

These 3 Toxins Have the Largest Impact on Your Life Span

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✓ Fact Checked

June 29, 2022

STORY AT-A-GLANCE

- › Environmental exposures have a lot to do with biological or cellular aging and, according to a December 2019 study, lead, mercury and perfluorooctanesulfonic acid (PFOS) are the three toxins shown to have the greatest impact on your life span
- › Biological aging is modifiable. Avoiding toxic exposures is one important aspect, but your diet, exercise and other lifestyle factors also play a role. One key for longevity is maintaining healthy insulin sensitivity, as insulin resistance is a hallmark of most chronic diseases
- › Lead and calcium are chemically very similar, making lead a competitor at the cellular level and disrupting many different bodily systems
- › Two of the most prevalent sources of mercury are dental amalgam and seafood. Europe paved the way for global change by banning the use of amalgam fillings in pregnant or nursing women and children under the age of 15 as of July 1, 2018
- › PFOS are associated with a wide array of health problems, including cancer, immune and thyroid dysfunction, low birth weight and more

This article was previously published December 18, 2019, and has been updated with new information.

Your biological age can provide a good clue about your longevity, far more so than your chronological age. Your biological age refers to the state of your cells – they can be

younger or older than your calendar age, which means you're aging slower or faster than expected.

Environmental exposures have a lot to do with biological or cellular aging and, according to a December 2019 study^{1,2} published in *The Journals of Gerontology*, lead, mercury and perfluorooctanesulfonic acid (PFOS) are the three toxins shown to have the greatest impact on your life span.

While glyphosate was not included in this study, my guess is it would probably be a top contender as well, considering it disrupts normal body functions, especially your gut, and appears to enhance the damaging effects of other toxins.

According to Stephanie Seneff, Ph.D., a research scientist at the Massachusetts Institute of Technology, glyphosate worsens virtually all modern diseases which, of course, will shorten your life. That said, lead, mercury and PFOS have repeatedly been identified as significant contributors to chronic ill health and are certainly among the most pervasive and concerning toxins out there.

The Dangers of Lead Are Well-Recognized

As one might expect, the December 2019 study³ found that "biological age was elevated relative to actual age in people who had chronic disease," while those participating in a wellness program showed signs of slowed aging.

"This observation suggests that biological aging is modifiable," the researchers note, and that lowering your biological aging rate is "a sign of healthy aging." Strong predictors of biological age were measures of metabolic health, inflammation and toxic accumulation, with lead, mercury and PFOS being the most influential predictors.

Importantly, there is no known safe exposure to lead, which often affects young children and lower socioeconomic groups the hardest. Epidemiological studies have revealed African-American children have a higher incidence of lead poisoning, potentially from a slightly different way of metabolizing the heavy metal.

Lead and calcium are chemically very similar, making lead a competitor at the cellular level and disrupting many different bodily systems.⁴ In your neurological system, it may disrupt neurons that use calcium to transmit information.⁵

The presence of lead will cause some neurons to fire more and decrease the signals in others. This may alter neurological development in the brains of children who have absorbed lead from their environment.

The Public Health Heroes Who Fought to Lower Lead Exposure

One of the leaders in the fight against lead was the late Dr. Herbert Needleman, a pediatrician who saw firsthand the damage lead does to children. After years of treating children and observing the long-term effects of exposure, he maintained that a slow buildup of lead in the system could trigger symptoms even in the absence of overt poisoning.

As lead-based paint and gasoline were the biggest contributors to lead poisoning in children, Needleman and public health expert and colleague Dr. Philip Landrigan began lobbying to remove lead from these products. The industry fought back using paid experts to pick apart and publicly lambast the research. The industry also went after Needleman personally, trying to discredit him and destroy his career.

Another prominent player was geochemist Clair Patterson, Ph.D., who before he died in 1995, fought the oil companies to have lead removed from gasoline. Even when it was added to gas in the 1920s it was known to cause neurological damage. Still, the process was pursued as it enabled the oil companies to net greater profits.

In 1965, Patterson published the book, "Contaminated and Natural Lead Environments of Man,"⁶ in an attempt to bring the dangers of lead gasoline on health and environment to light.

