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Health

Antioxidant Levels May be Linked to Autism

By [Serena Gordon](#)
HealthDay Reporter

SUNDAY, April 3 (HealthDay News) -- Could oxidative stress, a suspected contributor to many disease processes like heart disease and cancer, also play a role in autism?

University of Arkansas researchers think it may.

In a recent study, autistic children were found to have significantly lower levels of an antioxidant called glutathione and its metabolic precursors.

"Glutathione is the major antioxidant in cells important for detoxification and elimination of environmental toxins, and its active form is reduced in about 80 percent of the kids with autism," said the study's lead author, S. Jill James. She is director of the biochemical genetics laboratory at Arkansas Children's Hospital Research Institute and a professor of pediatrics at the College of Medicine at the University of Arkansas for Medical Sciences in Little Rock.

Reduced levels of antioxidants, such as glutathione, would increase the level of oxidative stress. Oxidative stress occurs when antioxidants aren't able to clear the body of free radicals, which can damage cells in the brain, gastrointestinal tract and immune system.

"[Our findings] suggest that these kids would be more sensitive to an environmental exposure and would be less likely to detox from heavy metals," said James.

Exposure to heavy metals, such as the mercury preservative that was commonly used in children's vaccines until recently, has long been

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suspected as a trigger for autism in genetically susceptible children. Most research, however, has failed to confirm this link, and in 2004, the Institute of Medicine issued a report stating that it did not believe that vaccines contributed to the development of autism.

Not everyone agreed with that conclusion, however. Laura Bono, chairwoman of the National Autism Association, and the parent of an autistic child, believes vaccines play some sort of role in the development of autism and said the new study's findings would seem to support a link.

"These are children that are more vulnerable, that don't quite detox the way the rest of us do," said Bono.

James didn't look at the vaccine question for the current study. She said that autism is believed to have a genetic basis, but that it "takes an environmental trigger to bring out the genetics."

For this study, James and her colleagues compared blood samples of 90 autistic children to those of 45 children without the disorder, and found that the active form of glutathione was reduced by about 80 percent in children with autism. James also said the metabolic precursors of glutathione were reduced.

"If they have lower glutathione, they would reach a toxicity earlier than someone with higher levels," said James. "But, it's not clear whether this is a cause or a consequence of autism," she added.

James and her team also looked at changes that occur in several genes that could affect glutathione metabolism in blood samples from 233 autistic children, vs. 183 children without autism. They found changes in three genes more often in the children with autism. James said these are common genes that don't cause autism, but they could contribute to the development of these metabolic abnormalities.

James presented the study findings Saturday at the American Society for Nutritional Sciences' scientific sessions at the Experimental Biology conference in San Diego.

While this study is just a first step, she said, it wouldn't be unreasonable for parents of autistic children to talk with their child's doctor about giving them antioxidant supplements since these supplements are non-toxic.

Others aren't so sure, however.

"This is an interesting study and worth some more follow-up, but for parents or clinicians, it's an item of note, not a call to action," said Craig Newschaffer, director of the Center for Autism and Developmental Disabilities Epidemiology at Johns Hopkins Bloomberg School of Public Health in Baltimore. "There are no leaps to be made about using antioxidants as a therapeutic agent."

In other autism research released this week, scientists from the University of California, San Diego report that the "mirror" neurons don't function properly in people with autism. Mirror neurons are those that activate when you perform an action and then see someone else perform the same action, or vice versa. These neurons have also been

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dubbed the "monkey-see, monkey-do" cells.

"The findings provide evidence that individuals with autism have a dysfunctional mirror neuron system, which may contribute to their impairments -- especially those that involve comprehending and responding appropriately to others' behavior," one of the study's author, Lindsay Oberman, a doctoral student at UCSD, said in a statement. The research will be published in the journal *Cognitive Brain Research*.

More information

To learn more about autism, visit the [National Library of Medicine](#).

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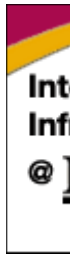
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