

Researchers seek ways to assist drivers with autism

March 1 2017, by Josh Barney



A research assistant demonstrates UVA's high-tech driving simulator to be used in the study. Credit: Jackson Smith, UVA Health System

The University of Virginia Health System is teaming with the Virginia Tech Transportation Institute to study novice drivers with autism to

determine if they would benefit from specialized training to help them become better, safer drivers and feel more comfortable behind the wheel.

Researchers will use a high-tech [driving](#) simulator and on-road driving to compare the driving performances of [novice drivers](#) with [autism](#) and their peers without autism. The researchers also will look at a group of much more experienced drivers without autism.

"With this, we will be able to determine if there is a specific need to give these folks [with autism] further attention and support even after they have a driver's license," School of Medicine researcher Dan Cox said. "Possibly just to become safer drivers, but also possibly to reduce collisions and driving mishaps."

Driving Safety

Cox, of UVA's Department of Psychiatry and Neurobehavioral Sciences, noted that the driving abilities of novice drivers with autism – including reaction time, vision and cognitive abilities – tend to be similar to those of any individual.

Novice drivers with autism, however, may feel additional anxiety about driving in some cases. "Where things become challenging," Cox said, "is in the flexibility and the integration and the multitasking involved in on-road driving."

Cox and his colleagues at the Virginia Tech Transportation Institute want to determine if specialized training can help them with those challenges. During the study, Cox will place participants in UVA's high-tech driving simulator, which offers a controlled environment for testing and assessment.

"The neat thing about virtual reality is that you can just focus on one task at a time, which you can't in the [real world](#)," Cox said. "You can just focus on maintaining speed control, then you can focus on lane position, then once they master that, you can worry about ability to brake. In the real world, you're just thrust out there and you have to deal with it all at the same time."

Real-World Driving

After completing the simulation, study participants will drive on real roads using a research vehicle car the Virginia Tech Transportation Institute has outfitted with advanced data collection instrumentation. Virginia Tech researchers will then analyze key safety-related driver behavior.

Cox and his colleagues will ultimately compare the simulation with the in-car driving to determine if additional interventions or countermeasures could benefit teen drivers, especially those with autism, and, if so, what form they should take.

"These are novice drivers who have been approved. They've satisfied all the DMV requirements for independent drivers. Our goal is to determine if they differ from those without autism, and we then want to determine how these novice drivers in the virtual world and on road differ from experienced drivers," Cox said. "Once you know the differences, you can really drill down in terms of how to do interventions to neutralize those differences."

To Participate

Cox is seeking to recruit 10 novice drivers with autism and 10 without. The novice drivers must have had their licenses for less than 12 months.

He also plans to evaluate 10 experienced drivers with more than 10 years behind the wheel, a group Cox expects to draw from the parents of the novice drivers. Trial participants will receive \$30 in compensation and an individualized report of their strengths and weaknesses in terms of driving abilities and skills. A single visit to UVA will be required.

For more information, contact UVA at 434-924-8021 or (434) 924-5913. The study is IRB-HSR No. 19577.

Provided by University of Virginia

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