

HAZARD PERCEPTION ABILITIES OF YOUNG NOVICE DRIVERS WITH AN AUTISM SPECTRUM DISORDER: A DRIVING SIMULATOR STUDY.

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Background: Driving is a complicated, goal-directed task. Some ASD characteristics, for instance difficulties with executive functioning and interpreting the behavior of others, might interfere negatively with driving. Although little research exists on the relation between ASD and driving, Sheppard et al. (2010) investigated hazard perception in adult males with ASD. Hazard perception refers to the ability to recognize and respond to hazards that (might) develop on the road (e.g., when a school bus stops children may cross the road from behind the bus). The results indicated slower overall response times to road hazards, and increasingly slower response times to social (e.g., a pedestrian) versus non-social hazards (e.g., a vehicle). Hazard perception was studied through the evaluation of video material. Although dynamic, this does not equal the act of driving, and it is not clear therefore to what degree these results generalize to the driving task. Furthermore, Sheppard et al. (2010) only included *non-drivers* with ASD. Hazard perception however improves greatly with increased driving experience and is therefore especially problematic for young novice drivers.

Objectives: Our study, which is part of the ongoing Yes I Drive project, aims to investigate hazard perception, and the underlying mechanisms (i.e., executive functioning and action observation), in young novice drivers diagnosed with ASD, using a driving simulator, an eye tracker, and computer tasks (e.g., a computerized stop signal task assesses response inhibition).

Method: Driving abilities of 50 young novice drivers with ASD (i.e., aged 17-25, maximum 2 years of driving experience) will be compared to a matched control group of healthy young novice drivers. The research consists of two segments: 1) A driving simulator scenario; 2) A computer task battery. The driving scenario contains several driving environments in which the driver encounters 24 road hazards (i.e., social and non-social). Standard driving measures will be collected throughout the drive (e.g., speed). Eye tracking measures (e.g., time of first fixation) will be calculated to assess hazard perception. Finally, computer tasks will measure: attention, response inhibition, working memory, and action observation.

Results: Data collection is still in progress at the moment, and data analyses are planned for spring 2015.