

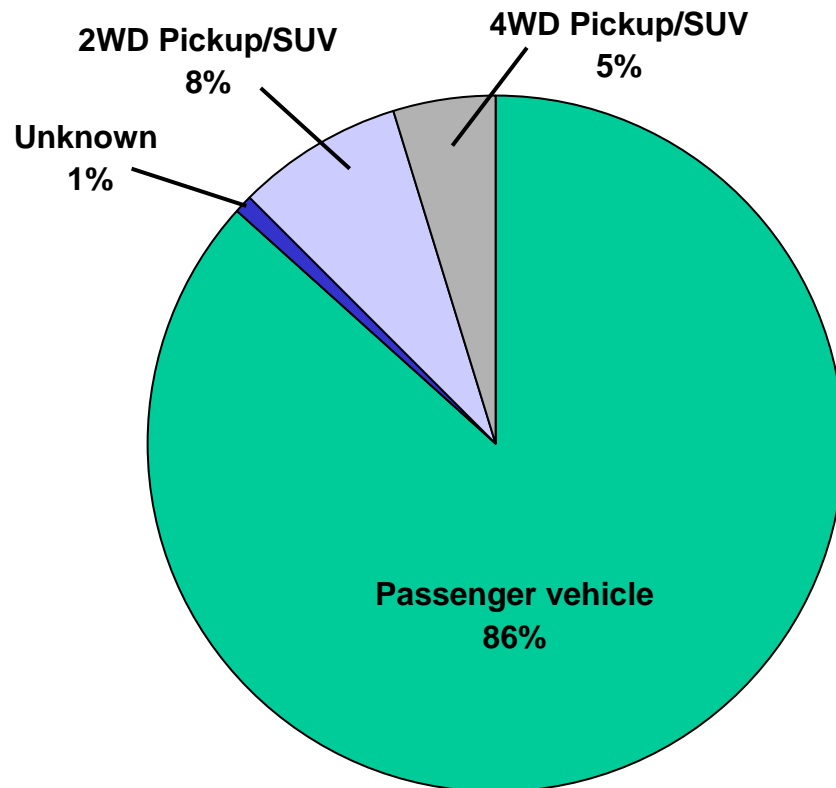
Side Impact Challenges for Steel Vehicle Structures

Raul A. Arbelaez
Senior Research Engineer, Vehicle Research Center
Insurance Institute for Highway Safety

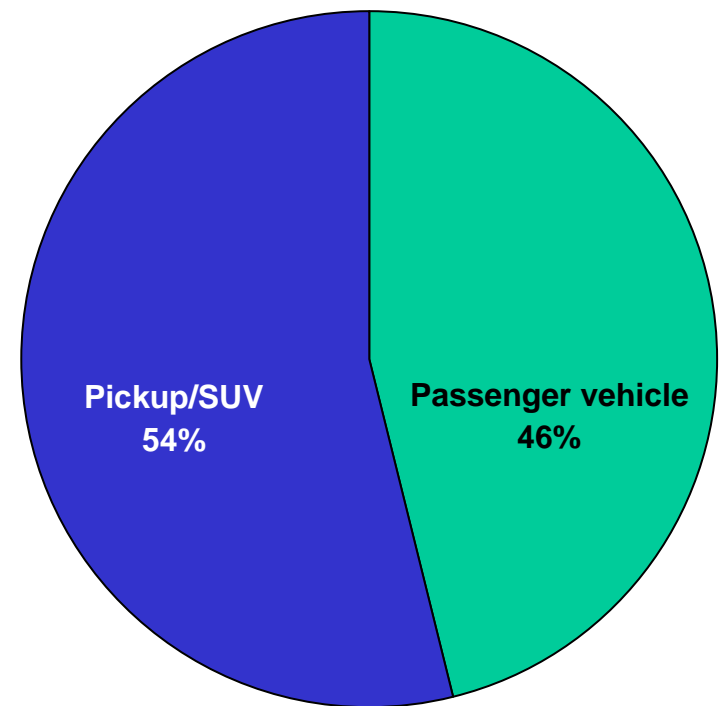


SUVs and Pickups Over Represented in Causing Fatalities

Struck vehicle type



Striking vehicle type
for struck passenger vehicles



The SUV and Pickup Problem



Motivations for IIHS side impact program

- Federal standard is outdated, not driving vehicle designs that protect occupants in the current fleet
 - Barrier represents a late 1970s car, test dummies are outdated, no assessment of head protection
- In 2003, IIHS developed a new consumer information side impact procedure that simulates an SUV or pickup striking the side of a passenger vehicle



