

Skyrocketing Male Infertility May Threaten Mankind's Survival

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STORY AT-A-GLANCE

- › According to the largest meta-analysis of its kind, sperm counts around the world declined by more than 50%, to 47 million sperm per mL, between 1973 and 2013, and continue to dwindle
- › The most significant declines were found in samples from men in North America, Europe, Australia and New Zealand, where many had sperm concentrations below 40 million/mL – a level at which a man will have trouble fertilizing an egg
- › Endocrine-disrupting chemicals have undoubtedly contributed to the dramatic decline in reproductive health among men. Excessive microwave radiation from wireless technologies, obesity and inactivity also play a significant role

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Human fertility is in a downward spiral, scientists warn and modern life – with its technological and chemical "progress" – is likely to blame. Female infertility tends to get the most attention, but in this case, it's male infertility that has made headlines, as research shows sperm concentration and quality has dramatically declined in decades.^{1,2,3,4,5}

According to the first of two published papers,⁶ a meta-analysis of 185 studies and the largest of its kind, sperm counts around the world declined by more than 50%, to 47 million sperm per milliliter (mL), between 1973 and 2013, and continue to dwindle.

The most significant declines were found in samples from men in North America, Europe, Australia and New Zealand, where many had sperm concentrations below 40 million/mL. (Men suspected of infertility, such as those attending IVF clinics, were excluded from the study.) 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).

Male Infertility Rates Warn of Impending Human Extinction

According to the World Health Organization (WHO), 40 million sperm per mL is considered the cutoff point at which a man will have trouble fertilizing an egg, which means half of the men in most developed nations are near or at the point of being infertile. South American, Asian and African men had no noticeable decline, although this discrepancy could be due to the smaller sample sizes obtained from those countries.

As noted by Frederick vom Saal, professor emeritus of biological sciences at the University of Missouri, who was not involved in the study, these findings are a wake-up call and a warning that "we are in a death spiral of infertility in men." Indeed, lead author Dr. Hagai Levine, who called the results "profound" and "shocking,"⁷ worries that human extinction is a very real possibility, should the trend continue unabated.⁸

Danish researcher and pediatrician Dr. Niels Skakkebaek, who in 1992 published a paper⁹ showing male fertility declined between 1940 and 1990, also commented on the findings, saying:

"These two new papers add significantly to existing literature on adverse trends in male reproductive health problems ... Here in Denmark, there is an epidemic of infertility. More than 20 percent of Danish men do not father children.

Most worryingly [in Denmark] is that semen quality is in general so poor that an average young Danish man has much fewer sperm than men had a couple of generations ago, and more than 90 percent of their sperm are abnormal."

Endocrine-Disrupting Chemicals Wreak Havoc on Men's Reproductive Ability

The second paper,¹⁰ published in PLOS Genetics, suggests endocrine-disrupting chemicals are to blame for the dramatic decline in reproductive health among men.¹¹ It found that exposing male mice to ethinyl estradiol, a synthetic sex hormone found in birth control pills, causes developmental problems in the reproductive tract, thereby lowering sperm counts.

While men do not use birth control pills, they're exposed to them nonetheless through contaminated water and other sources. Men are also exposed to a number of other endocrine-disrupting chemicals in their day-to-day lives,¹² thanks to the pernicious use of endocrine-disrupting chemicals in plastics, personal care products, herbicides such as glyphosate¹³ (which is a very common contaminant in nonorganic foods) and more.

The study also confirmed that the effects of environmental estrogens have generational effects. Males are successively becoming increasingly more sterile with each passing generation. As reported by Environmental Health News:¹⁴

"They observed adverse effects starting in the first generation of mouse lineages where each generation was exposed for a brief period shortly after birth. The impacts worsened in the second generation compared to the first, and by the third generation the scientists were finding animals that could not produce sperm at all.

This latter condition was not seen in the first two generations exposed. Details of the experimental results actually suggested that multiple generations of exposure may have increased male sensitivity to the chemical."

