Accident Data: Side Impacts with Poles

Informal Group on a Pole Side Impact GTR (PSI) March 2011

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Impetus angle of pole side impacts

GIDAS - MAIS of belted occupants by direction of force in pole impacts, n=103

Result:
Perpendicular is the most frequent AND most severe impact direction
Impetus angle of fatal pole side impacts

Related to 1999 - 2008
n=48

Impetus Angle Distribution

Passenger

100
80
60
40
20
0

Front

Driver

Pole

Impetus

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Slide No. 3
Deformation area of pole impacts

All pole impact passenger cars

Fatal pole impact passenger car
Injured body regions

**GIDAS - AIS1+ injuries by body regions, belted occupants, n=420 injuries**

- Head and face: 31%
- Neck: 17%
- Thorax: 15%
- Abdomen: 4%
- Spine: 9%
- Upper extremity: 4%
- Lower extremity: 23%

**CCIS - AIS1+ injuries by body regions, belted occupants, n=980 injuries**

- Head and face: 22%
- Neck: 18%
- Thorax: 16%
- Abdomen: 9%
- Spine: 6%
- Upper extremity: 2%
- Lower extremity: 27%

**GIDAS - AIS3+ injuries by body regions, belted occupants, n=95 injuries**

- Head and face: 36%
- Neck: 32%
- Thorax: 19%
- Abdomen: 4%
- Spine: 4%
- Upper extremity: 5%
- Lower extremity: 0%

**CCIS - AIS3+ injuries by body regions, belted occupants, n=233 injuries**

- Head and face: 38%
- Neck: 38%
- Thorax: 14%
- Abdomen: 5%
- Spine: 3%
- Upper extremity: 2%
- Lower extremity: 0%

**Result:**

For all injury severities the head and thorax injuries are very dominant, for low severities also the spine is of importance.
Body regions in fatal accidents

Injury location of lateral pole impact car occupant fatalities

- Head: 56.2%
- Multiple: 4.2%
- Pelvis: 2.1%
- Spine: 18.8%
- Thorax: 12.5%
- Abdomen: 6.2%
Result:
Marginal difference between male and female in CCIS, in GIDAS no difference between male and female

Result:
The 50% value is at about 32 years
Occupant age distribution in pole side impacts

**Result:**
Young man are most dominate in side to pole impacts

**CCIS – Age distribution in passenger cars with single side to pole**

**Result:**
The 50% value decreases from 32 years in all side impacts down to 24 years in pole side impacts

**GIDAS – Age distribution in passenger cars with single side to pole**
Passenger Car Occupants in Single Side Impacts to Pole by Occupant Height.

Source: GIDAS 2010, n=158 all unknown not displayed
Thank you for your attention