



Lesson 1: How does the type of vehicle affect crashworthiness?

Many people choose the type of vehicle they drive based on the look, price, and perceived status of the vehicle. Is this the best way to choose a vehicle? Does the type of vehicle you drive affect driver and occupant safety? Get ready for the, “what do I have to do to get you to buy this vehicle today” salesperson and start this simulation.

Doing the Science

1. Start the Car Crash Simulation.
2. Select the blue SUV on the left side of the screen.
3. Select the “Medium” crush zone stiffness.
4. Select the “Medium” crush zone length.
5. Select the “Crash Center” button at the bottom of the screen.
6. Select the “40 MPH” speed, and then select the “Crash It” button.
7. Note and record in Table 1 the average acceleration and crash duration for the crash.
8. Select the “Analysis Center” button at the bottom of the screen.
9. Select the “Measure” button. Select the green round target, then select the next green round target to measure the crush zone deformation. Record this information in Table 2.
10. Repeat measuring the intrusion for the other two targets (yellow and red). Record this information in Table 2.
11. Select the “Medical Report” button. Record this information in Table 3.
12. Select the “New Vehicle” button at the bottom of the screen.
13. Repeat steps 2–11, except choose the red car on the right side of the screen.

Table 1. Acceleration and Crash Duration

| Vehicle Type | Average Acceleration (g’s) | Crash Duration (seconds) |
|--------------|----------------------------|--------------------------|
| Blue SUV | | |
| Red Car | | |

Table 2. Crash Zone Intrusion

| Vehicle Type | Frontend Deformation (green target in meters) | Footwell Intrusion (yellow target in meters) | Dashboard Intrusion (red target in meters) |
|--------------|---|--|--|
| Blue SUV | | | |
| Red Car | | | |

