

New Study Implicates Glyphosate in Male Infertility

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STORY AT-A-GLANCE

- › A recent French study found glyphosate present in 57% of sperm samples from infertile men, with concentrations four times higher in sperm than in blood
- › Glyphosate, the active ingredient in Monsanto's Roundup herbicide, is widely used globally and has been linked to various health issues, including infertility and cancer
- › Animal studies have shown glyphosate can damage testicular cells, reduce sperm count and alter testosterone levels, even at low concentrations
- › Other factors contributing to infertility include exposure to PFAS chemicals and electromagnetic fields from wireless technologies like cellphones and Wi-Fi
- › To reduce glyphosate exposure, buy organic foods, filter drinking water and avoid using glyphosate-based products. Consider testing glyphosate levels and detoxing with apple cider vinegar or glycine

Infertility is now a worldwide crisis. The World Health Organization¹ estimates that 1 in 6 people today are having difficulty conceiving. Although female infertility is usually given more attention, infertility among men is also being more closely scrutinized.

Research² notes that male infertility accounts for 30% of infertility cases, and while the root causes of this condition could be multifaceted, there's no doubt that environmental factors, particularly the chemicals you're exposed to every day, play a crucial role.

A recent study³ confirms this, putting into the spotlight one of the most ubiquitous and devastating manmade chemicals today – glyphosate.

More Than Half of Sperm Samples Contain Glyphosate, Study Finds

A group of French researchers⁴ sought to determine the link between glyphosate and male infertility. After analyzing samples from males who visited a local infertility clinic, they found that 73 out of 128 (around 57%) participants had detectable levels of glyphosate in their blood and semen.

Published in the June 2024 issue of *Ecotoxicology and Environmental Safety* journal, the study⁵ noted that although glyphosate levels are higher in semen samples, there's a positive correlation between plasma blood and seminal glyphosate content. The study authors note:⁶

"We have reported for the first time in human [research], the presence of GLY [glyphosate] in human sperm in nearly 60% of male patients in a French infertile cohort in our infertility clinic.

We found GLY concentrations four time[s] higher in sperm than in blood, corresponding probably to a hemato-testicular barrier alteration. Our results suggest a negative impact of glyphosate on human reproductive health and possibly on progeny."

The samples were from men ages 26 to 57 years old who did not have any physical abnormalities or chronic diseases. The researchers also discovered negative effects on DNA and oxidative stress. According to an article⁷ from *The Guardian*:

"The paper comes as researchers look for answers to why global fertility rates are dropping, and many suspect exposure to toxic chemicals like glyphosate is a significant driver of the decline.

Glyphosate is used on a wide range of food crops and in residential settings in the U.S. The most popular glyphosate-based product is Monsanto's Roundup weedkiller, which has been at the center of legal and regulatory battles in recent years."

Glyphosate Is Monsanto's Toxic Legacy

Once known as the active ingredient in Monsanto's Roundup Ready herbicide, glyphosate is used in around 60% of herbicide formulations today.⁸ This broad-spectrum weedkiller was first brought to the market by Monsanto (now acquired by the Biotech company Bayer) in 1974.

Since its introduction, around 8.6 billion kilograms (or about 18.9 billion pounds) of glyphosate has been applied to agricultural fields and other lands worldwide. Up to two-thirds of this amount was used just in the last decade.⁹ Glyphosate has also become a popular tool for desiccating non-GE grains, legumes and beans, which further spurred the use of the chemical.

In her book, "[Toxic Legacy: How the Weedkiller Glyphosate Is Destroying Our Health and the Environment](#)," Stephanie Seneff, Ph.D., details just how widespread glyphosate use is. According to her research, at least 1 pound of [glyphosate](#) is applied in the U.S. every year for every man, woman and child, which is an astounding amount.

