

Slashes Your Level of This Toxin by 60% in Just 6 Days

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✓ Fact Checked

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STORY AT-A-GLANCE

- › A meta-analysis of six epidemiological studies published between 2001 and 2018 found glyphosate increases the risk of Non-Hodgkin lymphoma (NHL) by 41% in highly exposed subjects
- › Of the six studies included, five showed a positive correlation. In the sixth, NHL risk was diluted due to the inclusion of people with very low exposure
- › Most foods (processed foods in particular) are contaminated with glyphosate, and more than 70% of Americans have detectable levels of glyphosate in their system
- › Recent research again confirms you can significantly reduce your toxic pesticide load by going organic, and results can be rapid
- › On average, pesticide and pesticide metabolite level for 14 compounds representing about 40 different pesticides were reduced by more than 60%, on average, after six days of eating an all-organic diet

This article was previously published February 25, 2019, and has been updated with new information.

According to polls, the No. 1 reason people choose organic food is to avoid pesticide exposure.¹ Not only do these chemicals threaten the environment, but they also pose a very clear and direct risk to human health.

Glyphosate, the active ingredient in Monsanto's Roundup herbicide, has made headlines because it's the most used agricultural chemical in history and because the International Agency for Research on Cancer (IARC) has identified it as a probable human carcinogen.

Meta-Analysis Shows Link Between Glyphosate and Non-Hodgkin Lymphoma

A meta-analysis^{2,3,4,5,6} of six epidemiological studies published between 2001 and 2018 now adds further weight to such suspicions, showing glyphosate increases the risk of Non-Hodgkin lymphoma (NHL) — a group of blood cancers — by 41% in highly exposed subjects.

According to the research team, led by Luoping Zhang, a University of California, Berkeley toxicologist and a member of the Environmental Protection Agency's (EPA) scientific advisory panel (SAP) on glyphosate carcinogenicity,⁷ there is indeed a "compelling link" between glyphosate exposure and NHL.

Two other researchers on the team were also members of the EPA SAP that met in 2016. At the time, all three expressed concerns about the EPA's determination that glyphosate was "not likely to be carcinogenic" to humans,⁸ noting the EPA failed to follow proper scientific practices in its assessment of the chemical.⁹

Senior author professor Lianne Sheppard told Investigative journalist Carey Gillam,¹⁰ "It was pretty obvious they didn't follow their own rules. Is there evidence that it is carcinogenic? The answer is yes."

Evidence also emerged suggesting the EPA had colluded with Monsanto to protect the company's interests by manipulating and preventing key investigations into glyphosate's cancer-causing potential.

Of the six studies included in this new analysis, five showed a positive correlation. One of the studies, known as the Agricultural Health Study¹¹ (AHS), published in 2018, found

no effect.

However, the team points out that results were watered down in that study due to the inclusion of people with very low exposure. It's only when you look at high-exposure groups independently that a clear link between exposure and NHL emerges.

Scientists Convinced Glyphosate Is a Dangerous Carcinogen

These findings are bad news for Bayer, which now owns Monsanto and its toxic product line. At one point, some 9,000 individuals had lawsuits pending against Monsanto-Bayer. All blamed their NHL on Roundup exposure. But, as of May 2022, Monsanto has already paid out over \$11 billion to over 100,000 – yes, 100,000 – individuals.¹²

Not only that, there are still nearly 30,000 left to settle. In its defense, Monsanto has relied heavily on the AHS study's findings showing no correlation between exposure and NHL risk. However, as noted in the new meta-analysis, published online February 10, 2019:¹³

"Using the highest exposure groups when available in each study, we report the overall meta-relative risk (meta-RR) of NHL in [glyphosate-based herbicide-exposed] GBH-exposed individuals was increased by 41 percent ...

For comparison, we also performed a secondary meta-analysis using high-exposure groups with the earlier AHS (2005), and we determined a meta-RR for NHL of 1.45, which was higher than the meta-RRs reported previously. Multiple sensitivity tests conducted to assess the validity of our findings did not reveal meaningful differences from our primary estimated meta-RR.

To contextualize our findings of an increased NHL risk in individuals with high GBH exposure, we reviewed available animal and mechanistic studies, which provided supporting evidence for the carcinogenic potential of GBH.

We documented further support from studies of malignant lymphoma incidence in mice treated with pure glyphosate, as well as potential links between GBH

exposure and immunosuppression, endocrine disruption, and genetic alterations that are commonly associated with NHL.

Overall, in accordance with evidence from experimental animal and mechanistic studies, our current meta-analysis of human epidemiological studies suggests a compelling link between exposures to GBHs and increased risk for NHL."

