

# Are These Chemicals Part of a Depopulation Agenda?

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## STORY AT-A-GLANCE

- › In 1992, researchers published data showing the quality of sperm counts in men had been cut nearly in half over the previous 50 years. A 2017 systematic review confirmed this trend, showing a 50% to 60% drop in total sperm count among men in North America, Europe, Australia and New Zealand between 1973 and 2011
- › Testosterone has also declined in tandem with lower sperm counts, while miscarriage rates among women and erectile dysfunction among men have been steadily rising
- › We can rule out genetics as the cause, because the decline in sperm count is simply too rapid. That leaves us with environmental causes. Environmental causes can be broadly divided into two broad categories: Lifestyle and chemicals
- › Lifestyle factors that negatively impact fertility include obesity, smoking, binge drinking and stress
- › A great number of chemicals can impact fertility either directly or indirectly, but the most concerning class are endocrine disrupting chemicals (EDCs) such as phthalates. EDCs disrupt hormones, including sex hormones necessary for reproductive function, such as testosterone

In the After Skool video above, Shanna H. Swan, Ph.D., a leading environmental and reproductive epidemiologist and professor of environmental medicine and public health at the Icahn school of Medicine at Mount Sinai in New York City, examines the role of environmental toxins in reproductive health.

In 1992, researchers published data showing the quality of sperm counts in men had been cut nearly in half over the previous 50 years. According to this study:<sup>1</sup>

*“Linear regression of data weighted by number of men in each study showed a significant decrease in mean sperm count from  $113 \times 10^6/ml$  in 1940 to  $66 \times 10^6/ml$  in 1990 and in seminal volume from 3.40 ml to 2.75 ml, indicating an even more pronounced decrease in sperm production than expressed by the decline in sperm density ...*

*As male fertility is to some extent correlated with sperm count the results may reflect an overall reduction in male fertility. The biological significance of these changes is emphasized by a concomitant increase in the incidence of genitourinary abnormalities such as testicular cancer and possibly also cryptorchidism and hypospadias, suggesting a growing impact of factors with serious effects on male gonadal function.”*

## **Are Humans Going Extinct?**

Swan was initially skeptical, but she decided to look into it some more. To her amazement, after reviewing each of the 60 studies included in that 1992 analysis, she could find nothing to indicate that the finding was a fluke. It was the most stable trend she'd ever come across, and she spent the next 20 years investigating why human reproduction is plummeting.

In 2017, she published a systematic review and meta-regression analysis<sup>2</sup> showing a 50% to 60% drop in total sperm count among men in North America, Europe, Australia and New Zealand between 1973 and 2011. 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).

Swan refers to this shocking 39-year decline as “the 1% effect,” meaning the cumulative effect that an annual change of just 1% has over time. Testosterone has also declined in

tandem with lower sperm counts, while miscarriage rates among women and erectile dysfunction among men have been steadily rising.

If these trends continue, and there's no indication that they won't, in the not-so-distant future, we'll be looking at a male population that is completely infertile. At that point, the human population will become extinct. Along the way, however, we'll be facing a number of other pressing problems.

## **How Will We Care for Aging Baby Boomers?**

Historically, the age distribution of the population has looked like a pyramid. The bottom largest section was children, the middle, slightly smaller section was working adults, and the top of the pyramid was seniors. This worked out well, because the younger population was able to financially support and care for the much smaller older segment.

We no longer have that pyramid. In most countries, the population distribution now looks like a light bulb, with a narrow base of children, a bulbous segment of adults, and a narrowing but still very large segment of older adults.

Part of the equation is the fact that life spans have gotten longer, which is wonderful. But the funds to support this aging population – through social security and Medicare in the U.S., for example – are dwindling, as the payer base is shrinking so dramatically.

Another problem is the fact that we won't have the labor force required to keep the economy afloat. There aren't enough children to fill all the jobs after the adult population retires.

## **What's the Cause?**

According to Swan, there are likely a whole host of factors contributing to this reproductive calamity. We can, however, rule out genetics, because the decline in sperm count is simply too rapid. A 50% decline in just two generations cannot be explained by genetics.

