

Study by Civitan Scientists Aims to Improve Driving Safety for Persons with ADHD and Autism



Rajesh Kana, Ph.D.

Parents of children with developmental challenges such as autism often wonder whether their children will ever be able to make the transition from supervised to independent living. A big part of this is evaluating and improving their ability to drive a vehicle as they transition into the teen years. Civitan Scientists, Dr. Despina Stavrinou and Dr. Rajesh Kana in the Department of Psychology, are conducting a pilot study that will analyze brain activity of persons with ADHD, Autism and other cognitive disorders in a variety of driving situations. The aim is to evaluate and improve driving safety for these individuals.



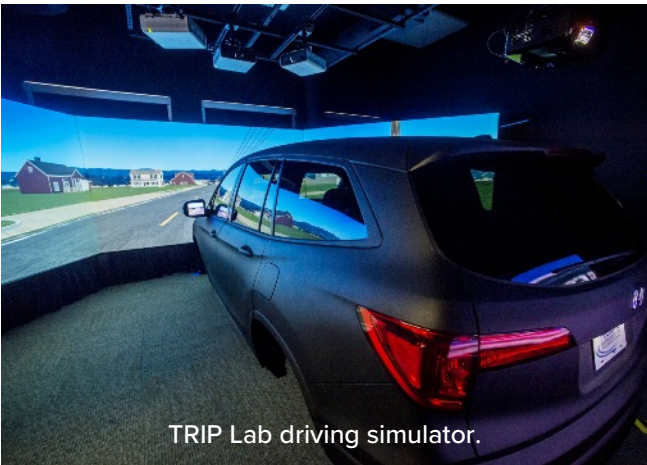
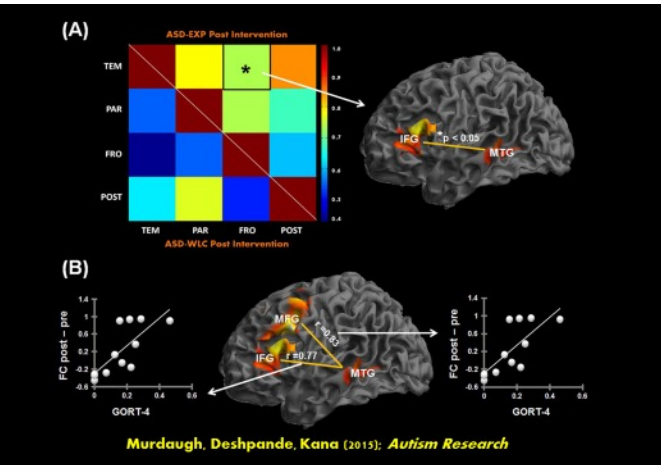
Despina Stavrinou, Ph.D.

“Motor vehicle crashes are the leading cause of death among teenagers nationwide according to epidemiological data,” notes Stavrinou, “and people with developmental disabilities may be at greater risk than others in challenging driving situations given the cognitive impairments associated with their particular disorder.” According to Stavrinou, to date there has been very little research on this subject to assist policymakers and stakeholders in the developmental disabilities community to address this area of public safety. Stavrinou and Kana hope to launch a new collaboration to gain a more comprehensive understanding of driving issues and challenges – at both a functional and neural level – among individuals with neurodevelopmental disabilities.

The study will combine the resources of the [Translational Research for Injury Prevention \(TRIP\) Lab](#), directed by Stavrinou, and the [Cognition, Brain, and Autism \(CBRA\) Lab](#), directed by Kana utilizing the capabilities of the [Civitan International Neuroimaging Lab \(CINL\)](#), to analyze driving performance, as well as brain activity and connectivity of participants with ADHD and Autism in driving situations. “Using an MRI scan to characterize how a person’s brain reacts to stress and distractions while driving may help us develop new training protocols to assist people with cognitive disorders to drive more safely and save lives,” says Kana.

Earlier work focusing on hazard perception of individuals with Autism in a driving simulator was initiated by 2014 Civitan Emerging Scholar Haley Bishop while working on her Ph.D. with Stavrinou in the TRIP Lab. Since that time the concept has evolved into a more comprehensive neural and cognitive examination of driving among individuals with neurodevelopmental disabilities. Students are likely to produce honors theses, presentations, and submit student grants/fellowship applications stemming from this study. Pilot results will also serve as preliminary data critical for a future submission for Federal or private funding to continue the collaboration.

“The ability to support new research that has not yet received Federal or private funding is one of the unique aspects of how the Civitan International Research Center can rapidly move translational research forward with the goal of supporting the needs of the developmental disabilities community,” says Dr. Craig Powell, Director of the CIRC and Chair of the UAB Department of Neurobiology. “It’s also especially rewarding when we see how our Civitan Emerging Scholars program contributes to this process.”



The new pilot study will combine brain imaging data collected at the CINL with the driving simulation data collected in the TRIP Lab to study driving safety and performance issues for persons with cognitive disorders such as ADHD and Autism.