Well Being: Organic Food

The evidence is in.

Robert W Malone MD, MS
Aug 5

I used to be somewhat skeptical on the importance of eating organic foods. Then in 2018, an important paper in JAMA came out. That study showed that eating a higher proportion of organic food is inversely associated with the overall risk of cancer (P for trend = .001). Inversely associated in this case means that the **more** organic foods in the diet, the **less** cancer.

Since then, numerous other peer reviewed papers have been published documenting the benefits of eating organic food. Recently, some important studies have been done that show very strong correlations between pesticide and herbicide use and various diseases. There are many reasons to eat organic, but reducing the residues of Roundup (glyphosate) and other chemicals on foods is a big one.

Today, I am going to list the issues with commercially grown food and then simply present some of the peer reviewed papers that show the importance of eating organic foods. Some of these articles are scientifically complex. However, the bulleted points should be clear enough -for those that don't feel like diving into the science.

If one can't afford to eat organically, the other big message is to read food labels for "country of origin." These days, that can be difficult to determine - due to the issuance of the USDA "Cool rules." Under these guidelines, processed foods do not need to require a country of origin labelling, if they are assembled or combined in the USA. But even still, read those food labels - they matter!

> Cool rules do not requires country of origin labelling for processed foods:
>
> - Processed food exclusion is based on two guidelines:
> - Products that are changed in character
> - Examples include: orange juice; bacon
> - Products that are combined with other products to make a new product

So what have studies shown about eating organically to avoid herbicides, such as Roundup and other pesticides:

- **A higher frequency of organic food consumption is associated with a reduced risk of cancer.**
- **Roundup™ exposure has been associated with an increased risk of Parkinson's Disease and death of neurons in the substantia nigra.**
- **There is evidence implicating Roundup™ as a factor in the elevated risk of autism.**
- **Other studies have shown the effects of Roundup™ on synaptic transmission in animal and cellular studies. The major mechanism of action appears to be oxidative stress, accompanied by mitochondrial dysfunction.**
- **Some gut bacteria utilize the enzyme used by plants, and glyphosate and Roundup™ use has been shown to alter the gut microbiome. There is a large and**

growing body of evidence that the gut microbiome alters susceptibility to great number of human diseases, including nervous system function.

- **The weight of the evidence indicates that in addition to cancer and reproductive effects, glyphosate and Roundup™ have significant adverse effects on the brain and behavior and increase the risk of at least some serious neurological diseases**
- **Increasing evidence shows that glyphosate and glyphosate-based herbicides exhibit cytotoxic and genotoxic effects, increase oxidative stress, disrupt the estrogen pathway, impair some cerebral functions, and allegedly correlate with some cancers.**
- **Glyphosate effects on the immune system appear to alter the complement cascade, phagocytic function, and lymphocyte responses, and increase the production of pro-inflammatory cytokines in fish.**
- **In mammals, including humans, glyphosate mainly has cytotoxic and genotoxic effects, causes inflammation, and affects lymphocyte functions and the interactions between microorganisms and the immune system.**
- **There is evidence in support of the hypothesis that residential pesticide exposure from agricultural applications is associated with an increased risk of thyroid cancer.**
- **A large subset of the population has been exposed to glyphosate and there studies showing the detrimental effects glyphosate exposure has on the brain and human health.**
- **Using roundup as a desiccant for crops "is a thing." Although farmers in the USA are somewhat sensitized to the issue, there are no controls on imported cereal grains and oil crops. In particular, corn, soy and oats harvesting often includes the use of a dessicant, such as Roundup.**
- **Unacceptable levels of glyphosate (Roundup) are found in commercially grown cereal grains, particularly breakfast oats and other foods. Organically grown cereal grains have very little Roundup residues when tested.**

The peer reviewed studies below confirm the bulleted points above.

The study below is one of the more important, because it opened up the door for more research into the link between organic foods and health.

Association of Frequency of Organic Food Consumption With Cancer Risk: Findings From the NutriNet-Santé Prospective Cohort Study

JAMA Intern Med 2018 Dec 1;178(12):1597-1606.

doi: 10.1001/jamainternmed.2018.4357.

This large population based study showed that a higher frequency of organic food consumption was associated with a reduced risk of cancer.

Abstract

Importance: Although organic foods are less likely to contain pesticide residues than conventional foods, few studies have examined the association of organic food consumption with cancer risk.

Objective: To prospectively investigate the association between organic food consumption and the risk of cancer in a large cohort of French adults.

Design, setting, and participants: In this population-based prospective cohort study among French adult volunteers, data were included from participants with available information on organic food consumption frequency and dietary intake. For 16 products, participants reported their consumption frequency of labeled organic foods (never, occasionally, or most of the time). An organic food score was then computed (range, 0-32 points). The follow-up dates were May 10, 2009, to November 30, 2016.

Main outcomes and measures: This study estimated the risk of cancer in association with the organic food score (modeled as quartiles) using Cox proportional hazards regression models adjusted for potential cancer risk factors.

