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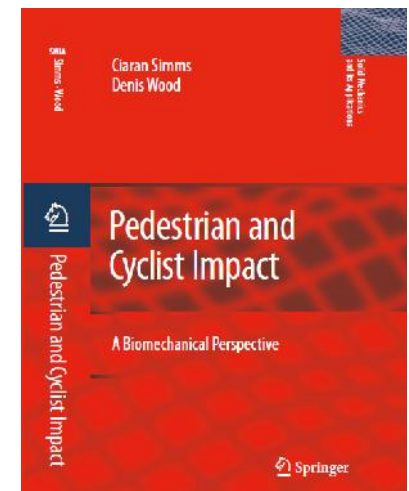
International Research Council on Biomechanics of Injury

Towards an EU Cycling Safety Strategy

Part 3 Vehicle Safety

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*Steps to improving
vehicle safety for cyclists*

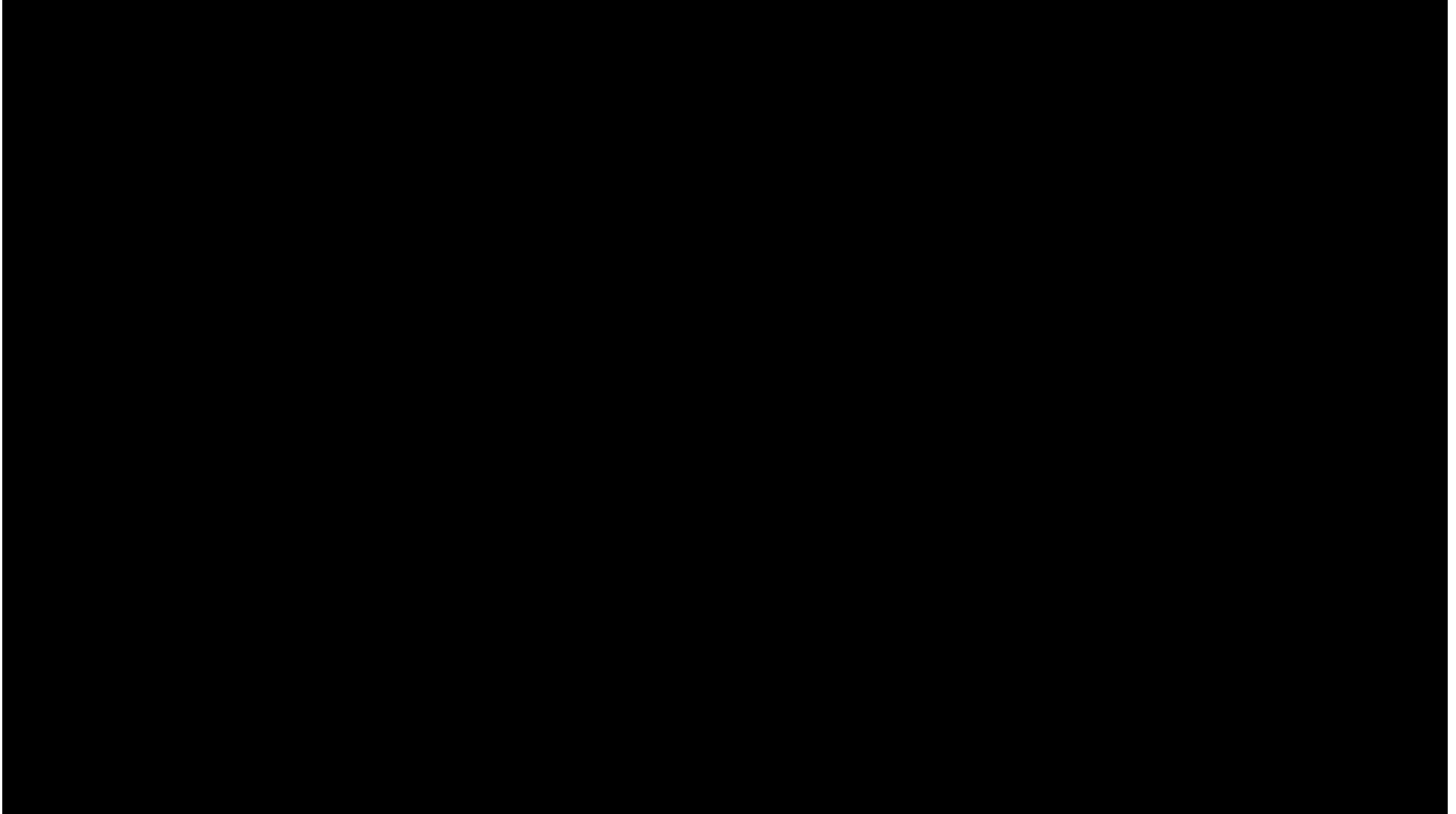
Vehicle Factors for Cyclist safety

- Cyclist vs vehicles (50% cars, also HGVs (eg London 2015))
 - Wrap trajectory https://www.youtube.com/watch?v=Z_8TnmcGoVM (45s)
 - Forward trajectory <http://youtu.be/-jb21I21ksQ> (all)
 - Side/Front underrun <https://www.youtube.com/watch?v=wEsV4VMp-NA> (all)
 - Left turning large vehicles http://youtu.be/ju9Uzc4FT_A (30s-55s)
- Shape, Stiffness, Visibility (human or other)
- Current countermeasures 'piggybacking' on pedestrian legislation
- Revisions: Pedestrian Regulation and General Safety Regulation