IIHS barrier taller and rides higher, contoured edges



FMVSS 214 Barrier



IIHS Barrier



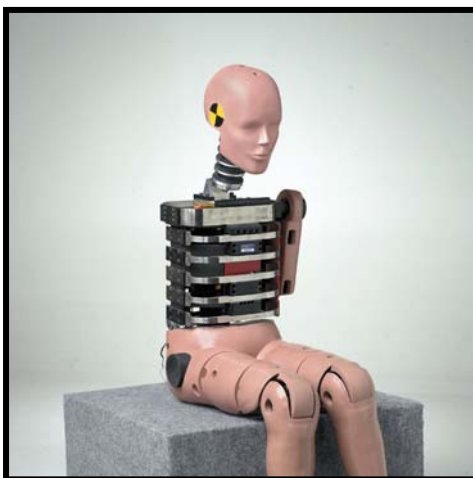
- SUVs and pickups have higher ride heights and hood heights than cars, resulting in:
 - Increased risk of head impact by striking vehicle hood
 - Less interaction with the vehicle door sill
 - Higher side structure intrusion depths and intrusion velocity
- The IIHS test will drive countermeasures:
 - Installation of side airbags that protect the head
 - Significantly strengthened pillars to resist intrusion and absorb crash energy



Side impact crashworthiness evaluations

Vehicles tested are rated

G GOOD **A** ACCEPTABLE **M** MARGINAL **P** POOR



Injury measures



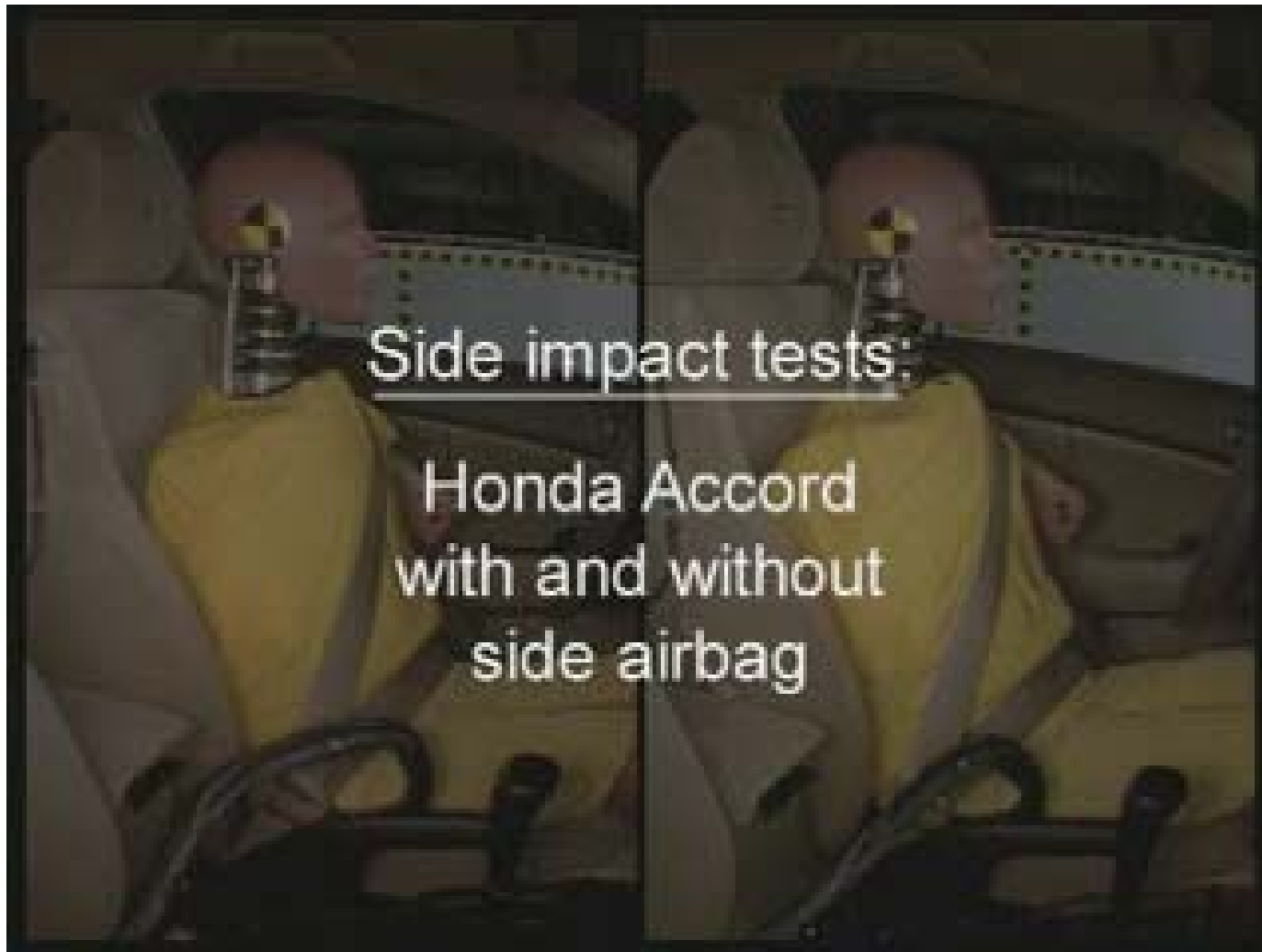
Head protection



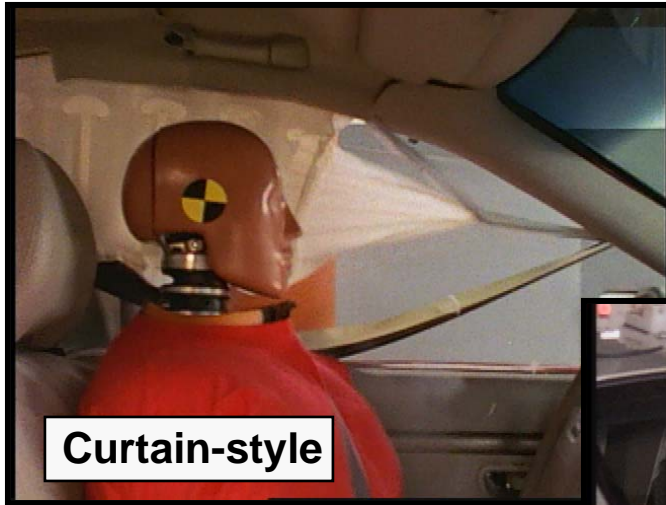
Structure

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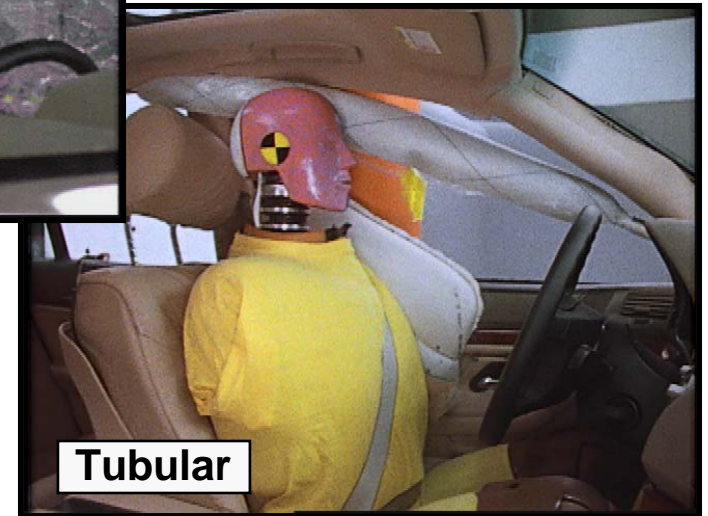
Side airbags designed to protect heads