Results: Among 68 946 participants (78.0% female; mean [SD] age at baseline, 44.2 [14.5] years), 1340 first incident cancer cases were identified during follow-up, with the most prevalent being 459 breast cancers, 180 prostate cancers, 135 skin cancers, 99

colorectal cancers, 47 non-Hodgkin lymphomas, and 15 other lymphomas. High organic food scores were inversely associated with the overall risk of cancer (hazard ratio for quartile 4 vs quartile 1, 0.75; 95% CI, 0.63-0.88; P for trend = .001; absolute risk reduction, 0.6%; hazard ratio for a 5-point increase, 0.92; 95% CI, 0.88-0.96).

Conclusions and relevance: A higher frequency of organic food consumption was associated with a reduced risk of cancer. If these findings are confirmed, further research is necessary to determine the underlying factors involved in this association.

Effects of Glyphosate and Roundup™ on the mammalian nervous system: A review

Environ Res. 2022 Jul 19;113933. doi: 10.1016/j.envres.2022.113933. Online ahead of print.

Abstract

Glyphosate is the active ingredient in Roundup™, the most widely used herbicide in the world. Glyphosate targets an essential enzyme in plants that is not found in animals. However, both glyphosate and Roundup™ are rated as Group 2 A, probably human carcinogens, and also have documented effects on reproduction, acting as endocrine disruptive chemicals. We have reviewed reports of the effects of glyphosate and Roundup™ on the mammalian nervous system function. As with several other herbicides, **Roundup™ exposure has been associated with an increased risk of Parkinson's Disease and death of neurons in the substantia nigra. There is also some evidence implicating Roundup™ in elevated risk of autism. Other studies have shown the effects of Roundup™ on synaptic transmission in animal and cellular studies. The major mechanism of action appears to be oxidative stress, accompanied by mitochondrial dysfunction. In addition, some gut bacteria utilize the enzyme used by plants, and glyphosate and Roundup™ use has been shown to alter the gut microbiome. There is a large and growing body of evidence that the gut microbiome alters susceptibility to great number of human diseases, including nervous system function. The weight of the evidence indicates that in addition to cancer and reproductive effects, glyphosate and Roundup™ have significant adverse effects on the brain and behavior and increase the risk of at least some serious neurological diseases.**

risk of at least some serious neurological diseases.

The impact and toxicity of glyphosate and glyphosate-based herbicides on health and immunity

J Immunotoxicol 2020 Dec;17(1):163-174. doi: 10.1080/1547691X.2020.1804492

Abstract

Glyphosate, or *N*-phosphomethyl(glycine), is an organophosphorus compound and a competitive inhibitor of the shikimate pathway that allows aromatic amino acid biosynthesis in plants and microorganisms. Its utilization in broad-spectrum herbicides, such as RoundUp®, has continued to increase since 1974; glyphosate, as well as its primary metabolite aminomethylphosphonic acid, is measured in soils, water, plants, animals and food. In humans, glyphosate is detected in blood and urine, especially in exposed workers, and is excreted within a few days. It has long been regarded as harmless in animals, but growing literature has reported health risks associated with glyphosate and glyphosate-based herbicides. In 2017, the International Agency for Research on Cancer (IARC) classified glyphosate as "probably carcinogenic" in humans. However, other national agencies did not tighten their glyphosate restrictions and even prolonged authorizations of its use. There are also discrepancies between countries' authorized levels, demonstrating an absence of a clear consensus on glyphosate to date. This review details the effects of glyphosate and glyphosate-based herbicides on fish and mammal health, focusing on the immune system. **Increasing evidence shows that glyphosate and glyphosate-based herbicides exhibit cytotoxic and genotoxic effects, increase oxidative stress, disrupt the estrogen pathway, impair some cerebral functions, and allegedly correlate with some cancers. Glyphosate effects on the immune system appear to alter the complement cascade, phagocytic function, and lymphocyte responses, and increase the production of pro-inflammatory cytokines in fish. In mammals, including humans, glyphosate mainly has cytotoxic and genotoxic effects, causes inflammation, and affects lymphocyte functions and the interactions between microorganisms and the immune system.** Importantly, even as many outcomes are still being debated, evidence points to a need for more studies to better decipher the risks from glyphosate and better regulation of its global utilization.

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Thyroid Cancer and Pesticide Use in a Central California Agricultural Area: A Case Control Study

J Clin Endocrinol Metab. 2022 Jul 26;dgac413.

Objective: To examine environmental factors that influence risk of thyroid cancer.

Methods: We performed a case-control study utilizing thyroid cancer cases from the California Cancer Registry (1999-2012) and controls sampled in a population-based manner. Study participants were included if they were diagnosed with thyroid cancer, lived in the study area at their time of diagnosis, and were ≥35 years of age. Controls were recruited from the same area and eligible to participate if they were ≥35 years of age and had been living in California for at least 5 years prior to the interview. We examined residential exposure to 29 agricultural use pesticides, known to cause DNA damage in vitro or are known endocrine disruptors. We employed a validated geographic information system-based system to generate exposure estimates for each participant.

