Analysis of accident statistics:

- The sample contains of 455 traffic accidents, all with injured truck drivers
- Seatbelt usage less than 10%
- Accidents mainly occurred in Sweden
- Volvo Trucks, i.e. cabs tested according to Swedish pendulum test
- Analysis and break down of:

  1) Accident type
  2) Rollover frequency (rollover= turnover 90 degrees or rollover > 90 degrees)
  3) Cab deformation; frequency of longitudinal deformation of upper a-pillar any side
Accidents with injured truck driver
all Volvo cabs- all pendulum tested
455

Main type
- Single
  - 246
- Collisions
  - 189
- Other
  - 20

1st sequence
- Roll over
  - 55
- Driving off road
  - 162
- Other
  - 29
- Truck-truck
  - 126
- Truck-car
  - 39
- Truck-other
  - 24

Driver injury
- mildly
  - 37
  - 14
  - 4
- badly
  - 98
  - 39
  - 25
- killed
  - 20
  - 8
  - 1

Rollover
- yes
  - 67
  - 45
  - 14
  - 110
  - 16
  - 16
  - 3
  - 12
  - 12
  - 4
  - 4
- no
  - 8
  - 8
  - 4
  - 11
  - 23
  - 21
  - 5
  - 15

Longitudinal deformation
upper A-pillar, any side
- yes
  - 22
  - 70
  - 4
  - 53
  - 11
  - 11
  - 6
- no
  - 33
  - 92
  - 25
  - 73
  - 28
  - 13
  - 14

Volvo Truck Corporation

2001-05-15, Claes Avedal
Accidents with injured truck driver
all Volvo cabs- all pendulum tested
455

Main type
- Single 246
- Collisions 189
- Other 20

1st sequence
- Roll over 55
- Driving off road 162
- Other 29
- Truck-truck 126
- Truck-car 39
- Truck-other 24

Driver injury
- mildly 37
- badly 14
- killed 4

Rollover
- yes 55
- no 104

Longitudinal deformation
- upper A-pillar, any side
- yes 22
- no 70

Numbers in green indicate injuries to the truck driver.
Numbers in yellow indicate injuries to the other road user.
Numbers in orange indicate injuries to the other road user.

Volvo Truck Corporation
2001-05-15, Claes Avedal
### Accidents with injured truck driver

**all Volvo cabs- all pendulum tested**

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<tr>
<th>Main type</th>
<th>Single</th>
<th>Collisions</th>
<th>Other</th>
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<th>badly</th>
<th>killed</th>
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- mildly: 35/189 (19%)
- badly: 75/189 (39%)

**Volvo Truck Corporation**

2001-05-15, Claes Avedal
Deformation of cab in single vehicle accidents - some severe examples:

Rollover+ collision with guard rail

Rollover+ collision with earthen bank

Volvo Truck Corporation
Deformation of cab in truck to truck collisions- severe example:

Collision truck front vs truck rear
Conclusions:

- **Single vehicle accidents**
  54% of the accidents resulting in truck driver injuries are single vehicle accidents. There is a rollover as first sequence or as a later sequence in 68% of these accidents.

  Mainly as a result of impact against ground, earthen bank, guard rail, rock, tree, etc. after the rollover there is a deformation of upper a-pillar in 39% of the single vehicle accidents, i.e. 21% of all accidents in sample.

  > **Longitudinal** strength in roof structure and upper a-pillar is needed to protect driver in a single vehicle accident.

- **Collisions**
  42% of the accidents resulting in truck driver injuries are collisions. There is a deformation of upper a-pillar in 39% of all collisions, i.e. 16% of all accidents in database.

  This deformation is in most cases a result of the 1st collision to other vehicle. In only 6 of the car truck collisions with deformed a-pillar, the deformation is a result of impact against ground after a rollover, i.e. ~1% of all accidents in sample.

  > **Longitudinal** strength in roof structure and upper a-pillar is needed to protect driver in a collision.