

Dangerous Pesticides in Your Pee

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✓ Fact Checked

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STORY AT-A-GLANCE

- › More than 80% of U.S. children and adults, ages 6 years and up, have detectable levels of the herbicide glyphosate in their urine
- › Out of 2,310 urine samples tested, 1,885 contained glyphosate levels at or above the detection limit
- › The International Agency for Research on Cancer identified glyphosate as a probable human carcinogen in 2015
- › Significant additional health concerns have been raised, with research linking glyphosate to fatty liver disease and kidney disease
- › Glyphosate residues have been found in foods like breakfast cereal and honey, as well as in air, rain, municipal water supplies, soil samples, breast milk, organic plant-based protein supplements and even vaccines
- › Other agricultural chemicals, including fumigants like metam, are associated with cancer incidence among adults and children

More than 80% of U.S. children and adults, ages 6 years and up, have detectable levels of the herbicide glyphosate in their urine, according to data from the U.S. Centers for Disease Control and Prevention.^{1,2} Out of 2,310 urine samples that were collected as part of the National Health and Nutrition Examination Survey (NHANES), 1,885 contained glyphosate levels at or above the detection limit.

Glyphosate, which is the active ingredient in the popular herbicide Roundup, is the most widely used herbicide in the U.S. agricultural sector and the second most used herbicide in the home and garden sector. Its use increased more than 200-fold since 1974, according to the CDC.³

The International Agency for Research on Cancer (IARC) identified glyphosate as a probable human carcinogen in 2015,⁴ and significant additional health concerns have been raised, with research linking glyphosate to fatty liver disease⁵ and kidney disease.⁶

Further, increases in glyphosate usage in the U.S., as well as in Canada, is extremely well-correlated with the concurrent increase in the incidence of multiple diseases, including breast cancer, pancreatic cancer, kidney cancer, thyroid cancer, liver cancer, bladder cancer and myeloid leukemia.⁷

Glyphosate in Urine ‘Disturbing to Many People’

The realization that the majority of Americans have glyphosate in their urine is likely to be “disturbing to many people,” said Lianne Sheppard, professor at the University of Washington’s department of environmental and occupational health sciences. “Now from this NHANES analysis we know that a large fraction of the population has it in urine. Many people will be thinking about whether that includes them.”⁸

While the finding is disturbing, it’s not surprising, as glyphosate has been increasingly showing up in humans, food and more, including air, rain, municipal water supplies, soil samples, breast milk, urine, organic plant-based protein supplements and even vaccines, including the pneumococcal, Tdap, hepatitis B (which is injected on the day of birth), influenza and MMR.⁹

In 2017, researchers from University of California San Diego (UCSD) School of Medicine tested urine levels of glyphosate and its metabolite aminomethylphosphonic acid (AMPA) among 100 people living in Southern California over a period of 23 years – from 1993 to 2016.¹⁰

They chose this timeframe because genetically engineered (GE) crops were introduced in the U.S. in 1994, and glyphosate is used in large quantities on GE glyphosate-tolerant crops (i.e., Roundup Ready varieties); its use increased nearly 15-fold since 1996 alone.¹¹

At the start of the study, very few of the participants had detectable levels of glyphosate in their urine, but by 2016, 70% of them did.¹² Overall, the prevalence of human exposure to glyphosate increased by 500% during the study period while actual levels of the chemical, in ug/ml, increased by a shocking 1,208%.¹³

Glyphosate Is in Your Food

GE crops like herbicide-resistant corn, soybeans and cotton are a major source of glyphosate residues. Such crops led to a 527 million-pound increase in herbicide use in the U.S. from 1996 to 2011.¹⁴ However, even non-GE foods often contain glyphosate because the chemical is used as a pre-harvest drying agent, or desiccant.

About two weeks prior to harvest of grain crops like wheat, oats and barley, glyphosate may be sprayed onto the crop, which accelerates the drying process, allowing for earlier harvest. The use of glyphosate as a desiccant may be particularly problematic because it's sprayed so near to harvest, which could result in higher residue levels and greater exposures to consumers.¹⁵

Oat-based cereal and snack products, including popular breakfast foods often marketed to children, have been found to contain concerning levels of glyphosate¹⁶ as a result of the desiccation process. In 2020, food giant Kellogg announced they're phasing out the use of glyphosate as a desiccant by 2025.¹⁷

However, glyphosate has also been detected in PediaSure Enteral Formula nutritional drink, which is given to infants and children via feeding tubes,¹⁸ to get an idea of just how widespread it is.

Glyphosate was also detected in a variety of honey samples tested worldwide, including that taken directly from 59 beehives on the Hawaiian island of Kauai. There, glyphosate

residues were found in 27% of honey samples, at levels as high as 342 parts per billion (ppb).¹⁹ Manuka honey from New Zealand – prized for its medicinal properties and purity – is also contaminated with glyphosate.

