infant in a motor vehicle moving at 30 mph could require at least 300 pounds of force to keep from moving forward. How much do you weigh? If you were in a crash at 40 mph, what is the restraining force?

It is important for parents/caregivers to understand that holding a child in their lap or unrestrained may be dangerous to the child.