Again, the industry brought to bear its influence to discredit the science and the man in an effort to maintain profits at the cost of human health. But despite the overwhelming

odds, Patterson ultimately succeeded and was instrumental in bringing forth the 1975 U.S. mandated option of unleaded gas at the pumps.

In 1986, Patterson's persistence triggered the removal of lead from all gasoline in the U.S. altogether. As a result, Americans' blood lead levels dropped nearly 80% by the late 1990s. In my view, Patterson is one of the greatest unrecognized public health heroes of the 20th century.

Lead Exposure Continues To Be a Concern

The elimination of leaded gasoline didn't get rid of all lead exposures, however. As noted in a June 26, 2019, article⁷ in The Guardian, "hundreds of thousands of children in the U.S. remain at risk of exposure to lead, which causes cognitive and behavioral deficits."

Subsequently, in 2019, the U.S. Department of Housing and Urban Development (HUD) estimated as many as 24 million U.S. residences built before 1978 still contained lead hazards, and in June 2019 announced \$330 million in grants will be distributed to clean up lead and other safety hazards in low-income housing communities. In October 2021, HUD said 34.6 million homes in America still have lead-based paint somewhere in them.⁸

A 2017 study⁹ also noted that many children with elevated lead levels remain undiagnosed. An estimated 1.2 million cases of elevated blood lead levels were thought to have occurred between 1999 and 2010, yet only 606,709¹⁰ were reported to the U.S. Centers for Disease Control and Prevention during that time, suggesting significant underreporting.

According to the authors, "Based on the best available estimates, undertesting of blood lead levels by pediatric care providers appears to be endemic in many states." Indeed, many pediatricians are likely to overlook factors such as lead exposure when faced with neurologically challenged children. This is a travesty, as your child's condition will surely continue to decline unless the lead accumulation is addressed and reduced through a comprehensive detoxification program.

Strategies to Avoid Lead Poisoning

The issue of preventing lead poisoning is a pressing matter, whether you have young children in your home or not. Harvard Medical School offers the following suggestions to protect yourself and your family against lead exposure:¹¹

- Was your home built before 1978? If so, get it inspected to determine whether it has any lead paint
- Lead paint removal should be done by a certified professional to ensure safety. The dust is highly toxic. For more information on this, see the U.S. Environmental Protection Agency's "Lead-Based Paint Resources" page¹²
- Get your water tested for lead
- Be mindful of the fact that certain household objects may contain lead. For information about lead-containing products and recalls, see the Consumer Products Safety Commission's website¹³
- Get your child tested for lead. Ideally, all children should be tested at ages 1 and 2, and again at ages 3 and 4 if you live in an older home. It's also recommended to test your child's level whenever there's concern about exposure. A level of 5 mcg/dL or higher is considered dangerous

The Dangers of Mercury

When it comes to mercury, two of the most prevalent sources are dental amalgam and seafood. Amalgam emits mercury vapor even after it is implanted into the body. This mercury is bioaccumulative and crosses the placenta to accumulate in fetuses, as well. Dental amalgam's mercury is a known health risk, especially for children, fetuses, nursing infants and people with impaired kidney function.

Mercury-based dental amalgam also pollutes water via dental clinic releases and human waste; air via cremation, dental clinic emissions, sludge incineration and respiration; and land via landfills, burials and fertilizer. Once in the environment, dental mercury converts

to its even more toxic form: methylmercury and becomes a major source of mercury in the fish people eat.

For several years now, I've been working with Charlie Brown and the Consumers for Dental Choice to eliminate the use of amalgam in the U.S. and around the world. Europe paved the way for global change by banning the use of amalgam fillings in pregnant or nursing women and children under the age of 15 as of July 1, 2018.¹⁴

In the U.S., the Food and Drug Administration has been dragging its feet, but there are finally signs of movement. November 13, 2019, a scientific advisory panel gathered to review the science on mercury. Consumers for Dental Choice brought several talented speakers to testify.