Sheppard told Sustainable Pulse,¹⁴ "Our analysis focused on providing the best possible answer to the question of whether or not glyphosate is carcinogenic. As a result of this research, I am even more convinced that it is." Gillam also quotes Sheppard, saying,¹⁵ "This paper makes a stronger case than previous meta-analyses that there is evidence of an increased risk of NHL due to glyphosate exposure. From a population health point of view there are some real concerns."

One Lawsuit Focuses on Roundup's Effect on Gut Bacteria

Even if you're not exposed to glyphosate-based herbicides via application (which is the case with most who claim glyphosate exposure caused their NHL), your health is still at risk, as most foods (processed foods in particular) are contaminated with this chemical, and more than 70% of Americans have detectable levels of glyphosate in their body.¹⁶

A limited food testing program by the U.S. Food and Drug Administration in 2016 revealed virtually all foods tested were contaminated with Roundup.¹⁷ The Health Research Institute Labs (HRI Labs), an independent laboratory that tests both micronutrients and toxins found in food, also discovered widespread glyphosate contamination.

According to HRI data, people who eat oats on a regular basis have twice as much glyphosate in their system as people who don't (likely because oats are desiccated with glyphosate before harvest), and people who eat organic food on a regular basis have an 80% lower level of glyphosate than those who rarely eat organic.

Glyphosate kills weeds by inhibiting the shikimate pathway in the plant, and Monsanto has long defended the chemical's safety, saying it cannot affect humans because we do

not have this pathway. However, the shikimate pathway is found in human gut bacteria, which we now know play a vital role in human health.

As reported by Bloomberg,¹⁸ a lawsuit filed against Monsanto February 13 now specifically focuses on this link. But glyphosate can also affect your health via a number of other mechanisms. For example, research has shown glyphosate also:^{19,20,21}

Mimics glycine, an amino acid your body uses to make proteins. By acting as a substitute for glycine in your body, glyphosate can cause damaged proteins to be produced.

Glycine also plays a role in quenching inflammation, and is used up in the detoxification process. As a result of glyphosate toxicity, many of us may not have enough glycine for efficient detoxification.

Interferes with the function of cytochrome P450 enzymes, required for activation of vitamin D in the liver, and the creation of both nitric oxide and cholesterol sulfate, the latter of which is needed for red blood cell integrity.

Chelates important minerals, including iron, cobalt and manganese. Manganese deficiency, in turn, impairs mitochondrial function and can lead to glutamate toxicity in the brain.

Interferes with the synthesis of aromatic amino acids and methionine, which results in shortages in critical neurotransmitters and folate.

Disrupts sulfate synthesis and sulfate transport.

Disrupts and destroys the gut microbiome via its antibiotic activity.

Inhibits sulfur metabolism.

Impairs methylation pathways.

Inhibits pituitary release of thyroid stimulating hormone, which can lead to hypothyroidism.

How Much Glyphosate Do You Have in Your Body?

HRI Labs has developed home test kits for both water and urine, available in my online store. If your levels are high, you would be wise to address your diet and consider buying more organic foods.

You may also want to consider some form of detoxification protocol, and take steps to repair the damage to your gut caused by glyphosate and other agrochemicals. Chances are, if your glyphosate levels are high, you probably have a number of other pesticides in your system as well.

Fermented foods, particularly kimchi, are potent chelators of these kinds of chemicals. Taking activated charcoal after a questionable meal can help bind and excrete chemicals as well. Remember to stay well-hydrated to facilitate the removal of toxins through your liver, kidneys and skin.

Glycine is an important detox aid for glyphosate in particular. Dr. Dietrich Klinghardt, recognized as an international authority on metal toxicity and its connection with 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. The least expensive way to do this is purchase glycine bulk powder,²² which is very inexpensive.

This forces the glyphosate out of your system, allowing it to be eliminated through your urine. Using a sauna on a regular basis is also recommended to help eliminate both pesticides and heavy metals you may have accumulated.

Organic Diet Lowers Your Pesticide Load, Study Finds

An obvious answer to concerns about glyphosate exposure via your diet is to switch to organic foods. A study^{23,24} published in the journal *Environmental Research*, February 12, 2019, again confirms you can significantly reduce your toxic pesticide load by going organic, and results can be rapid.

On average, pesticide and pesticide metabolite level for neonicotinoids, organophosphate pesticides (OP), pyrethroid, 2,4-D and others (14 compounds in all, representing about 40 different pesticides) were reduced by more than 60%, on average, in just six days of eating an all-organic diet.

Urine samples were collected from four "racially and geographically diverse" U.S. families – seven adults and nine children in all – before and after they were switched to an all-organic diet. As a group, OP's were reduced the most, dropping by 70% overall.