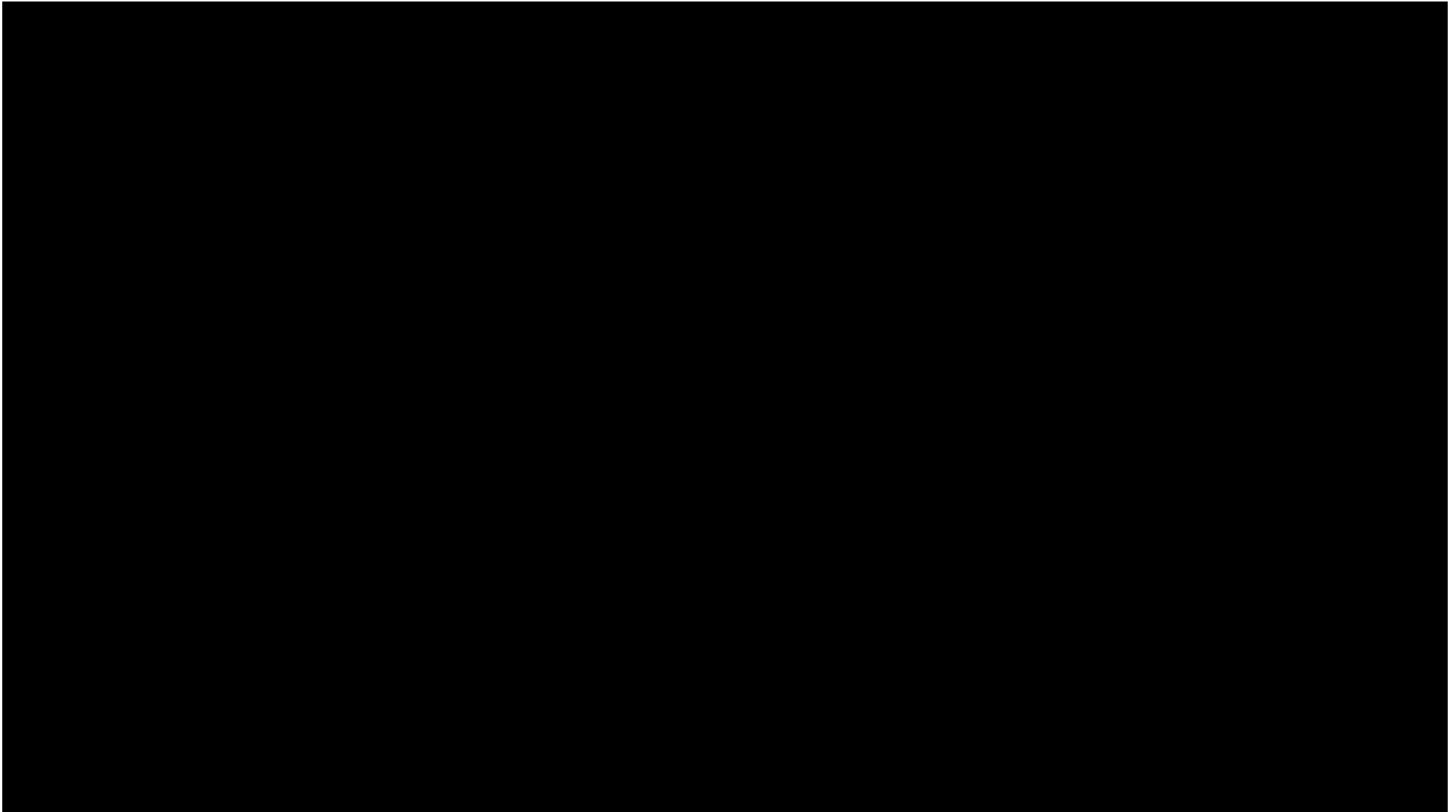
Wrap Trajectory: Cyclist vs Car Front



Forward Trajectory: Cyclist vs Truck Front



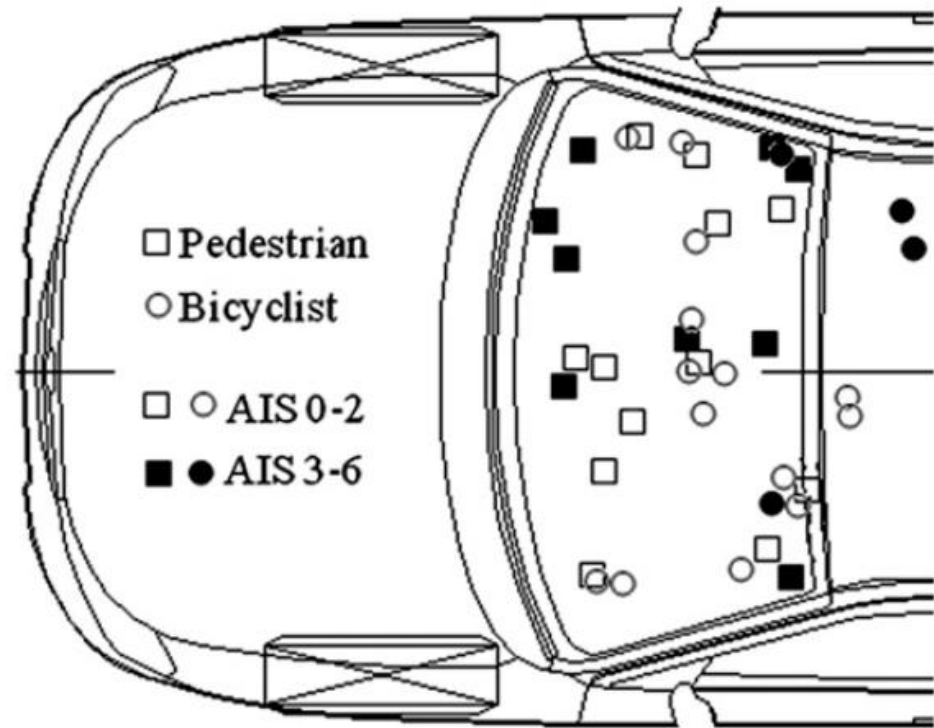
Cyclist Truck Underrun



Cyclist Passenger Car Head Impacts

Peng et al SAFETY SCIENCE 2012

Cyclist WAD > pedestrian WAD



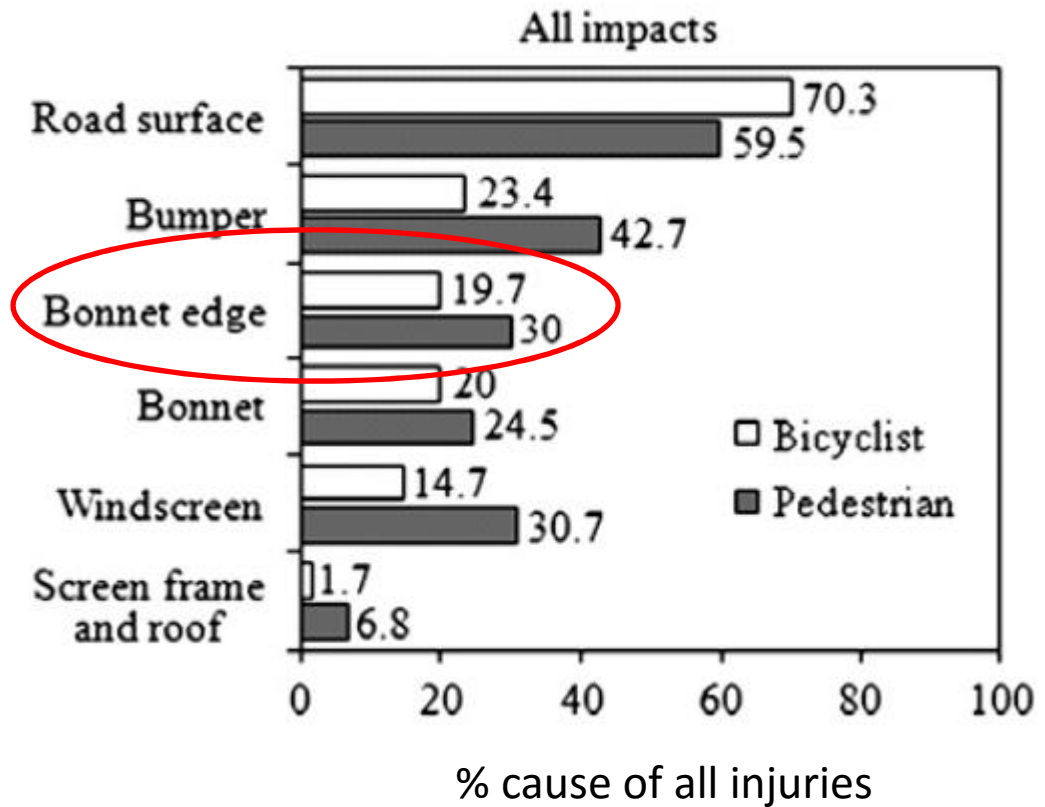
80% pedestrian serious/fatal head contacts to windscreen area - Hynd et al TRL 2015

Cyclists?

Need to Protect Entire Windscreen Area

Bonnet Leading Edge & Windscreen

Peng et al SAFETY SCIENCE 2012



Revision of Regulation 2009/78

- Vehicle Front Coverage to include all areas contacted by cyclists
- BLE test important for cyclists & pedestrians - mandate