The science committee, by consensus, called on FDA to end its silence on amalgam, and to start getting information about amalgam's risks to American patients, especially to vulnerable populations.

In 2022 Brown announced that the Fourth Conference of the Parties (COP) of the Minamata Convention on Mercury agreed to amend the treaty to call for the end of the use of amalgam – or mercury fillings (also known, misleadingly, as "silver" fillings) – in deciduous teeth of children under 15 and pregnant and breastfeeding women.¹⁵

According to a private email from Charlie Brown of Consumers for Dental Choice to me, the amendment will take effect December 25, 2022. "This treaty amendment, plus the ongoing exit of the major amalgam manufacturers creates the momentum we need to wipe out amalgam use. On to victory!" Brown added.

The question now is whether the FDA will continue protecting the amalgam business at the expense of public health – which it has done for decades – and ignore the conclusions of its own scientific body. There are signs that the FDA may be coming around, though: In September 2020, the U.S. FDA issued a safety communication to warn about the use of dental amalgam in certain high-risk populations.

The FDA warned that the following groups "may be at greater risk to the potential adverse health effects of mercury exposure":¹⁶

Pregnant women and their developing fetuses	Women who are planning to become pregnant
Nursing women and their newborns and infants	Children, especially those younger than 6 years of age
People with preexisting neurological disease	People with impaired kidney function
People with known heightened sensitivity (allergy) to mercury or other components of dental amalgam	

The warning came due to concerns that these populations could be exposed to harmful levels of mercury vapor from the fillings, and the potential for mercury to convert to other harmful mercury compounds in the body. In addition, they cited concerns about whether "the degree of accumulation of mercury from dental amalgam results in negative (adverse) health outcomes."¹⁷

Avoid Amalgam at All Cost

Regardless of what the FDA decides, it's crucial to avoid amalgam if you want to protect your health and that of your children. Here are some general tips and guidelines:

1. Find another insurance company or plan that pays for mercury-free fillings in all teeth, without exceptions or LEAT clauses.
2. If your current dentist is still using mercury in his or her practice — even if they also offer mercury-free options — seek out a dentist that offers only mercury-free fillings

for all patients. And, be sure to inform your dentist about the reason you're transferring.

The reason for this is because dentists who still use amalgam end up using it on people who rarely have any other choice, either because they cannot afford to pay the difference, or their state or government program dictates they can only receive mercury.

This unfair practice needs to end, and the quicker we can get all dentists to go 100% mercury-free, the sooner these programs will be forced to change. So, selecting a 100% mercury-free dentist is an altruistic choice on your part, which will help those whose voices are so often ignored.

3. If you have mercury fillings, be sure to consult with a biological dentist who is trained in the safe removal of amalgam.

PFOS Contamination Is Pervasive

Per- and polyfluoroalkyl substances^{18,19} (PFAS) are widely used chemicals that make products water-, oil-, grease- and stain-resistant. The chemicals are also used in firefighting foam. One type, perfluorooctanoic acid (PFOA), is commonly found in older nonstick cookware.

PFOA and its cousin PFOS are associated with a wide array of health problems, including cancer, immune and thyroid dysfunction, low birth weight and more.²⁰ Making matters all the worse, these chemicals take thousands of years to degrade and are found in groundwater across the country.^{21,22} As such, they're a considerable environmental threat.

Research²³ by the U.S. Centers for Disease Control and Prevention published in 2007 found PFAS chemicals in the blood of more than 98% of Americans tested. PFOS was phased out starting in 2000.^{24,25} However, thanks to their persistence in the environment, they're still showing up in the strangest places — including food.

How do they get into your food? One is by way of sewage sludge, applied to farmland. Documents²⁶ obtained by The Intercept reveal 44 samples of sewage sludge tested by the Maine Department of Environmental Protection all contained at least one PFAS chemical.

Another route is nonstick food wrappers. Research^{27,28} published in 2017 revealed 33% of fast food wrappers and containers contain fluorine, which suggests perfluorinated chemicals (PFCs) were used to give the paper that slick surface, and earlier studies^{29,30,31} have confirmed fluorinated chemicals can migrate from the packaging into the food.

