



INSTITUTE FOR AGRICULTURE AND TRADE POLICY
PRESS RELEASE

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About IATP

Institute for Agriculture and Trade Policy works locally and globally at the intersection of policy and practice to ensure fair and sustainable food, farm and trade systems. IATP is headquartered in Minneapolis, Minnesota with an office in Washington D.C.

Researchers link low-level mercury exposure, zinc deficiency and learning disorders

Use of mercury in the production of synthetic food ingredients analyzed

MINNEAPOLIS – Child learning and behavioral disorders are on the rise. Increasingly, diet-related factors like synthetic food dyes, mercury contamination and mineral deficiencies are being linked to these problems.

A new study in this month's issue of the peer-reviewed Behavioral and Brain Functions Journal suggests an important new model for how these disparate factors in the food system may be interacting to create a much bigger overall problem than typically is appreciated by looking at these diet factors individually.

The article, "Mercury exposure, nutritional deficiencies and metabolic disruptions may affect learning in children," by former U.S. Food and Drug Administration (FDA) researcher Renee Default et al., builds on long-acknowledged science from many different fields. It has long been known, for example, that mercury may bioaccumulate in the brain if not eliminated from the body, and that mercury is toxic to young, developing brains even at minute levels of exposure. It also has been acknowledged that dietary zinc is an essential mineral for maintaining the metabolic processes required to remove mercury from the body. Less recognized, however, is evidence that diets including high fructose corn syrup (HFCS) and other food additives may also lead to deficiencies in zinc and other trace minerals in humans. Further, the new study's model draws links between these findings and rising developmental problems in children.

Overall mercury exposure, including many sources aside from food, has been linked to an increase in rates of special education services and autism. The study's authors looked at data going back to the mid-1980s provided by the State of California and found that cases of diagnosed Autism Spectrum Disorder in California peaked at the same time as peak consumption years for HFCS in the United States. In a peer-reviewed article published earlier this year in *Environmental Health*, scientists found detectable mercury in commercial HFCS samples collected by the FDA in 2005. Mercury cell chlor-alkali chemicals have historically been used to manufacture a number of food ingredients including color additives such as FD&C Yellow 5, FD&C Yellow 6 and high fructose corn syrup, according to the article.

"Because many expensive behavior and learning disorders in kids appear to be on the rise," says IATP's David Wallinga, M.D., a co-author of the paper, "it's imperative that we take steps at many levels to eliminate unnecessary exposures to mercury and other known brain toxins we still expose our children to. In the real-world food and chemical environments we have created, children are exposed to many different toxic chemicals through multiple avenues. The latest science examines how these exposures and health effects interact. In these times of escalating health costs, it's critical that public policy steps track this new systems thinking in updating our regulatory system for chemicals and food." "The legal loophole that allows food companies to put mercury-containing food ingredients in children's diets needs to be closed," adds Wallinga. In the U.S. Congress, recent legislation was introduced (HR 2065, the Mercury Pollution Reduction Act, <http://www.govtrack.us/congress/bill.xpd?bill=h111-2065>) that would do just that.

IATP is working to reform how toxic chemicals are regulated in Minnesota and at the national level to help ensure a healthy food system.

You can download the full article in *Behavioral and Brain Functions Journal* at <https://behavioralandbrainfunctions.biomedcentral.com/track/pdf/10.1186/1744-9081-5-44>

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