

Psychology professor studies structural basis for autism disorders

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There is still much that is unknown about autism spectrum disorders, but a University of Nevada, Reno psychologist has added to the body of knowledge that researchers around the world are compiling to try to demystify, prevent and treat the mysterious condition.

"[Autism](#) is a unique developmental disability," states Jeffrey Hutsler, assistant professor of psychology at the University of Nevada, Reno, who recently completed a six-year study of [brain tissue](#) that, for the first time, provided physical evidence of short-range over-connectivity in the outer layer of the brain's cortex in those with autism disorders.

"It creates a lot of noise in the brain, so to speak," he explained. "There was a higher density of [synaptic connections](#), about 20 percent."

Although this short-range over-connectivity had been hypothesized, Hutsler is the first to examine postmortem tissue samples and provide physical evidence of the condition. His research was published recently in the journal, [Brain Research](#). He says his study supports the types of treatments the University is providing at its Early Childhood Autism Program, with early intervention behavioral therapies.

"This is in the layer of the cortex that is one of the last to develop, and a lot of these connections are refined after birth up to about age 4," Hutsler explained. "As you interact with the environment, you sculpt them out."

Those with autism are typically detached from their environment. Hutsler said that their interaction with the environment, or lack thereof, may interfere with that sculpting process. Early intervention with behavioral therapy during the preschool years may be able to aid that sculpting or weeding-out process.

Working mostly with 2- to 5-year-olds, tutors at the University's Early Childhood Autism Program spend a minimum of 30 hours per week, one-on-one with each child for at least two years. The tutors, graduate and undergraduate students who are under faculty supervision, use applied behavior analysis, employing positive reinforcement techniques that strengthen appropriate interaction and behavior, as well as decrease inappropriate behavior.

The program is very effective, with virtually all participants showing improvement and about 50 percent showing total recovery from the disorder, meaning they are indistinguishable from their peers when they enter elementary school, according to the program's director, Patrick Ghezzi.

In fact, Ghezzi has been asked to speak about the methods and the UNR Early Childhood Autism Program throughout the world, and has helped to start other programs modeled after Nevada's in countries such as Jordan, Saudi Arabia, Germany and Portugal. The University's doctoral program in behavior analysis is one of a handful of such accredited programs in the country. Victoria Follette, chair of the University's psychology department, says that research such as Hutsler's is part of her department's increased emphasis in neuroscience research.

"Research in these areas is key to providing the scientific foundation for our understanding of this disorder and has both local and international implications in the treatment of autism," she states.

Ghezzi is glad to have Hutsler, who joined the University in 2006, as part of the University's psychology and autism research team, stating, "He's at the frontier of research in the biomedical field."

Provided by University of Nevada, Reno

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