Testicular cancer is also on the rise, as are congenital malformations of the penis, and these problems have also been linked to endocrine-disrupting chemicals. Experiments on fathead minnows show endocrine disruptors turn the fish into a sterile intersex species, meaning they have both male and female reproductive systems yet are incapable of reproducing.¹⁵

While women are also adversely affected by these kinds of chemicals, men are disproportionately affected due to the way the male reproductive system develops in utero. At the outset, male and female fetuses are fairly identical. Sex hormones are what drive the differentiation between the sexes. Alas, when synthetic chemicals that mimic these all-important hormones enter into the mix, it confuses the process and interferes with the biological process of turning the fetus into a male.

Corruption and Lies Threaten Human Health and Survival

The United States permits more than 84,000 chemicals to be used in household products, cosmetics, food and food packaging, and a majority of these have never been tested for safety. According to the U.S. Government Accountability Office, 85% of new chemical applications include no testing whatsoever.

What's worse, the chemical industry has a long history of lying about the safety of their wares, and its powerful lobby has allowed the industry to saturate the world in extremely dangerous chemicals with little or no oversight.

As revealed by Grant David Gillham,¹⁶ a political consultant who ran Citizens for Fire Safety, the American Chemistry Council¹⁷ (the chemical industry's trade group) flat out lied when it said it had no involvement with Citizens for Fire Safety. The group was in fact created with the specific aim of defending the use of flame retardants in furniture — despite the fact that they don't work and are profoundly toxic — to protect the industry's interests.

Everything an expectant mother takes into her body can potentially get passed along to her developing child, and scientific evidence strongly suggests exposure to chemicals is contributing to cancer, reproductive abnormalities, early puberty^{18,19,20} and a host of other endocrine, neurological and metabolic problems.

In a 2005 study,²¹ the Environmental Working Group (EWG) found an average of 200 industrial chemicals and pollutants in the umbilical cord blood of infants born in the U.S. Tests detected a total of 287 chemicals from pesticides, consumer products, food

packaging and environmental waste, including BPA, flame retardants, PCBs and even DDT. As noted in a 2009 scientific statement from the Endocrine Society:²²

"The evidence for adverse reproductive outcomes (infertility, cancers, malformations) from exposure to endocrine disrupting chemicals is strong, and there is mounting evidence for effects on other endocrine systems, including thyroid, neuroendocrine, obesity and metabolism, and insulin and glucose homeostasis ...

Effects of endocrine disrupting chemicals may be transmitted to further generations through germline epigenetic modifications or from continued exposure of offspring to the environmental insult."

Hormone-Disrupting Chemicals – The Dirty Dozen

As mentioned, endocrine-disrupting chemicals specifically alter the normal function of your hormones.²³ A hormone's job is to interact with the cells in your body, sending signals that instruct them to perform certain tasks, and endocrine-disrupting chemicals interfere with this communication process. In 2013, the EWG²⁴ identified 12 of the most troublesome hormone wreckers.

Surprisingly, along with some very well-known endocrine disruptors,^{25,26} the review also identified several you might not normally associate with hormone disruption, such as lead, mercury and arsenic. The EWG's "dirty dozen" list for the 12 worst endocrine disruptors are outlined in the following table.

Bisphenol-A (BPA)	Dioxin	Atrazine
Phthalates	Perchlorate	Fire retardants ²⁷
Lead	Mercury	Arsenic
Perfluorinated chemicals	Organophosphate	Glycol ethers

Other Root Causes of Infertility

While endocrine-disrupting chemicals are high on the list of contributing factors, they're not the only ones. Other variables that can affect a man's reproductive ability include:

- Electromagnetic field (EMF) exposures
- Nutritional deficiencies and/or food intolerances
- Stress
- Immune deficiencies
- Obesity and/or inactivity

These subtle but critical factors synergistically interact to impact the quality of a woman's eggs and a man's sperm, affecting a couple's ability to conceive and the health of the embryo. For example, while a gluten intolerance alone cannot cause infertility, the resulting gut inflammation can affect your nutrient absorption and lead to deficiencies in nutrients you need for optimal sperm, egg and hormone production and a healthy pregnancy.

In terms of diet, certain nutrients are also more important than others when it comes to fertility. Animal-based omega-3 fats and vitamin D are two vital components that can have a significant impact. Both are also crucial during pregnancy to protect the health of both mother and child.