That leaves us with environmental causes. Environmental causes can be broadly divided into two broad categories: Lifestyle and chemicals. Lifestyle factors that negatively impact fertility include:

- Obesity
- Smoking
- Binge drinking
- Stress

On the chemical side, we know that a great number of chemicals can impact fertility either directly or indirectly, but the most concerning class are endocrine disrupting chemicals (EDCs).<sup>3</sup> EDCs disrupt hormones, including sex hormones necessary for reproductive function.

Many EDCs will mimic hormones, effectively taking their place. But, of course, the chemical doesn't function the way the natural hormone does, so whatever that hormone controls won't function well either. As explained in the 2019 report, "Male Infertility and Environmental Factors":<sup>4</sup>

*"Classically the EDCs bind to the androgen or estrogen receptor triggering an agonist or antagonist action. These in turn lead to increased or decreased gene expression of sex-specific genes.*

*In addition, EDCs act on steroidogenic enzymes and the metabolism of hormones, for example, inhibit the activity of 5- $\alpha$  reductase, which is the most important enzyme in the production of dihydrotestosterone and hence the regulation of the masculinization of the external genitalia and the prostate.*

*Furthermore, P450 enzymes in the liver that metabolize steroid hormones may be affected. In animal models EDCs affect hormone receptor levels. In addition to the effect on hormone action, animal experiments suggest that EDCs may also result in epigenetic changes and miRNA levels."*

Swan suspects EDCs are a primary culprit in infertility, in part because we're surrounded by them every day of our lives. We're exposed to them through our food, water, personal care products, furniture, building materials, plastics and much more.

## **In Utero Exposure to EDCs Can Drive Down Fertility**

The most vulnerable time of a person's life is in utero. This is when the building blocks for your reproductive system are laid down, and exposure to EDCs at this time can wreak havoc with a child's adult reproductive capacity. Since the fetus shares the mother's body, everything the mother is exposed to, the fetus is exposed to.

As explained in the video, a boy's reproductive system is dependent on a certain level of testosterone for proper development. If the testosterone level is too low, his reproductive system will be impaired to some degree. In short, without sufficient testosterone, the boy's reproductive system will "default" to female. He will be feminized, or as Swan describes it, "incompletely masculinized."

## **Phthalates Are in Everybody**

Swan was tipped off to investigate phthalates by a chemist at the U.S. Centers for Disease Control and Prevention, who noted that these EDCs have been found in everybody, including pregnant women.

**“ Animal studies have shown that when a pregnant mother is fed phthalates in early pregnancy, her male offspring will have smaller and less developed reproductive organs.”**

Specifically, phthalates have been shown to disrupt the reproductive development of males, because they lower testosterone levels and incomplete male development in animals has now become so prevalent, there's even a name for it: phthalate syndrome.

Animal studies have shown that when a pregnant mother is fed phthalates in early pregnancy, her male offspring will have smaller and less developed reproductive organs. His testicles may not be descended, his penis may be smaller, and his anogenital distance (the distance between the anus and the genitals) tends to be shorter.

Swan was the first to study the anogenital distance in human male infants, and was able to confirm phthalate syndrome is occurring in humans as well. Boys born of women with high levels of phthalic metabolites in their urine – specifically those that lower testosterone – had phthalate syndrome, and the severity was dose-dependent.

Swan then replicated the study with another set of mothers and their babies, and found the same result. The next question then is, does a shorter anogenital distance result in lower sperm count? According to Swan, boys with a short anogenital distance are more likely to have reproductive defects such as undescended testicles and defects of the penis. He's also more likely to develop testicular cancer at an earlier age than normal, and he's more likely to be sub-fertile.

So, it is her professional conclusion that phthalate exposure in utero is “undoubtedly part of the explanation of the decrease in sperm count and fertility.” Phthalates and polyfluoroalkyl substances (PFAS) have also been linked to reduced bone mineral density in male teens,<sup>5</sup> which could have significant implications later in life.