Out of 300 samples tested, 22.3% contained glyphosate residues above the laboratory limit of reporting, with clover or pasture floral types testing positive more often than other varieties. About 1.7% of the unblended or unprocessed (raw extracted) honey samples contained glyphosate residues at levels above the regulatory limit.²⁰

Bayer Roundup Cancer Trials Continue

More than 100,000 people have brought court cases against Bayer, which now owns Monsanto, over allegations that exposure to Roundup caused them to develop cancer.²¹ As noted by U.S. Right to Know, “Bayer AG, which bought Monsanto in 2018, has earmarked more than \$14 billion to try to settle all of the U.S. Roundup litigation, but many plaintiffs have refused to settle, and cases continue to go to trial.”²²

Research published in *Frontiers in Genetics* supports glyphosate’s cancer link, finding that exposure in low concentrations (in parts per trillion) may induce cancer in cells when combined with microRNA-182-5p (miR182-5p).²³

MicroRNA-182-5p is a gene regulatory molecule found in everyone, and overexpression of the molecule has been linked to cancer. Michael Antoniou of King's College London, who peer reviewed the study, stated, “These observations highlight for the first time a possible biomarker of glyphosate activity at the level of gene expression that could be linked with breast cancer formation.”²⁴

However, there are more than 1 million crop farmworkers in the U.S., half of whom do not have legal work authorization. These workers have some of the highest agricultural chemical exposures in the U.S., but they’re likely to be left out of legal justice. Environmental Health News (EHN) reported:²⁵

“Legal experts say migrant farmworkers, who are at the forefront of pesticide and herbicide exposures – including Roundup – are expected to be left out. It is

hard to know exactly how many migrant farmworkers have filed lawsuits against Bayer.

However, after speaking with law firms that have represented plaintiffs from major Roundup cancer lawsuits and farmworker organizations across the country, Environmental Health News has found little evidence that any migrant farmworkers have done so. Fear of retaliation, and a lack of legal resources and legal immigration status, has diminished migrant farmworkers' likelihood to seek justice and compensation."

Agricultural Fumigants Linked to Cancer

Roundup is just "one of a whole toxic soup of pesticides" that farmworkers are exposed to, Jeannie Economos with the Farmworker Association of Florida, told EHN. "On many occasions, they would fumigate right next to me while I was picking fruits," Ernestina Solorio, a Mexican farmworker in Watsonville, California, told EHN. "I just picked the fruit and nobody told me what they were spraying."²⁶

One such fumigant is metam, another agricultural pesticide that's recently been linked with cancer. In a study of 11 contiguous states in the Western U.S., fumigant usage was associated with cancer incidence among adults and children.²⁷ Metam, the most used fumigant, was also associated with cancer incidence in adults.

In a separate study that compared cancer in children with exposure to environmental contaminants, including metals and pesticides, in Idaho, the environmental burden index was significantly associated with pediatric cancer incidence.²⁸ "The study identified that the counties with high Environmental Burden were more closely associated with cancer incidence among children than counties with low Environmental Burden," the researchers noted.²⁹

Alan Kolok, a University of Idaho professor and director of the Idaho Water Resources Research Institute, who led both studies, told Sustainable Pulse that the findings warrant further research into the correlation between pesticides and cancer:³⁰

“We’re not trying to be alarmist, and we’re not trying to say, ‘Oh, look, there’s a direct relationship between (the data).’ That’s not at all what they’re saying. But at the same time, it would be disingenuous of us to not recognize that in a darkened room, we keep seeing a shiny object. It really is a call to action of let’s do more research and let’s elaborate on what’s going on relative to that shiny object.”

... It is absolutely striking how different states are from each other and counties are from each other. Which begs the question of if the pesticide load is different that’s being used in the state, does that cascade to a potential exposure to people? And the answer, from our two papers, is that there is suggested information that argues that it very well may. It’s a first step down that road, but it’s a significant first step.”

Tips for a Glyphosate Detox

One of the best ways to reduce your pesticide exposure is to choose organic or biodynamically grown foods, which are not genetically engineered nor sprayed with glyphosate as a desiccant. Also, stop using glyphosate-based chemicals and other agricultural chemicals in your backyard and garden immediately.

Because glyphosate is so widespread, with the majority of people likely exposed, you may also want to consider a detox geared at this particular chemical. Consuming organic, unpasteurized apple cider vinegar is one strategy, as it contains acetobacter, which can break down glyphosate, according to Stephanie Seneff, a senior research scientist at the Massachusetts Institute of Technology, who has been studying glyphosate for years.

She also suggests eating garlic and cruciferous vegetables, which are good sources of sulfur. Glycine supplementation may also be a good option to help detoxify glyphosate, because to eliminate glyphosate you need to saturate your body with glycine.

Dr. Dietrich Klinghardt, who is a specialist in metal toxicity and its connection to chronic infections, recommends taking 1 teaspoon (4 grams) of glycine powder twice a day for a few weeks and then lower the dose to one-fourth teaspoon (1 gram) twice a day. This forces the glyphosate out of your system, allowing it to be eliminated through your urine.

If you prefer foods instead of supplements, organic, grass fed collagen is naturally rich in glycine, as is organic bone broth, which is an excellent source of glycine-rich collagen, to support your glyphosate detoxification.

Sources and References

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