- Adult headform test important for cyclists & pedestrians – mandate
- No passive safety concessions for active measures, but mandate active in future?
- Forgiving vehicle fronts for HGVs

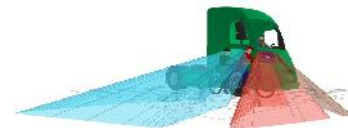
Revision of General Safety Regulation 2009/661

- Fit new passenger cars/LTVs with AEB systems to detect cyclists
Turning HGVs? <http://youtu.be/njFICMEGIN0>

- Fit all new vehicles with overridable assisting ISA
- Roll out digital speed map information



- Direct & enhanced vision for HGVs



- Indicator lights along side of the trucks/trailers

HGV Cyclist AEB



Heavy Vehicle Front Underrun /Sideguard protection

Front Underrun

- Cyclist underrun prevention
- Rounder and softer vehicle fronts

Sideguards

- 2009/661 GSR but has exemptions
- No gap
- Reduce exemptions (UK 20% exempt TRL 2015)
- Lower minimum height

	Total number of EU-27 fatalities	Proportion of these potentially affected by HGV side guards
VRUs involved when HGV is turning	1,191	18%-26%
VRUs involved when HGV is overtaking	1,191	10%-22%

Hynds et al TRL 2015

Research

- Improve understanding of cyclist contact points on vehicle
- Relationship between EuroNCAP scores and cyclist real world risks
- Effects of improved HGV Cab visibility for cyclists
- AEB for cyclists especially turning HGVs
- V2I/V2V for Bikes ?





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Thank you

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