



Why Trucks Collide with Cars

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Definitions

- **Cause:** Factors that *increase the risk of a crash* such as driving behavior, vehicle problems, road and weather conditions
- **Trucks:** Large Trucks -- Gross Vehicle Weight Rating of more than 10,000 pounds
- **Cars:** Passenger Vehicles -- passenger cars, pickup trucks, vans, SUVs, motorcycles

Coded Crash Variables

- 1. Critical Event:** Makes crash unavoidable
- 2. Critical Reason for Critical Event:** Immediate reason for critical event
- 3. Crash Associated Factors:** All factors that might be important that were present at the time of the crash

Critical Events

<u>Events</u>	<u>Trucks</u>	<u>Cars</u>
Running out of travel lane	24%	31%
Other vehicle stopped in lane	24%	7%
Crossing through intersection	12%	9%
Traveling same direction- slowing	10%	5%
Traveling too fast	7%	6%
Turning left at intersection	6%	10%
Jackknife	2%	NA
Other	<u>15%</u>	<u>22%</u>
Total	100%	100%

Source: Large Truck Crash Causation Study, 2001-2003

Critical Reasons

In all Large Truck LTTCS crashes

- 55% coded to the Large Truck

One Truck and One Car Crashes:

- 44% coded to the Large Truck
- 56% coded to Passenger Vehicle

Source: Large Truck Crash Causation Study, 2001-2003; Bus Study, 2005-06

Critical Reasons

<u>Reasons</u>	<u>Trucks</u>	<u>Cars</u>
Non-Performance (sleep, sick)	3%	16%
Recognition (inattention)	35%	30%
Decision (speed, aggressive)	42%	24%
Performance (overcompensate)	7%	19%
Vehicle (brakes, tires, lights)	8%	4%
Environment (roadway, weather)	4%	3%
Unknown	<u>1%</u>	<u>4%</u>
Total	100%	100%

Source: Large Truck Crash Causation Study, 2001-2003

Associated Factors

<u>Factors</u>	<u>Cars</u>	<u>Trucks</u>
Brake problems	27%	2%
Traffic flow interrupted	25%	25%
Stop required before crash	21%	16%
Unfamiliarity with roadway	19%	10%
Inadequate surveillance	16%	14%
Traveling too fast for conditions	15%	11%
Illegal maneuver	12%	18%
Felt under work pressure	10%	3%
Distraction (Internal or External)	10%	10%
Inattention	9%	9%
Fatigue	7%	15%
False Assumption	6%	3%
Tire problems	6%	3%

<u>Factors</u>	<u>Cars</u>	<u>Trucks</u>
Following too close	5%	1%
Overweight	5%	NA
Aggressive Driving	5%	9%
Misjudgment of gap/speed	4%	4%
Jackknife	4%	NA
In hurry prior to crash	2%	4%
Upset prior to crash	2%	5%
Illness	1%	8%
Cargo Shift	1%	NA
Illegal drugs	0.4%	7%
Alcohol use	0.3%	9%

Source: Large Truck Crash Causation Study, 2001-2003

Relative Risk

Relationship between Critical Reason (CR) and Associated Factor

- Example: 7.3% of Truck Drivers Fatigued
 - ◆ Coded with CR – 75%
 - ◆ Not coded with CR – 25%
 - ◆ Relative Risk – 3.0
- Example: 14.8% of Car Drivers Fatigued
 - ◆ Coded with CR – 92%
 - ◆ Not coded with CR – 8%
 - ◆ Relative Risk – 11.5

Top 10 “Causative” Factors – Trucks

- Overweight
- Making illegal maneuver
- Inadequate surveillance
- Traveling too fast for conditions
- Inattention
- Following too close
- Misjudgment of gap or other’s speed
- Stop required before crash
- External distraction
- Brake problems

Top 10 “Causative” Factors - Cars

- Making illegal maneuver
- Misjudgment of gap or other’s speed
- Alcohol use
- Fatigue
- Illness
- Inattention
- Internal distraction
- Inadequate surveillance
- Illegal drugs
- Too fast for conditions

Summary

- Plenty of blame for large trucks, buses, and passenger vehicles
- “Causative” factors lies mainly with drivers
- Truck drivers in better physical shape than passenger vehicle drivers
- Truck drivers make more mistakes than passenger vehicle drivers
- Vehicle issues secondary

Strategies to Explore

- Focus more on drivers during, roadside inspections, compliance reviews, outreach
- Make sure CDL is accessible and used
- Develop driver rating system
- Promote more human factors research
- Narrow vehicle inspections to just brakes, tires, and lights

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