Optimizing your vitamin D could be one of the most important things a woman could possibly do in pregnancy, as research clearly shows that achieving a vitamin D serum level of at least 40 ng/mL (100 nmol/L) reduces the risk of premature birth by 60%. It also helps protect against a number of pregnancy complications, as well as autism spectrum disorder and Type 1 diabetes in the child.

Microwave Exposure Is Decimating Male Reproductive Health

I personally believe this may be the most significant factor for the observed decrease in male sperm count. You may not recall this, but it was well known in World War II that radar operators could easily create sterility by exposing the groin to radar waves. Radar is microwave radiation and was the precursor to cellphones that use similar frequencies.

In May 2011, the cancer research arm of the WHO, the International Agency for Research on Cancer, classified radiofrequency EMF – such as the radiation from cellphones – a class 2B carcinogen, meaning it is possibly carcinogenic to humans.²⁹ Research also suggests microwave radiation may play a significant role in male reproductive health.

While evaluating studies showing you can radically reduce biological microwave damage using calcium channel blockers, Dr. Martin Pall discovered a previously unknown mechanism of biological harm from microwaves emitted by cellphones and other wireless technologies.³⁰

Embedded in your cell membranes are voltage-gated calcium channels (VGCCs). It turns out these VGCCs are activated by microwaves, and when that happens, about 1 million calcium ions per second are released.

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. Not only do peroxynitrites cause oxidative damage, but they also create hydroxyl free radicals – the most destructive free radicals known to man.

Hydroxyl free radicals decimate mitochondrial and nuclear DNA, their membranes and proteins. The end result is mitochondrial dysfunction, which we now know is at the heart of most chronic diseases.

The tissues with the highest density of VGCCs are your brain, the pacemaker in your heart and male testes. (A man's testicles are also more vulnerable to EMFs for the fact that they're on the outside of the body. Women's eggs, on the other hand, are somewhat protected and shielded from EMFs due to them being further inside the body.³¹)

What this research tells us is that excessive microwave exposure can be a direct contributor to conditions such as Alzheimer's, anxiety, depression, autism, cardiac arrhythmias and infertility.³² Indeed, other studies have linked low-level electromagnetic radiation (EMR) exposure from cellphones to an 8% reduction in sperm motility and a 9% reduction in sperm viability.^{33,34}

Wi-Fi equipped laptop computers have also been linked to decreased sperm motility and an increase in sperm DNA fragmentation after just four hours of use!³⁵ So, if you care about your reproductive health, avoid carrying your cellphone in your pockets or on your hip, and avoid using portable computers and tablets on your lap.

Strategies to Treat Infertility and Boost Fertility Naturally

Considering there are many factors contributing to male infertility, any comprehensive list of recommendations is bound to be a long one. That said, following are a number of common-sense suggestions that will address the root causes of infertility.

For more detailed information on treating infertility naturally, including specific information on all fertility nutrients, fertility diet, what to avoid and the influence of stress and sleep on fertility, check out Iva Keene's home study fertility program, "The Natural Fertility Prescription."³⁶

Minimize your exposure to toxic chemicals – Exposure to environmental toxins, both in utero and neonatally, may dramatically affect adult fertility.

Compounds that can alter hormone function and result in adverse reproductive health effects include but are not limited to heavy metals; endocrine disruptors; phthalates (associated with testicular toxicity and hormonal disruption even at low levels); VCH chemicals used in rubber tires, plastics and pesticides; PAHs released from cigarettes, car fumes and road tar; pesticides and herbicides; formaldehyde; bisphenols found in plastic products; organic solvents; dry-cleaning chemicals and paint fumes.



Avoid drinking unfiltered tap water – Our waterways are constantly being polluted by industrial waste and byproducts, pharmaceutical drugs (such as birth control pills and other hormone therapies), pesticides and commercial cleaning products. Heavy metals are the most common of the reproductive toxins reaching our water supply through industrial waste, jet fuel exhaust residue and a variety of other sources.

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. Processed and packaged foods are a common source not only of pesticides but also chemicals such as bisphenol-A and phthalates.

Key elements are good-quality protein sources (organic and grass fed when it comes to animal products) and healthy fats.

Avoid factory farmed animal products, harmful trans fats and processed vegetable oils. Also avoid unfermented soy products, as soybeans contain phytoestrogens that act on hormones. For an added boost, consider adding more of the following "sperm-enhancing" foods:³⁷ organic pastured eggs, spinach, bananas, dark chocolate, asparagus, broccoli, pomegranates, walnuts, garlic and all zinc-rich foods (as zinc plays a key role in sperm development).

