

New study suggests children at high risk of exposure to a popular weed killer

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One out of three people in a large survey showed signs of exposure to a pesticide called 2,4-D, according to a study published today by researchers at the George Washington University. This novel research found that human exposure to this chemical has been rising as agricultural use of the chemical has increased, a finding that raises worries about possible health implications.

"Our study suggests human exposures to 2,4-D have gone up significantly and they are predicted to rise even more in the future," Marlaina Freisthler, a Ph.D. student and researcher at the George Washington University, said. "These findings raise concerns with regard to whether this heavily used weed-killer might cause health problems, especially for young children who are very sensitive to [chemical](#) exposures."

Lead author Freisthler and her colleagues looked for biomarkers of the pesticide found in [urine samples](#) from participants in the National Health and Nutrition Examination Survey. They estimated agricultural use of 2,-D by studying public and private pesticide use data from 2001 until 2014.

Out of 14,395 participants in the survey nearly 33 percent had detectable levels of 2,4-D in their urine. The researchers found that participants with urine levels of this pesticide went from a low of 17 percent at the start of the study in 2001-2002 to a high of nearly 40 percent ten years later.

Other key findings of the new study:

- As the use of the herbicide increased during the study period so did human exposures.
- Children ages 6-11 had more than double the risk of increasing exposure to 2,4-D.
- In addition, women of childbearing age had nearly twice the risk of increased exposure compared to men in the same age group.
- Human exposures are likely to rise even more in the near future as this herbicide's use continues to go up.

2,4-D was developed in the 1940s and soon became a popular weed-killer for farmers who wanted to increase crop yields. In addition, homeowners looking for a pristine, green lawn also turned to 2,4-D often in combination with other lawn chemicals.

Exposure to high levels of this chemical has been linked to cancer, reproductive problems, and other health issues. While scientists don't know what the impact of exposure to lower levels of the herbicide might be, they do know that 2,4-D is an [endocrine disruptor](#) and this study shows children and women of childbearing age are at higher risk of exposure.

Children can be exposed if they play barefoot on a lawn treated with the weed-killer or if they put their hands in their mouths after playing outside, where the soil or grass might be contaminated with the chemical. People also can be exposed by eating soybean-based foods and through inhalation. The now widespread use of 2,4-D on GMO soybeans and cotton leads to more 2,4-D moving in the air, which can expose more people to this chemical, according to the researchers.

"Further study must determine how rising exposure to 2,4-D affects human health—especially when exposure occurs early in life," Melissa Perry, a professor of environmental and occupational health and senior author of the paper, said. "In addition to exposure to this pesticide,

children and other vulnerable groups are also increasingly exposed to other pesticides and these chemicals may act synergistically to produce health problems."

Consumers who want to avoid exposures to pesticide can purchase organically grown food, which is less likely to be grown with weed killers. They can also avoid using 2,4-D or other pesticides on their lawn or garden, the researchers said.

More information: Marlaina S. Freisthler et al, Association between increasing agricultural use of 2,4D and population biomarkers of exposure: findings from the National Health and Nutrition Examination Survey, 2001–2014, *Environmental Health* (2022). [DOI: 10.1186/s12940-021-00815-x](https://doi.org/10.1186/s12940-021-00815-x)

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