Chlorpyrifos, linked to autism and reduced IQ in children, was reduced by an average of 61%, and malathion, a probable human carcinogen, was reduced by 95% while 2,4-D dropped by just 37%. The fact that 2,4-D appears to stay in the body longer could be a concern, considering we're bound to see far more of it in our food in coming years as genetically engineered crops are now being developed with 2,4-D resistant traits.

According to the authors:²⁵

"We observed significant reductions in urinary levels of 13 pesticide metabolites and parent compounds representing OP, neonicotinoid and pyrethroid insecticides and the herbicide 2,4-D following the introduction of an organic diet.

*The greatest reductions were observed for clothianidin ... malathion **dicarboxylic acid**, a metabolite of malathion ... and 3,5,6-trichlor-2-pyridinol, a metabolite of chlorpyrifos ... This study adds to a growing body of literature indicating that an organic diet may reduce exposure to a range of pesticides in children and adults."*

To Avoid Toxic Pesticides, Go Organic

Other studies have found very similar results, including:

- A 2006 study²⁶ in *Environmental Health Perspectives*, which found OP pesticide levels were lowered to undetectable levels in elementary school-aged children fed an all-organic diet for five days; levels rose as soon as a conventional diet was reintroduced
- An Australian study²⁷ published in 2014, which found a diet of at least 80% organic food lowered pesticide levels by 89% in seven days
- A 2015 study,²⁸ which found OP pesticide levels were reduced between 25 and 49% in Mexican-American children aged 3 to 6, after being fed organic food for seven days

Bruce Lanphear, a professor at Simon Fraser University who was not part of the study told *Civil Eats*,²⁹ "Families need this type of information. In the absence of a robust regulatory system that protects consumers, these types of studies are critical for consumers or families to make these choices."

Studies Support Eating Organic to Lower Pesticide Exposure

A 2016 report³⁰ by the European Parliament, "Human Health Implications of Organic Food and Organic Agriculture," detailed the many benefits of organic farming, based on a global literature search. The report is unusually comprehensive in that it also reviews a wide range of effects of organics, from nutritional content and the benefits of fewer pesticides to environmental impacts and sustainability.

Its conclusions are based on hundreds of epidemiological and laboratory studies and food analyses. Again, the clearest benefits of organics on human health were found to be related to lowered pesticide, antibiotic and cadmium exposure. And, while U.S. regulators insist that set limits on pesticide residues in conventional produce are enough to protect the public's health, the report found negative health effects may occur in children even at current levels of exposure.³¹

According to research³² presented at a 2017 Children's Environmental Health Network (CEHN) conference in Washington, D.C., women exposed to higher glyphosate levels during pregnancy had babies born earlier and with lower adjusted birth weights.

What's more, the chemical was detected in more than 90% of the mothers in the study. Studies have also demonstrated that an organic diet provides better nutrition. Among them:

A Hungarian study³³ published in 2006, which compared the nutritional value of organically and conventionally grown plant foods, found organics contained "significantly higher amounts of certain antioxidants (vitamin C, polyphenols and flavonoids) and minerals."

A 2010 study³⁴ looking at grass fed beef versus grain fed beef found the former had healthier fat composition and higher CLA levels. As noted by the authors, "[C]hanges in finishing diets of conventional cattle can alter the lipid profile in such a way as to improve upon this nutritional package.

Although there are genetic, age-related and gender differences among the various meat producing species with respect to lipid profiles and ratios, the effect of animal nutrition is quite significant."

A 2013 study³⁵ found organic milk contains about 25% less omega-6 fats and 62% more omega-3 fats than conventional milk, along with more vitamin E, beta-carotene and beneficial conjugated linoleic acid (CLA).

A British study³⁶ published in 2014 found organically grown foods contain "significantly" higher levels of antioxidants than the conventionally grown variety, including beneficial compounds linked to a reduced risk of chronic diseases, including heart and neurodegenerative diseases and certain cancers.

A group of scientists at Newcastle University in the U.K. evaluated 343 studies published over several decades. The analysis,³⁷ published in 2014, found that while

many nutrient levels were comparable, a key nutritional difference between conventional and organics was their antioxidant content, with organic fruits and vegetables containing anywhere from 18 to 69% more antioxidants than conventionally grown varieties.

The Research Institute of Organic Agriculture³⁸ in Frick, Switzerland, has confirmed organic apples contain higher levels of antioxidants than conventional varieties.

A 2010 study³⁹ partially funded by the U.S. Department of Agriculture (USDA) found organic strawberries were more nutrient-rich than conventional strawberries.

Research has also found that true organic free-range eggs typically contain about two-thirds more vitamin A, double the amount of omega-3, three times more vitamin E, and as much as seven times more beta carotene than conventional eggs.⁴⁰

Organic Food Resources

While most people tend to think of organics only in terms of produce (fruits and vegetables), it's important to remember to buy organic, grass fed beef, poultry and dairy, as well, as conventionally raised animals are routinely fed a diet of genetically engineered grains that are loaded with glyphosate and other potentially hazardous ingredients.

