

Prenatal exposure to plastics linked to motor skill deficiencies at age 11

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Scientists with the Columbia Center for Children's Environmental Health (CCCEH) at the Columbia University Mailman School of Public Health report motor skills problems in children exposed during pregnancy to plasticizer chemicals known as phthalates that are widely used in personal care products like moisturizers and lipstick, as well as plastic containers and children's toys.

Results of the study of 209 New York City children are published in the journal *Environmental Research*.

The researchers measured levels of phthalates and their metabolites in urine collected from women during late pregnancy and from their children at ages 3, 5, and 7 years. The Bruininks-Oseretsky Test of Motor Proficiency short form (BOT-2), a screening test for motor problems, was administered at age 11 to assess [motor skills](#).

The findings suggest that [maternal exposure](#) to phthalates in late pregnancy could have long-lasting [adverse effects](#) on [motor function](#) in children in later childhood, particularly in girls.

There was also evidence that childhood exposure to phthalates may have more harmful effects on motor function in boys.

"Almost one-third of the children in our study had below or well-below average motor skills," says senior author Pam Factor-Litvak, Ph.D., professor of Epidemiology at the Columbia Mailman School. "Children with even subtle motor problems often have difficulty participating in daily activities of childhood, particularly sports. Children with motor problems may also experience low self-worth and self-esteem, high rates of anxiety and depression, as well as behavioral disorders, such as ADHD."

Phthalate exposures likely occurred when expecting mothers and their children unknowingly ingested small amounts of products like lipstick or plastic food containers or packaging. They may also have absorbed these chemicals through their skin.

"This study adds to the substantial body of evidence on the [health risks](#) of phthalates for children, which also includes elevated risk for asthma and cognitive issues," says Julie Herbstman, Ph.D., associate professor of Environmental Health Sciences and director of CCCEH. "To the extent possible, expecting mothers should minimize their exposures to products like lipstick and moisturizers that contain these chemicals by paying attention to product labels. In addition, policymakers and manufacturers should consider steps to limit or eliminate the use of these chemicals. No chemicals should be this widely available until they are proven to be safe."

More information: Arin A. Balalian et al, Prenatal and childhood exposure to phthalates and motor skills at age 11 years, *Environmental Research* (2019). [DOI: 10.1016/j.envres.2019.01.046](https://doi.org/10.1016/j.envres.2019.01.046)

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