Even if you just decide to buy non-GMO products, it wouldn't do any good, as many non-GMO items have been shown to have some of the highest levels of glyphosate. And while Monsanto claims that their product is "biodegradable" and "environmentally friendly,"¹⁰ the evidence points to the contrary, as glyphosate has been linked to damaging health effects, such as [kidney damage](#),¹¹ liver disease¹² and cancer.¹³

"In December [2023], a group of top U.S. public health advocacy groups petitioned the Environmental Protection Agency to ban the product, though its defenders have said there is no definitive proof of its toxicity to humans. Still, dozens of countries have banned or restricted its use," The Guardian reports.¹⁴

Previous Animal Studies Have Associated Glyphosate With Infertility

While the featured study confirms the pervasive nature of glyphosate and how it accumulates in the human body, earlier animal studies have shown similar findings about this chemical's link to infertility.^{15,16,17}

Glyphosate is an endocrine-disrupting chemical.¹⁸ In women, these chemicals adhere to hormone receptors and directly interfere with the functioning of steroid hormones, which are crucial for pregnancy and fetal development. As a result, they can change how many receptors are present in cells, as well as affect the creation, movement, levels and breakdown of hormones in your blood.

In males, endocrine-disrupting chemicals alter sperm production, damage the structure of the testicles, including their protective barriers and blood vessels, and harm testicular cells called the Leydig and Sertoli cells.¹⁹ These are crucial for sexual development, as they help maintain sperm health.

In 2013, a study²⁰ found that exposure to Monsanto's Roundup herbicide induced Sertoli cell death among prepubertal rat testis. What's particularly concerning is that the effects were seen in low doses — 36 parts per million (ppm) — and occurred after just 30 minutes of exposure. These effects include:

- Induced oxidative stress
- Activated multiple stress-response pathways
- Increased intracellular calcium concentration, leading to calcium overload and cell death

A 2017 study²¹ also found that Wistar rats given the Roundup herbicide orally experienced lower sperm counts, reduced sperm movement and higher amounts of abnormal sperm cells. The herbicide caused severe damage to the structure of the subjects' testicles as well. Other previous studies also found:

- Rats exposed to glyphosate concentrations as low as 1 ppm had 35% decrease in testosterone in their sperm cells²²
- Prepubertal exposure to glyphosate can alter testosterone levels²³
- Ducks exposed to Roundup experienced changes in their testis structure. The researchers concluded that the herbicide may "cause disorder in the morphophysiology of the male genital system of animals"²⁴

Other Factors That Increase Your Risk of Infertility

As it stands, half of the men in most developed nations are now near or at the point of being infertile. In 2017, a meta-analysis²⁵ of 185 studies found that sperm counts around the world declined by more than 50% between 1973 and 2013, and the numbers continue to dwindle.

Male populations from North America, Europe, Australia and New Zealand showed the most significant declines. Overall, men in these countries had a 52.4% decline in sperm concentration and a 59.3% decline in total sperm count (sperm concentration multiplied by the total volume of an ejaculate).

In March 2024, The Lancet released a report predicting that by 2100, the global infertility problem will be so severe that 97% of countries will be unable to sustain their populations.²⁶ Now that it's becoming clear that glyphosate is one of the factors contributing to the decrease in reproduction, it's common sense to take the necessary measures to avoid it and other toxic chemicals as much as possible.

However, this is easier said than done, as these damaging chemicals are all around us today. For example, "forever chemicals" or per- and polyfluoroalkyl chemicals (PFAS), are just as problematic as glyphosate, and just as ubiquitous. They're found in food packaging, clothing, personal care products and other stain- and grease-resistant products.

A study published in the journal *Environmental Health Perspectives*²⁷ notes that there's "a statistically significant association between exposure to a mixture of PFAS in early

pregnancy and lower sperm concentration and total sperm count and higher proportion of non-progressive and immotile sperm" in male offspring.²⁸

The good news is there are some strategies that can address the root causes of infertility – I've listed a few tips below to help you out. I also recommend checking out my recent article "[97% of Countries Will Soon Be Unable to Sustain Populations as Fertility Rates Drop](#)" to read the full list:

- **Minimize your exposure to toxic chemicals** – These include heavy metals, endocrine disruptors, pesticides and herbicides, formaldehyde, organic solvents, dry-cleaning chemicals and paint fumes.
- **Avoid drinking unfiltered tap water** – Our waterways are constantly being polluted by industrial waste and byproducts, so a whole-house water purification system is a worthy investment.
- **Eat an optimal fertility diet** – An optimal fertility diet is about what to avoid as much as it is about what to include. Eat REAL food, ideally organic, to avoid pesticide residues, and locally grown.
- **Avoid smoking and alcohol** – Alcohol, smoking and recreational drugs can also adversely affect fertility, reducing the size of your testes and lowering your sperm count.

