

Speed perception and crossing behaviour in children

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Speed perception and crossing behaviour in children

Study documentation

Information and publications available at:

<https://udv.de/en/road-user/road-safety-education/development-speed-perception-children>

Compact accident research

Overview of the research results

Accident research in brief

Information for practitioners (German)

Research report

Scientific full version (German)



The screenshot shows the website interface for 'Unfallforschung der Versicherer GDV'. The header includes the logo and navigation links for 'DEUTSCH', 'CONTACT', 'PUBLICATION DETAILS', and 'DATA PRIVACY'. Below the header, there are navigation tabs for 'TOPICS', 'PUBLICATIONS', and 'UDV', along with a search bar. The main content area features the article title 'Development of speed perception in children' with a date of '02/23/2021'. A photograph of a child in a blue jacket and helmet being led by an adult across a road is shown. Below the photo is the copyright notice '© Harald Almonat/UDV'. To the right of the article, there are sections for 'DOWNLOAD' (with a link to 'Unfallforschung kurzgefasst') and 'PUBLICATIONS ON THE TOPIC' (with links to 'Compact accident research', 'Development of speed perception in children', and 'Download PDF').

Street crossing as pedestrian

First and most important task for children in traffic.



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Street crossing as pedestrian

Five action steps necessary for crossing a street.



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- 1. Choose an appropriate crossing site**
- 2. Approach the carriageway**
- 3. Get an overview of the traffic**
- 4. Choose safe gap between passing vehicles**
- 5. Go across the street**

Street crossing as pedestrian

Gap acceptance as indicator for speed perception.



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Methods

Gap acceptance as research paradigm for measuring speed perception.



Measuring speed perception

Crossing decisions dependent on the distance of the approaching vehicle



Crossing/ Distance	Yes	No
large	Correct decision	Cautious decision (although crossing is safe)
medium	Risk decision (Crossing just possible)	Correct decision
small	Wrong decision (Collision)	Correct decision

Research Design

Summary

Study parts

- 1- Field experiment
- 2- Laboratory experiment
- 3- Examination of cognitive, personal, social, emotional skills

Sample

- N = 183
- Five age groups in comparison
 - 5-6 years
 - 7-8 years
 - 9-10 years
 - 11-12 years
 - 13-14 years



Experimental Variations

- Vehicles at small, medium or large distance
- Approaching from the right or left
- Speed of 30, 50 or 60 km/h, acceleration to 50 km/h
- Vehicle type: car or truck