Results: Our sample included 2067 cases and 1003 controls. In single pollutant models and within a 20-year exposure period, 10 out of 29 selected pesticides were associated with thyroid cancer, including several of the most applied pesticides in the United States such as paraquat dichloride [odds ratio (OR): 1.46 (95% CI: 1.23, 1.73)], glyphosate [OR: 1.33 (95% CI: 1.12, 1.58)], and oxyfluorfen [OR: 1.21 (95% CI: 1.02, 1.43)]. **Risk of thyroid cancer increased proportionately to the total number of pesticides subjects were exposed to 20 years before diagnosis or interview. In all models, paraquat dichloride was associated with thyroid cancer.** (Paraquat (Gramoxone) is one of the most widely used herbicides in the United States).

Conclusions: Our study provides first evidence in support of the hypothesis that residential pesticide exposure from agricultural applications is associated with an increased risk of thyroid cancer.

Glyphosate infiltrates the brain and increases pro-inflammatory cytokine TNFα: implications for neurodegenerative disorders

J Neuroinflammation . **2022 Jul 28**;19(1):193. doi: 10.1186/s12974-022-02544-5.

This paper is complex - so bear with my analysis.

Highlights:

This work demonstrates that glyphosate (Roundup) is capable of infiltrating brain tissue in a mouse model, and that exposure results in increased levels of the pro-inflammatory cytokine TNFα. Additionally, the study found that glyphosate dosages similar to those detected in the mouse brain in vivo are capable of increasing Aβ40-42 levels and reducing cell viability in vitro in primary cortical neurons.

Brain glyphosate correlates with increased TNFα levels, suggesting that exposure to this herbicide may trigger neuro-inflammation in the brain, which may induce changes that are seen in neurodegenerative disorders. This is further supported by RNA sequences findings showing dysregulation of important oligodendrocyte processes known to be affected by elevated levels of TNFα. Oligodendrocytes are a type of neuroglia whose main functions are to provide support and insulation to axons in the central nervous system of some vertebrates.

(Jill immediately speculated on the relationship between **glyphosate and** multiple sclerosis (**MS**). The role of oligodendrocytes in the regeneration of demyelinating disease is well documented, as myelin is regenerated by newly generated oligodendrocytes. Ergo - could there be a link between MS onset and prolonged or acute exposure to **glyphosate?**

Collectively, as a large subset of the population has been exposed to this chemical agent, these results raise the issues of detrimental effects glyphosate exposure may have on the brain and human health.

(To date, there are few clinical or epidemiological studies (with humans) conducted on this topic and those that have been conducted have not yet found a link between neurodegenerative diseases and glyphosate).

> Pre-harvest **crop** desiccation refers to the application of an agent to a **crop** just before harvest to kill the leaves and/or plants so that the **crop** dries out from environmental conditions ("dry-down") more quickly and evenly.

Roundup for Breakfast, Part 2: In New Tests, Weed Killer Found in All Kids' Cereals Sampled

> Findings Released as Major Scientific Study Shows Eating Organic Lowers Cancer Risk
>
> WASHINGTON – A second round of tests commissioned by the Environmental Working Group found the active ingredient in Monsanto's Roundup weed killer in every sample of popular oat-based cereal and other oat-based food marketed to children. These test results fly in the face of claims by two companies, Quaker and General Mills, which have said there is no reason for concern. This is because, they say, their products meet the legal standards.
>
> Yet almost all of the samples tested by EWG had residues of glyphosate at levels higher than what EWG scientists consider protective of children's health with an adequate margin of safety. The EWG findings of a chemical identified as probably carcinogenic by the World Health Organization come on the heels of a major study published in JAMA Internal Medicine that found a significant reduction in cancer risk for individuals who ate a lot of organic food.One of the most insidious uses of roundup, is as a desiccant for cereal and vegetable oil crops.

Yes, using roundup as a desiccant for crops "is a thing." Although farmers in the USA are somewhat sensitized to the issue, there are no controls on imported cereal grains and oil crops. In particular, corn, soy and oats harvesting often includes the use of a dessicant, such as Roundup.

As an example of how roundup as a desiccant is used, this trade organization brochure lays out the procedures and reasons why it is encouraged.

Roundup Use Pre-harvest - Why desiccate with Roundup?

So, there you have it.

Should you try to buy organic food? Is it worth the investment?

My scientific opinion is that eating organic foods is worth the investment.

My advice: you are only given one life, one body - use it wisely.

239 Comments

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Brandon McNaughton Writes Extrapolation Aug 5 ❤ Liked by Robert W Malone MD, MS

I grew up on a farm in Iowa during the 80's and 90's. I'm autistic, and have a multitude of health issues, autoimmune complications, and illnesses that have always been labeled "idiopathic." As I have moved toward carnivore and organic eating, most of them have begun to ameliorate. This needs investigation.

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wretchedcoder Aug 5 ❤ Liked by Robert W Malone MD, MS

Presently reading Stephanie Seneff's "Toxic Legacy". Highly recommended. Glyphosate is literally everywhere and in everything. It is the DDT of our time. But worse.

♡ 71 Reply Collapse •••

11 replies

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