EMFs – Another Stealth Cause of Infertility

In addition to endocrine-disrupting chemicals, another unseen factor that could be putting your reproductive ability at risk is your exposure to electromagnetic fields (EMFs) and radiofrequency radiation from wireless technologies, like cellphones and Wi-Fi. In fact, I believe this may be the most significant reason why sperm counts are dwindling today.²⁹

In a 2023 study³⁰ published in the Fertility and Sterility journal, researchers found that men who use their cell phones more than 20 times a day have significantly lower sperm concentrations and sperm counts than those who use their phones once a week or less.

Martin Pall, Ph.D., explained why this occurs. Nearly a decade ago, he discovered a previously unknown mechanism of biological harm from microwave radiation. Your cell membranes contain voltage-gated calcium channels (VGCCs) which, when activated by microwaves release about 1 million calcium ions per second.

This massive excess of intracellular calcium then stimulates the release of nitric oxide (NO) inside your cell and mitochondria, which combines with superoxide to form peroxynitrite. Peroxynitrites not only cause oxidative damage, but also create hydroxyl free radicals, which are the most destructive free radicals known to man.

Hydroxyl free radicals decimate mitochondrial and nuclear DNA, their membranes and proteins, resulting in mitochondrial dysfunction. In a 2013 children's health expert panel on cell phone and Wi-Fi exposures,³¹ it was noted that "The testicular barrier, that protects sperm, is the most sensitive of tissues in the body ... Besides sperm count and function, the mitochondrial DNA of sperm are damaged three times more if exposed to cellphone radiation."

Many in-vivo and in-vitro studies have also demonstrated the potential implications of EMF exposure to reproductive function. In a paper published in *Clinical and Experimental Reproductive Medicine*,³² researchers noted that EMFs can affect sperm motility, and the degree of damage can vary depending on the frequency, duration of exposure and strength of EMFs.

To reduce your risk, I recommend minimizing your EMF exposure. Avoid carrying your cell phone on your body while it is on, and avoid using laptops and tablets on your lap. Turn off your Wi-Fi off at night and make your bedroom an EMF-free zone.

Check Your Glyphosate Level

Going back to glyphosate, remember that everyone can be harmed by this chemical. However, if you're planning to start a family, taking extra steps to reduce your exposure is crucial. Ideally, I recommend buying organic or biodynamically grown food, as there's a lower chance that it's contaminated with glyphosate and other pesticides.

The most important to buy organic are animal products like meat, butter, milk and eggs, since they tend to bioaccumulate toxins when fed pesticide-laced feed, concentrating them to far higher concentrations than are typically present in vegetables.

Beyond animal foods, the pesticide load of different fruits and vegetables can vary greatly. I recommend checking out the Environmental Working Group's Dirty Dozen and Clean Fifteen Lists³³ to find out which fruits and vegetables are best purchased organic and which ones can be bought conventional.

I also advise you to invest in a good water filtration system for your home to lower exposure that may occur via drinking water. You'll also want to avoid using glyphosate-based products around your home, garden or workplace.

You can also test your glyphosate levels. The Health Research Institute (HRI Labs)³⁴ has created two glyphosate tests for the public – a water testing kit and an environmental exposure test kit. The second one is a urine test that will help you identify how much glyphosate you have in your system, which helps you identify how pure (or contaminated) your diet is. If your glyphosate level is high, chances are you've been exposed to many other agrochemicals as well.

How to Detox Glyphosate

One way to help your body eliminate glyphosate is to consume organic, unpasteurized apple cider vinegar. Seneff recommends this, as the acetobacter in the vinegar can break down glyphosate, allowing it to be excreted from your body.

"We make salad dressing [with apple cider vinegar]," Seneff says. "We have salad for dinner and I think it can actually help you to break down whatever glyphosate is in your mouth, because it will get right to work turning glyphosate into useful phosphorus. It completely gets rid of it."

Dr. Dietrich Klinghardt, a specialist in metal toxicity and its connection to chronic infections, advises taking 1 teaspoon or 4 grams of glycine powder twice a day for

several weeks. This also helps drive glyphosate out of your system. After a few weeks, you can lower the dose to one-fourth teaspoon (1 gram) two times a day.

You can also take organic grass fed collagen, as it is naturally rich in glycine. Organic bone broth is a great source of glycine-rich collagen, too. For more helpful information about bone broth, I recommend reading my article, "[The Ultimate Guide to Bone Broth: Nature's Collagen Supplement.](#)"

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