Selected results

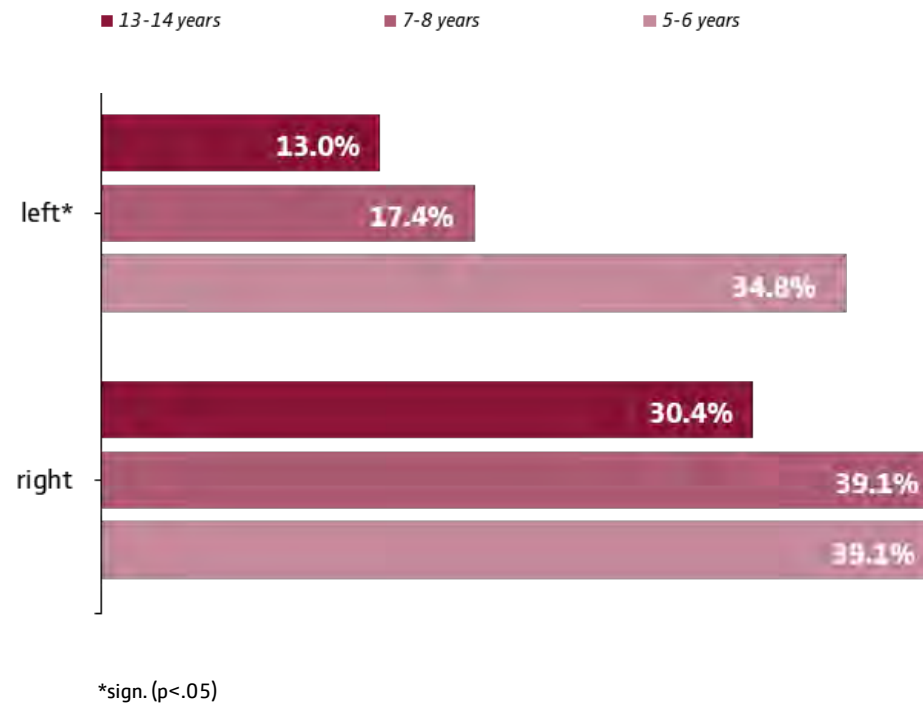
Field experiment 50km/h: Wrong decision

Improvement in wrong decisions with increasing age

Approaching direction

- From the left: Improvement with increasing age
- From the right: more wrong decisions than from the left even at 13-14 years old

Wrong decisions



Selected results

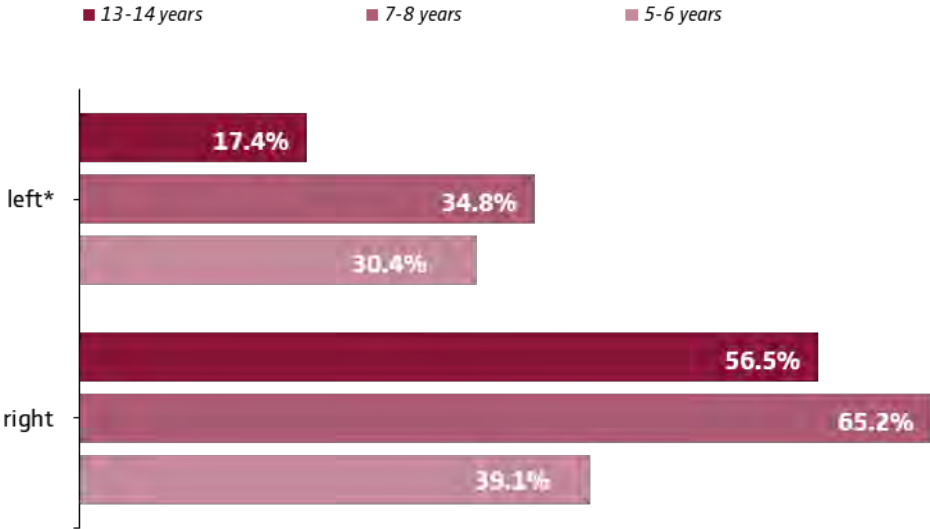
Field experiment 50km/h: Risk decision

Improvement in risk decisions with increasing age

Approaching direction

- From the left: improvement with increasing age
- From the right: more risk decisions than from the left even at 13-14 years old

Risk decision



Selected results

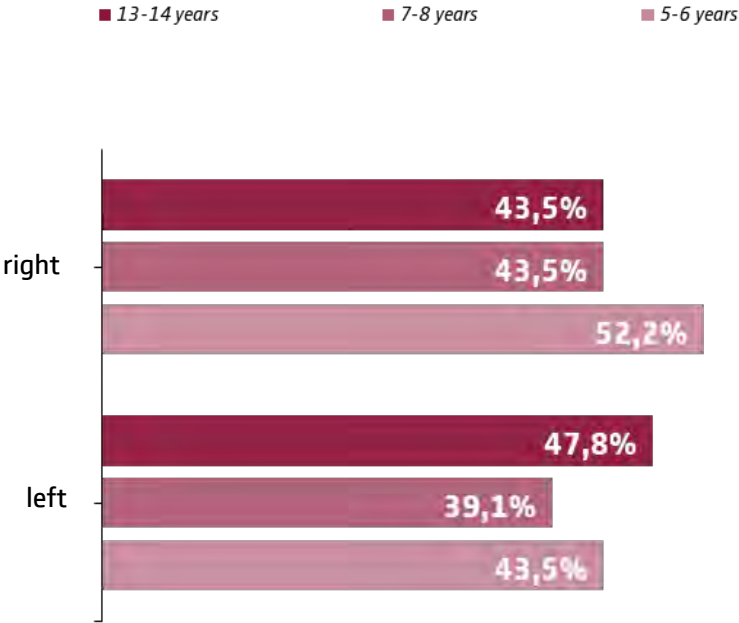
Field experiment 50km/h: Cautious decision