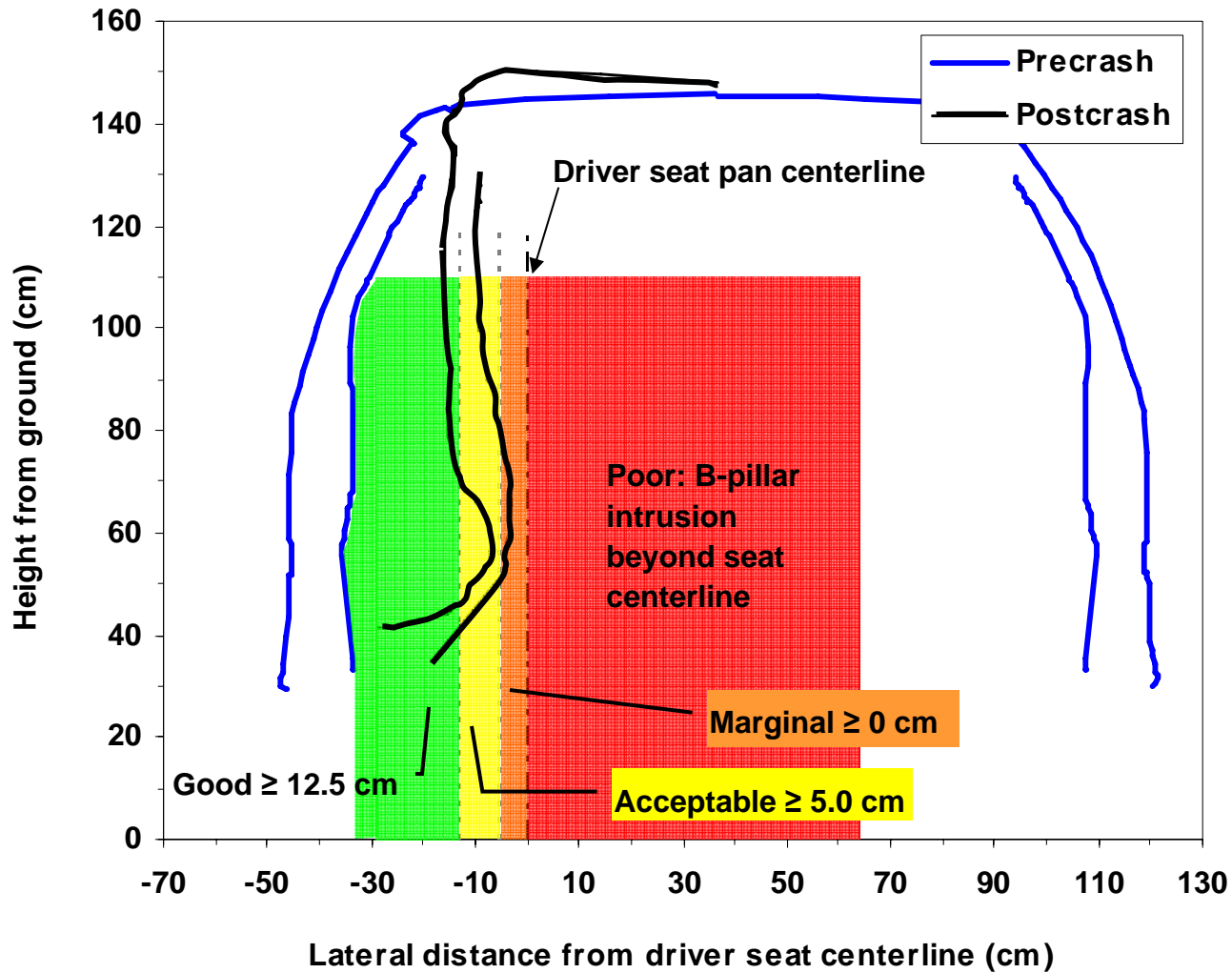
Curtain-style



Seat-mounted



Tubular



2004 Mitsubishi Galant: Good structure



2004 Mitsubishi Galant



2004 Mitsubishi Galant: Good structure



2005 Mitsubishi Lancer: Poor structure

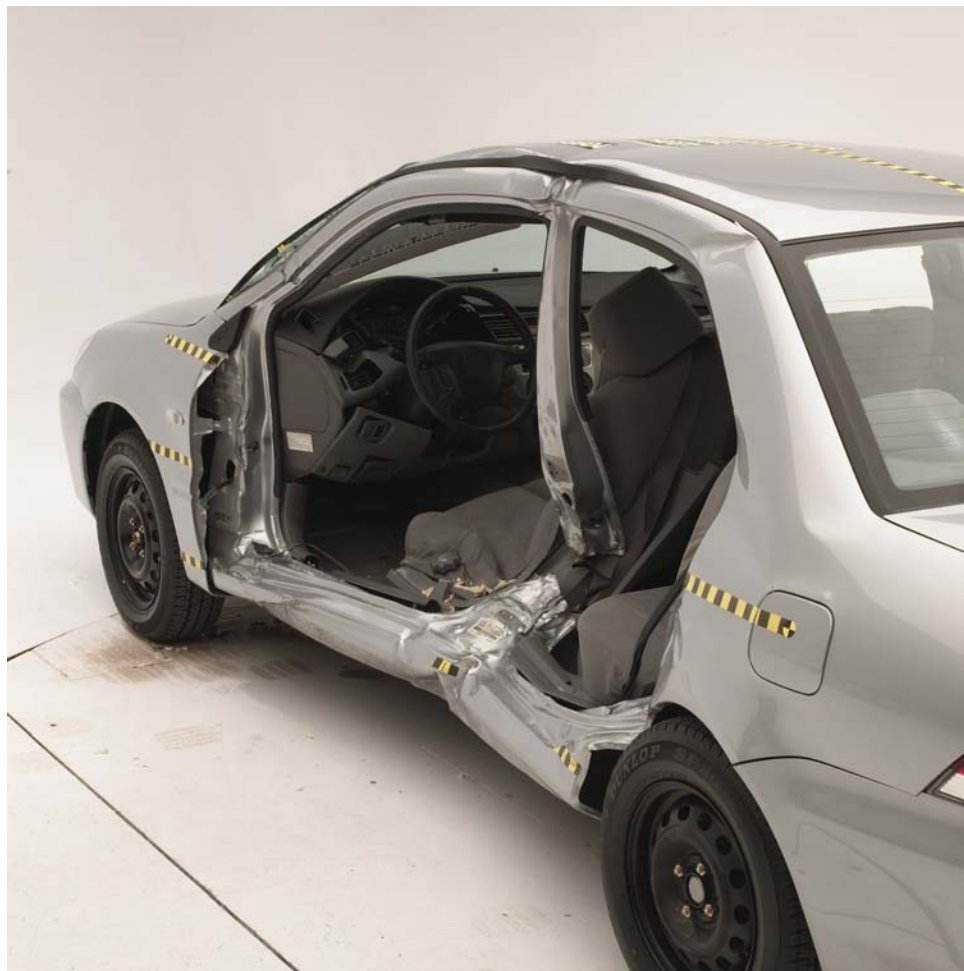


2005 Mitsubishi Lancer: Poor structure



2005 Mitsubishi Lancer: Poor structure

- Excessive intrusion into the occupant compartment
- Structural failure:
B-pillar split just above the door sill



*Side impact crashworthiness
evaluations*

Rating	SUVs	Midsize Cars	Small Cars
GOOD	4	6	0
ACCEPTABLE	1	3	2
MARGINAL	1	1	0
POOR	7	8	14



- Side Impact Crashworthiness Evaluations
 - Midsize cars (Summer 2005)
 - Passenger vans (Fall 2005)
 - Small cars (Fall 2005)
 - Small SUVs (Winter 2005)



Other side impact challenges

FMVSS 214 –Side impact protection standard

- In May 2004 the National Highway Traffic Safety Administration submitted a Notice of Proposed Rule Making to upgrade the federal standard
- Proposed changes
 - Addition of an oblique pole test
 - Midsize male dummy has been changed to a more biofidelic dummy
 - Addition of tests with a small female dummy
- Phase-in of new regulation starts in 2009
- By 2011 all light vehicles will have to meet new regulation



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