## **Common Sources of Phthalate Exposure**

Phthalates are found in plastics. They're what make the plastic soft and flexible, so wherever you find soft and pliable plastic, you find phthalates. Examples include:

- Vinyl clothing, such as raincoats and rubber boots
- Plastic shower curtains
- Plastic tubing of all kinds
- Foods that have been processed through plastic tubing, such as dairy products (the milking machines have plastic tubing)

Phthalates also increase absorption and help retain scent and color, so you'll find them in:

- Cosmetics, perfumes and personal care products
- Scented household products such as laundry soap and air fresheners
- Pesticides

As noted by Swan, phthalates are only one class of EDCs. There are several others, including phytoestrogens, dioxins, flame retardants, phenols, PCBs and polyaromatic hydrocarbons. Phthalates, however, are among the most hazardous for male reproductive health due to their ability to block testosterone.

Joe Rogan also recently interviewed Swan about this. An excerpt is included below. The [full interview is available on Spotify](#).

## Phenols Increase Female Sex Hormones

The phenols, such as bisphenol-A (BPA), have the opposite effect in that they make plastic more rigid and hard. In the human body, they increase the female hormone estrogen, resulting in breast development and a flabby midsection. BPA also damages the DNA in sperm.<sup>6</sup> Like phthalates, BPA and other bisphenols are extremely pervasive. They're found in:

The lining of tin cans	Dental sealants
Nonstick food wrappers ( <a href="#">food wrappers also contain PFAS</a> )	Hard plastic sippy cups and bottles
Carpeting	Personal care products such as shampoos and lotions

## The Good News

The good news here is that many of the chemicals that are most harmful to reproduction are not persistent, and your body can eliminate them in four to six hours.

Sperm production take about 70 days from start to finish, so over time, a man may be able to reverse some of the damage, provided it's not congenital. The problem, of course, is that most people are exposed to multiple sources 24/7, so successful detox means you have to stop taking them in.

Another piece of good news is that researchers have shown that if you clean up the environment of the offspring from a toxic, unhealthy rat, normal reproductive capacity is restored after three generations of clean living.

While this is a relatively quick fix for rats, the life span of which is only two years, it's not quite as simple for humans. Three generations in human terms is about 75 years, "but we can start in that direction," Swan says, by making sure we a) don't expose children to EDCs in utero, and b) eliminate further exposure during childhood if the child was exposed in utero.

## **Forever Chemicals in Our Food and Water**

While phthalates and bisphenols are nonpersistent, PFAS – a class of chemicals that are pervasive in soil, water, and human bodies – are so persistent they're known as "forever chemicals." In Maine, farmers are now blowing the whistle, warning that PFAS on farmland are a "slow-motion disaster."<sup>7</sup>

How do the chemicals get there? While spills and seepage from industrial sites are part of the problem in some areas, the most prevalent source of the contamination is biosolids – toxic human waste sludge – which is being marketed as an affordable fertilizer.

In 2019, I wrote about how the Environmental Protection Agency (EPA) has failed to adequately regulate the biosolids industry, thereby allowing massive quantities of toxic materials to be introduced into our food supply.



You can learn more about this in the Natural News documentary “Biosludged,” above. PFAS accumulate in the soil and is transferred into your food. Proof of this can be seen in food testing, which in 2017 found [PFAS chemicals in 10 of the 91 foods](#) tested.

Chocolate cake had the highest amount – 250 times above the advisory limit for drinking water. (There’s currently no limit for food.) Nearly half of the meat and fish tested also contained double the advisory limit for water. Leafy greens grown within 10 miles of a PFAS plant also contained very high amounts. As you might expect, PFAS also accumulate in your body.