– Mainly cautious decisions

Approaching direction

– No statistical significant differences between age groups

Cautious decision



Selected results

Laboratory experiment: Speed

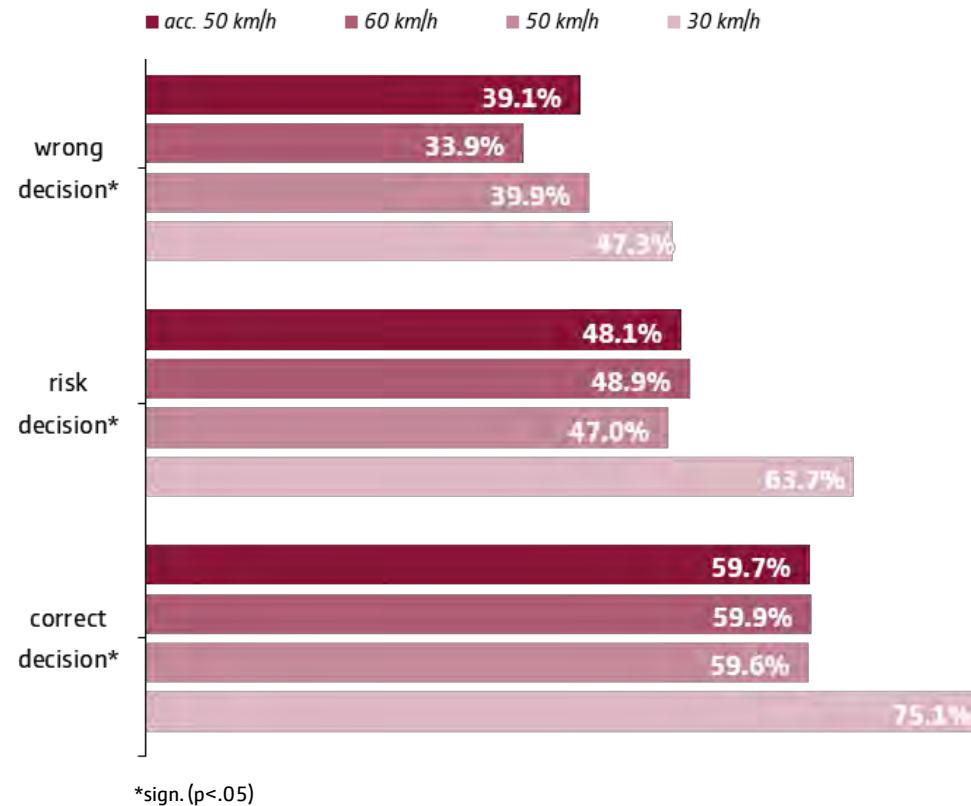
Willingness to cross

- at 30 km/h more often decision for a crossing compared to higher speeds

Quality of decision-making

- At 30 km/h more often correct decisions (at large vehicle distance), but also more risk and wrong decisions (middle and small vehicle distance)

Decision to cross (step forward)