Avoid common allergens – An overactive immune system is more likely to attack its own body cells, and the link between food intolerances and anti-sperm antibodies is well established. The two most widely spread food intolerances are gluten and dairy.

Factory farmed milk can also be a source of estrogen that can harm a man's fertility.

Hormones found in factory farmed cows' milk include:

- Prolactin
- Somatostatin
- Melatonin
- Oxytocin
- Growth hormone
- Luteinizing hormone-releasing hormone
- Thyroid-stimulating hormone
- Estrogens
- Progesterone
- Insulin
- Corticosteroids and many more

Minimize microwave exposure – Avoid carrying your cellphone on your body while it is on, and avoid using laptops and tablets on your lap. More generally, it would also be wise to limit your total exposure by turning your Wi-Fi off at night, and make your bedroom an EMF-free zone.

Get checked for sexually transmitted diseases (STDs) – Some STDs can be asymptomatic, meaning you may not be aware you have them as there are no obvious symptoms. One such STD is a chlamydia infection. In men, chlamydia can lead to sperm abnormalities including sperm antibodies.

In women, it can lead to scarring, blocked tubes and miscarriage. Most STDs are easy to treat, so it pays for both partners to have an STD check. There is no point in only one partner going for a test as the other partner can reinfect them again.

Avoid coffee, smoking and alcohol – While organic black coffee has a number of health benefits, fertility does not appear to be one of them. On the contrary, studies suggest it decreases fertility. In one study, men who drank three or more caffeinated beverages per day during the conception phase raised their partner's risk of miscarriage by more than 70%.³⁸

Alcohol is also harmful to both eggs and sperm, and increases the risk of miscarriage. Needless to say, smoking and recreational drugs also have an adverse effect on fertility, reducing the size of your testes and lowering your sperm count.

Get regular exercise – According to research, getting at least 30 minutes of exercise three times a week can help boost men's sperm count. And, to maintain healthy swimmers, you need to stay active – within a month of quitting exercise, sperm count starts to wane again.³⁹ That said, be aware that bicycling may have an adverse effect on your sperm. In one study, men who routinely cycled 300 kilometers per week ended up having fertility problems.⁴⁰

Normalize your weight – Obesity contributes to infertility, so normalizing your weight can help improve your sperm quality and quantity. For guidance, please review my free [nutrition plan](#).

Limit hot baths and saunas – While hot baths and saunas have a myriad of health benefits, the heat can take a toll on sperm. In one three-year-long study, 5 of 11 men who quit taking hot baths were able to raise their sperm count by nearly 500%. So, limiting hot baths and saunas for a few months may be helpful during the conception phase. I do a far-infrared sauna nearly every day, but I put a small freezer block of ice next to my groin to keep the temperature low.

Combat stress – From making sure you're getting sufficient amounts of sleep and exercising regularly to incorporating a tool like the Emotional Freedom Techniques (EFT) or taking up yoga or meditation, there are many ways to address stress. Try a few different things and stick to whatever works.

Clean up your home environment – Use natural cleaning products or make your own. Avoid those containing 2-butoxyethanol (EGBE) and methoxydiglycol (DEGME) – two toxic glycol ethers that can compromise your fertility and cause fetal harm. Look for products made by companies that are Earth-friendly, animal-friendly, sustainable, certified organic and GMO-free.

This applies to everything from food and personal care products to building materials, carpeting, paint, furniture, mattresses and others.

When buying new products such as furniture, mattresses or carpet padding, consider buying flame retardant-free varieties, containing naturally less flammable materials, such as leather, wool, cotton, silk and Kevlar.

Avoid stain- and water-resistant clothing, furniture and carpets to avoid perfluorinated chemicals. Use a vacuum cleaner with a HEPA filter to remove contaminated house dust. This is one of the major routes of exposure to flame retardant chemicals.

Also switch over to organic toiletries, including shampoo, toothpaste, antiperspirants and cosmetics. EWG's Skin Deep database⁴¹ can help you find personal care products that are free of phthalates and other potentially dangerous chemicals.

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