## **Maine Takes Action**

In Maine, PFAS contaminated water wells have sparked both outrage and action. A March 2022 article in The Maine Monitor spells out the game plan:<sup>8</sup>

*“Maine is the first state to comprehensively test for the impacts of forever chemicals from sludge spreading on farmland, a practice occurring nationwide where fully half of wastewater sludge is land-applied. Consequently, Maine has had to pioneer policy actions, moving to implement recommendations of a year-long PFAS task force.*

*The next policy step must be passage of LD 1911, which would ban land application of sludge and the land application or sale of compost derived from sludge. Two dozen companies and municipalities are licensed to convert sludge into compost, despite the state’s own finding that 89% of finished compost samples exceeded the screening level for PFOA, a common PFAS compound.*

*Adam Nordell, co-owner of Songbird Farm in Unity – another site of high PFAS contamination – summarized the importance of LD 1911 this way: ‘No one can undo the historic contamination of our land. But we know enough now to turn off the tap.’*

*A second bill before the Legislature, LD 1639, would prevent the state-owned Juniper Ridge landfill, managed by Casella Waste Systems, from accepting*

*construction and demolition debris that originated out of state and is laden with PFAS and other toxics, increasing the contaminated leachate entering the Penobscot River.”*

## **Toxic Pesticides**

Communities in Maryland and Massachusetts have also confirmed that pesticides used against mosquitoes were contaminated with PFAS, even though they're not supposed to contain such chemicals. In April 2022, the Pesticide Action Network (PAN) reported:<sup>9</sup>

*“EPA claimed that there were no PFAS chemicals used in this way, but independent testing<sup>10</sup> revealed that there was PFAS contamination in pesticides being used by mosquito control districts – of 14 mosquito control products tested, half were found to contain PFAS. These products are heavily applied across communities, often weekly, from Spring through Fall.*

*In response to these concerns, EPA claimed that the PFAS contamination was due to leaching from fluorinated plastic HDPE storage containers. While this explanation has been touted by many as proof that PFAS contamination of pesticides is not a serious concern, the testing in Maryland and Massachusetts revealed that three products were contaminated from another source than the containers.*

*Beyond this kind of contamination, PFAS are active ingredients in at least 40 pesticide products used worldwide. And this only accounts for pesticides that include PFAS as an active ingredient.*

*PFAS products are a popular surfactant (helps spray more easily) so PFAS may also be used as inert ingredients in pesticides, which unfortunately don't have to be reported since chemical composition falls under 'trade secret' jurisdiction.*

*It is clear that PFAS are present in a variety of commonly-used pesticide products, regardless of storage conditions. No research has been done on the*

*synergistic effects of PFAS and pesticides – which we know pose their own set of human and environmental health risks.”*

Again and again, the EPA has failed in its duty to protect public health from chemicals that wreak havoc on human health, fetal development and fertility. As noted by PAN, “EPA has engaged in a regulatory stalling tactic – changing the definition of what is considered to be a PFAS to shirk responsibility.”

The new “working definition” of PFAS has been considerably narrowed from what it was, thereby excluding many chemicals used in drugs and pesticides. To counter the EPA’s deliberate shortcomings, the U.S. Congress has also introduced a bill (HR.5987 – the PFAS Definition Improvement Act<sup>11</sup>) that would require the EPA to use the widest and most comprehensive definition of PFAS.

I join PAN in urging you to call on your representatives to co-sponsor this bill. Maine and Maryland have also proposed bills to prevent PFAS contamination in pesticides specifically.

It’s hard to be optimistic when faced with such dire statistics as a 1% reduction in male fertility per year. But if we care about life, we must at least try to turn things around. One step in the right direction would be to eliminate EDCs from common use. In the meantime, men and women of childbearing age would be wise to take precautions and clear out anything that might expose them to these chemicals in their day-to-day lives, before they try to conceive.

## Sources and References

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- <sup>1</sup> [BMJ September 12, 1992, 305\(6854\): 609-613](#)
- <sup>2</sup> [Human Reproduction Update November-December 2017; 23\(6\): 646-659](#)
- <sup>3, 4</sup> [Global Reproductive Health 2019; 4\(2\): e28](#)
- <sup>5</sup> [Newswise April 29, 2022](#)
- <sup>6</sup> [WTOL11 April 29, 2022, Updated May 2, 2022](#)
- <sup>7, 8</sup> [The Maine Monitor March 13, 2022](#)
- <sup>9</sup> [PANNA.org April 20, 2022](#)
- <sup>10</sup> [Maryland Pesticide Network March 26, 2021](#)
- <sup>11</sup> [HR.5987](#)