If you live in the U.S., the following organizations can help you locate farm-fresh foods grown in a sustainable and environmentally-friendly manner:

Demeter USA — Demeter-USA.org provides a directory of certified Biodynamic farms and brands. This directory can also be found on BiodynamicFood.org.

American Grassfed Association — The goal of the American Grassfed Association is to promote the grass fed industry through government relations, research, concept marketing and public education.

Their website also allows you to search for AGA approved producers certified according to strict standards that include being raised on a diet of 100% forage; raised on pasture and never confined to a feedlot; never treated with antibiotics or hormones; born and raised on American family farms.

Weston A. Price Foundation – Weston A. Price has local chapters in most states, and many of them are connected with buying clubs in which you can easily purchase organic foods, including grass fed raw dairy products like milk and butter.

Grassfed Exchange – The Grassfed Exchange has a listing of producers selling organic and grass fed meats across the U.S.

Local Harvest – This website will help you find farmers markets, family farms and other sources of sustainably grown food in your area where you can buy produce, grass fed meats and many other goodies.

Farmers Markets – A national listing of farmers markets.

Eat Well Guide: Wholesome Food from Healthy Animals – The Eat Well Guide is a free online directory of sustainably raised meat, poultry, dairy and eggs from farms, stores, restaurants, inns, hotels and online outlets in the United States and Canada.

Community Involved in Sustaining Agriculture (CISA) – CISA is dedicated to sustaining agriculture and promoting the products of small farms.

The Cornucopia Institute – The Cornucopia Institute maintains web-based tools rating all certified organic brands of eggs, dairy products and other commodities, based on their ethical sourcing and authentic farming practices separating CAFO "organic" production from authentic organic practices.

RealMilk.com – If you're still unsure of where to find raw milk, check out Raw-Milk-Facts.com and RealMilk.com. They can tell you what the status is for legality in your state, and provide a listing of raw dairy farms in your area. The Farm to Consumer

Legal Defense Fund⁴¹ also provides a state-by-state review of raw milk laws.⁴²

California residents can also find raw milk retailers using the store locator available at www.OrganicPastures.com.

Sources and References

- ¹ Organic Consumers Association May 24, 2017
- ^{2, 13} Mutation Research/Reviews in Mutation Research February 10 2019 [Epub ahead of print]
- ^{3, 9, 10, 15} The Guardian February 14, 2019
- ⁴ Michael-balter-blogspot.com February 14, 2019
- ^{5, 14} Sustainable Pulse February 14, 2019
- ⁶ GM Watch February 12, 2019
- ⁷ FIFRA Scientific Advisory Panel Open Meeting, December 13-16, 2016 (PDF)
- ⁸ EPA.gov, September 12, 2016, Glyphosate Issue Paper, Evaluation of Carcinogenic Potential (PDF)
- ¹¹ J Natl Cancer Inst. 2018 May 1;110(5):509-516
- ¹² Lawsuit Information Center Blog May 5, 2022
- ¹⁶ GM Watch October 24, 2017
- ¹⁷ The Guardian April 30, 2018
- ¹⁸ Bloomberg February 13, 2019
- ¹⁹ Entropy 2013, 15(4), 1416-1463
- ^{20, 21} Glyphosate Pretending to Be Glycine: Devastating Consequences, Stephanie Seneff
- ²² Amazon.com, Glycine Powder
- ^{23, 25} Environmental Research February 12, 2019 [Epub ahead of print]
- ^{24, 29} Civil Eats February 11, 2019
- ²⁶ Environmental Health Perspectives 2006 Feb; 114(2): 260–263
- ²⁷ Environ Res. 2014 Jul;132:105-11
- ²⁸ Environmental Health Perspectives 2015 Oct; 123(10): 1086–1093
- ³⁰ European Parliament, Human Health Implications of Organic Food and Organic Agriculture (PDF)
- ³¹ Harvard School of Public Health February 8, 2017
- ³² Environmental Working Group April 12, 2017
- ³³ Orv Hetil. 2006 Oct 29;147(43):2081-90
- ³⁴ Nutrition Journal 2010; 9:10
- ³⁵ PLOS One December 9, 2013
- ³⁶ Br J Nutr. 2014 Sep 14;112(5):794-811
- ³⁷ British Journal of Nutrition 2014 Sep 14;112(5):794-811
- ³⁸ Research Institute of Organic Agriculture
- ³⁹ PLOS One September 1, 2010; 5(9): e12346
- ⁴⁰ Mother Jones November 2007
- ⁴¹ The Farm to Consumer Legal Defense Fund

- ⁴² The Farm to Consumer Legal Defense Fund, State by State Review of Raw Milk Laws