Moreover, food testing by the FDA (performed in 2017 as part of its Total Diet Study³² and presented at the 2019 meeting of the Society of Environmental Toxicology and Chemistry) reveals PFAS chemicals are in the U.S. food supply,^{33,34,35,36,37} and at levels far exceeding the advisory limit for PFOA and PFAS in drinking water (there's currently no limits in food).

Of the 91 foods tested for 16 types of PFAS, 10 were found to contain the chemicals.³⁸ As reported by PBS:³⁹

"PFOS, an older form of PFAS no longer made in the U.S., turned up at levels ranging from 134 parts per trillion to 865 parts per trillion in tilapia, chicken, turkey, beef, cod, salmon, shrimp, lamb, catfish and hot dogs."

How to Avoid Toxic PFCs

To minimize your family's exposure to toxic PFCs, avoid products that are stain-resistant, waterproof or nonstick, or that have been treated with flame retardant chemicals. The Environmental Working Group's "Guide to Avoiding PFCs"⁴⁰ offers many helpful tips. Other suggestions that will help you avoid these dangerous chemicals include avoiding:

Items that have been pretreated with stain-repellants, and opt out of such treatments when buying new furniture and carpets.

Water- and/or stain-repellant clothing — One tipoff is when an item made with artificial fibers is described as "breathable." These are typically treated with polytetrafluoroethylene, a synthetic fluoropolymer.

Items treated with flame retardant chemicals⁴¹ — This includes a wide variety of baby items, padded furniture, mattresses and pillows. Instead, opt for naturally less flammable materials such as leather, wool and cotton.

Fast food and carry out foods — The wrappers are typically treated with PFCs.

Microwave popcorn — PFCs not only may present in the inner coating of the bag, but they also may migrate to the oil from the packaging during heating. Instead, use "old-fashioned" stovetop popcorn.

Nonstick cookware and other treated kitchen utensils — Healthier options include ceramic and enameled cast iron cookware, both of which are durable, easy to clean and completely inert, which means they won't release any harmful chemicals into your home.

Oral-B Glide floss and any other personal care products containing PTFE or "fluoro" or "perfluoro" ingredients — The EWG has an excellent database called Skin Deep⁴² you can peruse to find healthier options.

Unfiltered tap water — Unfortunately, your choices are limited when it comes to avoiding PFASs in drinking water. Either you must filter your water or obtain water from a clean source. Both solutions can be problematic and/or costly.

While many opt for bottled water, it's important to realize that PFASs are not regulated in bottled water, so there's absolutely no guarantee that it'll be free of these or other chemicals. Bottled water also increases your risk of exposure to hazardous plastic chemicals such as bisphenol-A, which has its own set of health risks.

Most common water filters available in supermarkets will not remove PFASs. You really need a high-quality carbon filtration system. The New Jersey Drinking Water Quality Institute recommends using granulated activated carbon "or an equally efficient technology" to remove PFC chemicals such as PFOA and PFOS from your drinking water.⁴³ Activated carbon has been shown to remove about 90% of these chemicals.

Live Longer by Lowering Your Biological Age

If you're interested in living healthy for longer, minimizing toxic exposures is a crucial component, and the three toxins reviewed here – lead, mercury and PFOS – appear to have the greatest impact on biological aging. That said, other basic lifestyle factors such as diet cannot be overlooked.

As demonstrated in the featured study⁴⁴ in *The Journals of Gerontology*, things like HbA1c also play an important role. High HbA1c is indicative of insulin resistance and Type 2 diabetes, both of which take a tremendous toll on your health and longevity.

Insulin resistance is at the heart of most chronic disease, and once it transitions into full-blown diabetes, you open yourself up to a variety of complications, including an increased risk for heart disease and Alzheimer's. So, in addition to avoiding toxic chemicals and heavy metals, you'll also want to avoid foods high in sugar and synthetic chemicals.

This means ditching processed foods and most restaurant food for home cooked whole food, ideally organic. You can also optimize your insulin sensitivity through resistance training (blood flow restriction training being particularly effective) and time-restricted eating.

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