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Dr. Sanjay Gupta



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Scientists warn of chemical-autism link

Autism and environmental health experts called for greater scrutiny of chemicals found in the environment, which could potentially lead to autism and other neurodevelopmental disorders, in a conference call Tuesday.

"We live, breathe and start our families in the presence of toxic chemical mixtures and constant low-level toxic exposures, in stark contrast to the way chemicals are tested for safety," said Donna Ferullo, Director of Program Research at The Autism Society.

"Lead, mercury, and other neurotoxic chemicals have a profound effect on the developing brain at levels that were once thought to be safe," she said.

Autism spectrum disorders are being diagnosed at unprecedented rates, partly because of improved diagnostic tools and criteria, but also a host of other factors including what mothers-to-be are exposed and consequently their unborn children too, said Irva Hertz-Piccolto, Chief of the Division of Environmental Health at the University of California, Davis, and a faculty member at the Mind Institute.

About 1 in 110 children in the United States has autism, a group of

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my wife told me I looked better now than the day we were married. nice. inspired to kill it during my workout. #TriWithMe

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developmental disorders that lead to impairments in behavior, communication and socialization. The cost of autism is staggering: \$3.2 million for the care of a person with autism throughout his or her life; behavioral therapy can be hard to come by and be very limited, and [most medications don't help much](#).

Studies have strongly suggested a genetic component in the cause of autism, but it's becoming clear that genetics alone isn't the whole story; there could be interactions between susceptibility genes and environmental chemicals.

Recent research from her group, [appearing in the journal Epidemiology](#), showed that prenatal vitamins taken prior to conception seem to interact with certain metabolizing genes that are inherited. Those women who did not take the vitamins, and had the high-risk genotypes, were more likely to have a child with autism. Still, this was a small study limited in scope, and more research should be done to confirm these findings.

The central nervous system of the fetus is sensitive to a wide range of chemicals, Hertz-Picotto said. Hormones, such as estrogens and androgens, are essential for proper brain development. Endocrine-disrupting compounds need more research, she said. Flame-retardant chemicals called [PBDEs](#) interfere with the body's hormones. Even though many of them are no longer used in manufacturing, they can hang around in the environment and the human body for a long time. The Environmental Protection Agency (EPA) is aware of concerns about these chemicals and is working on accessing substitutions ([see the action plan](#)).

Bisphenol A, present in plastic food packaging and water bottles, among other products, is another big concern, she said, because it could interfere with the body's natural estrogen system; antimicrobials added to soaps, toothpaste and other products can artificially enhance androgenic activity.

"That means that they could potentially play a role in autism or other neurodevelopmental disorders," Hertz-Picotto said.

Moreover, many children with autism spectrum disorders have abnormal immune responses. The chemical messengers in the immune system interact with the receptors in the brain, so chemicals that affect immunity could also be implicated in autism.

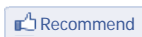
Thyroid dysfunction is common in children with autism that psychiatrist Dr. Suruchi Chandra sees, even though that's not part of the classical symptoms of the condition. She believes the abnormalities are due to the thyroid hormone disruptors such as BPA and flame retardants.

"Thyroid hormone is critical for brain development in early life, and even small alterations in hormone levels can have serious consequences; long-lasting and perhaps irreversible consequences in terms of brain function," she said.

Air pollution from traffic and certain pesticides have also been shown to have associations with autism, studies have shown. Maternal conditions could partially result from chemicals in the environment.

Andy Igrejas, National Campaign Director of Safer Chemicals, Healthy Families, called for an update of the 1976 [Toxic Substances Control Act](#). Sen. Frank Lautenberg (D-NJ) has [proposed a stricter version](#) that would require all industrial chemicals to be tested for safety.

UPDATE: Since so many of you have asked, I wanted to clarify that this discussion does not relate to vaccines. The scientific evidence available has shown again and again that [vaccines do not cause autism](#).



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