Speed perception and crossing behaviour

Summary

Summary

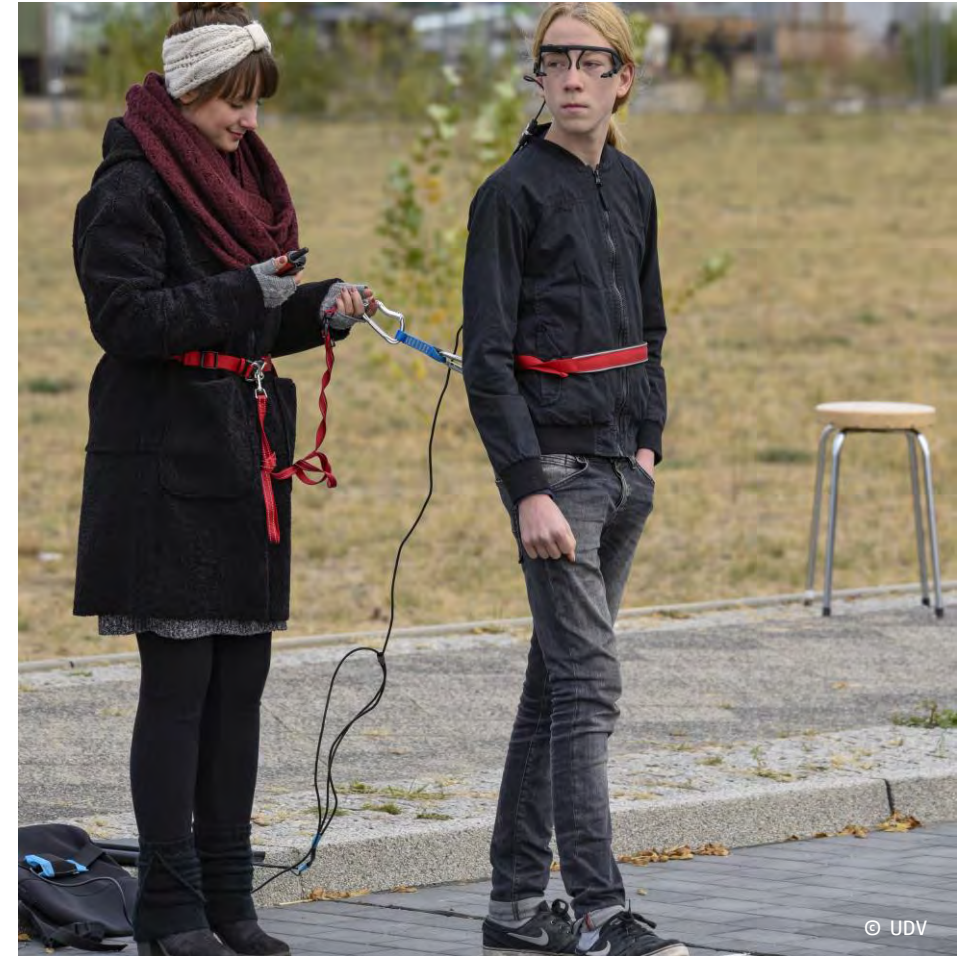
Still deficits at 13-14 years, especially if vehicles approach from the right

Considering of two traffic lanes cognitively more challenging

At 30 km/h more correct, but also risk and wrong decisions

The younger the children, the longer the reactions times

Hazard awareness and attentiveness improves with age, but no guarantee for safe crossing decisions



Speed perception and crossing behaviour

Recommendations

Speed limits of 30 km/h or less in urban residential and leisure areas

Provide safe pedestrian crossings aids also for older children

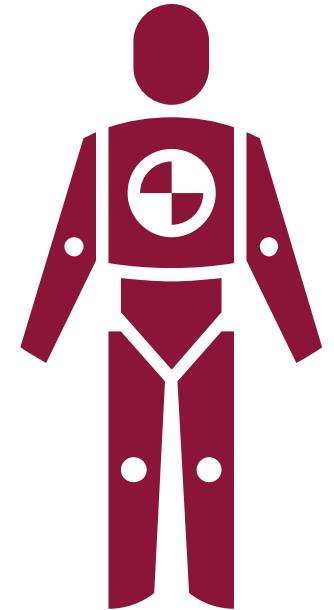
Regularly practice crossing in real road traffic with support from an accompanying person;

Crossing decisions should be made by children independently



Thank you for your attention. Any questions?

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