

# Recap – rear impact assessment

Previous discussions and conclusions

## Recap and conclusions from previous discussions (1)

- Field data show that there has been a reduction in risk for both males and females.
  - However, risk difference between males and females remains with a higher risk for females.
- IIHS has shown nearly all modern vehicles earn good ratings.
  - However, insurance claims rate shows that there is a significant difference seen in the field between "Good" rated vehicles, i.e., the tests that IIHS performs do not reflect what they see in the real world.

## Recap and conclusions from previous discussions (2)

- Low speed rear impacts are one of the most common
- The current test protocol may lead to suboptimization
- The dynamic alternative is hardly ever used
  - Yet, the whole seatback determines performance
- Headrests are often in the highest position and may not protect the occupant optimally
  - Cannot be considered as misuse and a forgiving design of the backrest and headrest should be targeted.

## Recap and conclusions from previous discussions (3)

- Purely geometry-based assessment may not be sufficient.
  - Minimizing relative spine movements and forward rebound (accomplished through evenness and proper energy absorption) is important for equitable protection against whiplash.
- One sole dummy anthropometry
- No assessment of rear row

## **GTR7 – conclusion dynamic test (page 9, § 19)**

”Ideally, the degree of whiplash injury should be evaluated based on dynamic testing that represents ”real world” crashes; that is, based on a vehicle acceleration that occurs in real crashes and a dummy with high biofidelity that reflects the injury mechanism, and injury indices.

- At the time this was written it was deemed that the appropriate injury indices has not been developed and as an interim solution AC.3 recommended a dynamic testing option, as an alternative to the static performance requirements in this gtr.”

## GTR 7 -Two reasons for dynamic testing option

- First, a dynamic test better represents "real-world" injury causing events and thus expected to produce greater assurance than the static measurement option of effective real world performance.
- Second, it is believed that a dynamic test will help encourage continued development and a use of "dynamic" head restraint systems because the test is designed to allow a manufacturer the flexibility necessary to offer innovative dynamic head restraint design"

# Topics for a workshop 2026 – June?

- Research: ongoing and research gaps
- Ease of adjustment of head restraints - different solutions
- Dynamic test tools
  - Roadmap for EvaRID?
- Energy absorption, whole seatback performance, even load distribution

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