

Evidence of "hormone disruptor" chemical threats grows

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A growing number of chemicals in pesticides, flame retardants, and certain plastics have been linked to widespread health problems including infertility, diabetes, and impaired brain development, a set of reviews of hundreds of studies concludes.

Led by NYU Grossman School of Medicine, a team of environmental health experts analyzed research published in the past five years on endocrine disruptors, as well as American and European policies to regulate them. These chemicals are believed to interfere with the function of hormones, signaling compounds made in glands that circulate to influence processes throughout the body.

Publishing online July 21 in the journal *The Lancet Diabetes and Endocrinology*, the new reports focused on "chemicals of concern," endocrine disruptors common in industrial and household goods. These include perfluoroalkyl substances (PFAS), toxins found in non-stick pans and waterproof clothing, and bisphenols, substances used in many plastics and can linings.

Exposure to certain chemicals found in industrial and household goods has been linked in new studies to obesity; to endometriosis, a painful and abnormal growth of tissue on the outside of the womb; and to polycystic ovary syndrome, a significant cause of infertility.

The recent reviews add 17 ties between certain medical conditions and endocrine disruptors to a list of 15 others already identified by a 2015

joint investigation led by the United Nations and the World Health Organization. For example, new findings suggest that PFAS, bisphenols, and certain pesticides may damage semen. In addition, the review identifies numerous new studies that link brain-related health concerns, such as IQ loss and attention deficit disorder (ADD), to flame retardants and chemicals found in certain pesticides.

"These newer studies have strengthened the evidence linking endocrine disruptors to physical and especially neurological health issues," says one of the reviews' lead authors, Linda Kahn, MPH, Ph.D., a postdoctoral fellow in the Department of Pediatrics at NYU Langone Health.

"Our review of American and European policies argues that current regulations meant to reduce exposure to this class of chemicals are falling short," adds Kahn. "While further research is needed to more firmly establish cause and effect, [urgent action](#) is needed now because the public is already paying the costs through serious and long-lasting health problems."

The team's policy review found a lack of a consistent definition of endocrine disruptors across countries. The authors are concerned that current U.S. regulations are based only on exposure to large doses of chemicals, not small, everyday doses over many years, even though recent findings demonstrate that such chemicals are cumulatively dangerous at low levels.

"Our understanding of [endocrine disruptors](#) has evolved, but the regulations in place to protect against them have not," says the senior author of the reports, Leonardo Trasande, MD, MPP, the Jim G. Hendrick, MD Professor at NYU Langone. "What's needed are more rigorous tests of commercial chemicals that account for these complexities."

Trasande, who also serves as chief of environmental pediatrics in the Department of Pediatrics at NYU Langone, calls for stricter controls akin to nationwide efforts to reduce exposure to cancer-causing substances. He suggests that a much-needed step is establishing an international program that identifies hazards so they can be effectively regulated before use, rather than after they may have already caused harm.

Trasande says more research is needed to corroborate or disprove the health effects identified in these studies, as well as to evaluate the economic costs of exposure to these chemicals. He notes that the Environmental Protection Agency established a protocol in the late 1990s to better regulate these chemicals. However, the effort made little headway, Trasande explains, largely because of a perceived lack of conclusive studies and fierce lobbying by the [chemical](#) and manufacturing industries.

Provided by NYU Langone Health

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