STAYING HEALTHY IN A TOXIC WORLD

What does the can of paint in your garage, the shampoo in your shower, and the veggies in your refrigerator have in common? They're all sources of harmful environmental toxins that can undermine your health.

by Jacob Teitelbaum, MD

In the last issue (Winter 2022), I told you how exposure to everyday toxins could trigger an array of acute health problems. But the buildup of these environmental contaminants can also, over time, damage your DNA, degrade your brain function, and upend your hormones. With Earth Day on the horizon, it's important to take a closer look at the toxins you're exposed to daily and learn how key nutrients can help to neutralize their harmful effects.

OUR CHEMICAL ROMANCE

There are around 84,000 chemicals routinely used in agriculture and industry to create the products you use every day. Yet, despite growing evidence that many of these chemicals have potentially deadly health consequences, only one percent of them has been studied for safety. These chemicals are consumed, inhaled, or absorbed by the body, sometimes wreaking havoc on your cells and often being stored in your body fat, where they can linger for decades.

Despite all this, I consider the present to be the best time in human history to be alive. But it does have its unique challenges. People can thrive, but they need to supply their bodies with the tools needed to do so, given the modern environment. How bad is our environment? According to the Centers for Disease Control and Prevention, the average person has at least 212 harmful chemicals in their blood or urine. Here are four types of toxins that pose a particular threat to both human health and the environment.

HEAVY METALS

Some metals, like iron and zinc, are essential for good health. Others, like arsenic, cadmium, lead and mercury have been linked to cardiovascular conditions, neurological problems, respiratory issues, and more. These harmful heavy metals can be inhaled as fumes, consumed through foods and water, and absorbed into the skin via personal care products.

Arsenic, which is found in fertilizers, paint, pesticides, pharmaceuticals, and tap water, has been linked to low blood pressure, as well as a higher risk of some cancers and brain, heart, and lung conditions. Cadmium, which is used to manufacture batteries, coal, metal coatings, and plastics, is a carcinogen that may contribute to kidney, lung, and skeletal damage. It can also trigger hypertension. And although lead has been phased out of gasoline and paint, it's still found in some cosmetics (especially lipstick) and toys. Long-term exposure has been associated with anemia, kidney damage, and muscle weakness, as well as reproductive and neurological problems. Another common heavy metal linked to health problems is mercury, which can lead to impaired kidney function, digestive and immune problems, fatigue, depression, and memory issues.

PESTICIDES

Much of the food we eat contains pesticide residue. Green spaces and backyards are also a source of these harmful agricultural chemicals. Pesticides are stored in fat cells and can increase the risk of cancer, neurological problems, and hormonal disruption. They're also considered obesogens, which are chemicals that can contribute to unwanted weight gain. One of the worst offenders is chlorpyrifos, an insecticide that can cause brain damage and possibly autism. According to researchers at the University of Southern Denmark, there are no safe levels. Another widely used pesticide is glyphosate, one of the most toxic agricultural chemicals in use today. Exposure can increase the risk of cancer, as well as liver and kidney damage. It's also an endocrine disruptor that may affect fertility and reproductive development.

PLASTICIZERS

It's hard to imagine life without plastic. Yet toys, food containers, and even cosmetics leach chemical plasticizers that can damage your health. For example, bisphenol A (BPA) mimics estrogen and can disrupt normal hormone function. There is also evidence linking BPA to type 2 diabetes and obesity. Some manufacturers have swapped out BPA for bisphenol S (BPS), which at least

one review notes may be even more toxic to reproduction than BPA.

Phthalates are another ubiquitous class of plasticizers used in food storage containers, makeup, perfume, shampoo, shower curtains, and even children's toys. Studies have found that phthalates change how male reproductive organs develop and increase the risk of neurological problems (including ADHD and autism), obesity, and type 2 diabetes. Of more concern, new evidence in the journal *Environmental Pollution* reports that chronic exposure to phthalates is linked to early death from all causes.

VOLATILE ORGANIC COMPOUNDS (VOCs)

Fumes from volatile organic compounds (VOCs) like benzene and formaldehyde are released into our homes and offices every day. Found in products like adhesives, air fresheners, carpeting, cosmetics, paint, particle board, scented candles, and upholstery, VOCs can cause brain fog, dizziness, headache, or nausea. Breathing in low levels of VOCs for long periods of time can increase the risk of cancer, worsen asthma and other respiratory problems, and may disrupt hormonal activity.

REDUCE YOUR CHEMICAL BODY BURDEN

It is not possible or necessary to avoid all the chemicals in the modern environment. But it is helpful to use common sense when shopping. Taking steps to reduce the chemicals in your diet and home environment can be a great way to prevent problems. But it's also important to reduce the harmful impact from toxins already present in your body. The following nutrients can help:

CURCUMIN is a powerful protector against environmental toxins, largely due to its antioxidant capabilities. Studies have found that this golden derivative from the turmeric root can protect the brain, kidneys, and liver from heavy metal toxicity. Other research reports that curcumin can play a protective role against phthalates, especially in the kidneys and the male reproductive system. It also guards against metabolic damage from BPA exposure. If that weren't enough, a study in the journal *Nutritional Neuroscience* suggests that curcumin might also protect against pesticide-induced brain damage. To ensure this protection, check the supplement facts label for BCM-95, a standardized, bioavailable form of curcumin that provides optimal absorption.

PROBIOTICS are essential for maintaining gut health, especially when you're exposed to chemical contaminants. Routine exposure to these toxins—especially heavy metals, pesticides, and VOCs—can disrupt your microbiome, reducing the diversity and the number of beneficial bacteria in your gut. Findings in the journal *Toxics* report that this imbalance, known as dysbiosis, can contribute to cardiovascular, digestive, metabolic, and neurological problems, as well as an increased risk of colorectal cancer, liver disease, and obesity. However, other studies show that taking a high-quality probiotic supplement can counter dysbiosis and may also help protect against future heavy metal contamination. For best results, seek out a probiotic that provides at least 20 billion live, active bacteria and includes *Lactobacillus plantarum*, *Lactobacillus rhamnosus*, and *Bifidobacterium bifidum*.

GLUTATHIONE is often called the "master antioxidant" for its ability to protect the body from DNA-damaging free radicals. It can also recycle other antioxidants like vitamins C and E. Yet your body's glutathione production declines as you age. And that's a problem since studies have found that exposure to VOCs and heavy metals can easily overwhelm your glutathione supplies. Fortunately, research suggests that taking a glutathione supplement can restore levels and protect DNA from environmental toxins. One study in *Integrative Medicine: A Clinician's Journal* also reports that glutathione transports mercury out of cells and the brain. But to get the most from your supplement, check the label to ensure you're taking "reduced" glutathione, which is the active form of this critical nutrient.

BERBERINE—a powerful anti-inflammatory and antioxidant—can help protect the brain against heavy metal toxicity and the ensuing formation of amyloid-beta plaques, which are a hallmark of Alzheimer's disease. In one preliminary study that appeared in the journal *Experimental Gerontology*, researchers concluded that berberine showed promise in preventing cognitive decline and Alzheimer's. For the most benefit, look for a berberine supplement derived from the root and bark from the Indian barberry plant. ■

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