

Toxic (Over)Load

Minimize your exposure to everyday pollutants.

BY MATTHEW SOLAN

Each morning I take a hot shower, shampoo, and shave. I may stop at the gas station while I'm out and about, and in the evening, I enjoy grilling fish and relaxing on the couch with the Discovery Channel. An ordinary day, yet in that brief span, I've exposed myself to a platoon of environmental toxins that will attack my body—their sneaky blows often coming to light only many years later. From cosmetics alone, “every day you're exposed to more than 160 unique ingredients, some of which have known hazards while most are poorly studied,” says Kristan Markey, a research analyst with the Environmental Working Group, a watchdog organization in Washington, DC. You inhale the ingredients, absorb them through your skin, and eat them in your food.

The good news is that you can take in small amounts of toxins without harm—your body either excretes them or neutralizes them in the liver. Any toxin that manages to hang around generally does so in too minute a quantity to inflict any real damage. Besides, in the past, you rarely got bombarded by a single toxin for very long.

Times have changed, however. The increase in smog and water pollution and in the number of personal-care products and household goods packed with potentially harmful chemicals has ramped up the toxic load with which your body has to contend. The real danger now comes from the low-dose, chronic exposure you often don't even notice. For example, the typical woman applies 12 personal-care products a day. If each of them contains phthalates (harmful chemicals found in cosmetics and plastics), those tiny separate exposures begin to add up. Even pouring water a thimble at a time eventually fills the glass.

What's more, a growing body of evidence suggests that different toxins may interact with one another in strange—and often alarming—ways in the body. When combined,



they seem to have a synergistic effect, harming one's health much more in concert than alone. Toxicologists have dubbed this the “cocktail effect.” Research done by the EPA's Health and Environmental Effects Research Laboratory, for instance, found that mixing together two types of phthalates at theoretically safe levels triggered mutations in the reproductive organs of rat fetuses. When you're dealing with toxins, the whole is clearly more than the sum of the parts. Many doctors and researchers now link this slow-brewing stew of chemicals to increased risk for various chronic diseases, including cancer, respiratory illnesses such



In the cocktail effect, myriad toxins combine and inflict more harm.

as asthma and chronic obstructive pulmonary disease, and neurological conditions like Parkinson's disease. "What is clear is that multiple toxic materials, in use on the job and even in the home, can cause a variety of different health problems," says Paul Blanc, MD, an expert in occupational and environmental medicine at the University of California, San Francisco, and author of *How Everyday Products Make People Sick* (University of California Press, 2007). "In some cases, the very same syndrome can have more than one toxic trigger, but we don't know how potent such exposures are when combined together, because such questions are almost never studied—either in the laboratory or in patients."

Scary, yes, but you needn't don a HAZMAT suit just yet. Your best defense is greater awareness. Although you can't completely eliminate your exposure to toxins, you can make smarter choices so you encounter them less frequently. Keep their visits few and far between, and you can prevent their long-term damage. Although isolating which environmental toxins are the most villainous is like listing your favorite serial killers, some rank higher than others in terms of their potential health risks and pervasive presence. Here's a rundown on four toxins you're likely to face every day, and how you can avoid them.

Perfluorochemicals (PFCs)

A family of fluorine-containing chemicals, PFCs make jackets, carpets, furniture, and other materials stain resistant. You can ingest PFCs, inhale them, or absorb them through the skin.

How they harm: Research has shown that PFCs cause liver, pancreatic, testicular, and mammary gland tumors in laboratory animals. A May 2007 study in *Environmental Health Perspectives* found that mice exposed prenatally to PFCs develop more slowly and suffer a higher rate of neonatal mortality than unexposed mice. The exposed mice were also more likely to become obese, and scientists now believe that the presence of PFCs in our cells predisposes us to gain weight—lots of it. Perhaps PFCs' most distinctive feature? Their staying power. Once they enter your body, they just don't want to leave. In fact, PFCs have a half-life (the time it takes to expel one-half of the original dose) of four years. As a result, says Markey, "the Centers for Disease Control and Prevention found that over 90 percent of Americans have traces of PFCs in their blood."

Protect yourself: Fortunately, the EPA has reached an agreement with major companies to reduce PFC emissions from manufacturing plants and

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consumer products by 95 percent by 2010. But you still need to be aware of their presence, says Markey. Avoid furniture and carpets marketed as stain-resistant, and forego applying stain-resistant coatings to these or other items, such as coats, shoes, or luggage.

PFCs also can show up in waxed dental floss coated with a type of Teflon called PTFE, as well as in many cosmetics, including nail polish, facial moisturizers, and eye makeup. Read ingredient labels for red flags: Avoid personal-care products that contain ingredients with the words “fluoro” or “perfluoro.” Better yet, opt for all-natural or organic beauty products and dental floss (or choose unwaxed floss).

And think again about using nonstick cookware, which relies on a PFC coating (often Teflon) to make food slide off. Either cook with iron or glass pans, or if you must use the nonstick variety, heat them no higher than medium (roughly 350 degrees). Studies show that pans heated to temps above about 400 degrees begin to release toxic chemicals. Also, discard nonstick pans when the coating gets scratched.



Lower Your Toxic Load

Environmental toxins come in all shapes and sizes, but a few simple steps can protect you from the brunt of them. Walter Crinnion, ND, a professor at Southwest College of Naturopathic Medicine in Tempe, Arizona, suggests the following defense strategies:

- 1. Go organic.** This significantly reduces your exposure to pesticides and herbicides. If you're watching your budget, opt for organic when buying fruits and vegetables that typically have the highest pesticide content, such as peaches, apples, and bell peppers. (View the top offenders at foodnews.org.)
- 2. Boost your defenses.** Eat organic broccoli and drink green tea aplenty. They help cleanse the liver of built-up toxins, and their antioxidant power pumps up your immune system to defend against the damaging free radicals toxins can create.
- 3. Watch the fish.** Seafood offers many health benefits—but some types of fish increase your exposure to mercury and the highly toxic industrial compounds known as PCBs. One of the most dangerous fish: Atlantic salmon. Make sure you buy wild salmon from Alaska, which has fewer contaminants. (Learn more about choosing the least toxic seafood at environmentaldefense.org/page.cfm?tagID=1521.)
- 4. Switch to natural.** Awash in a sea of laundry detergents and bathroom cleansers, we're overloaded with synthetic chemicals. “Why expose yourself to more chemicals than you have to?” asks Crinnion. “Reduce your total load wherever you can, and replace your common household cleansers with those made with natural ingredients.”
- 5. Detox or fast.** Several types of detox programs or one-day fasts can internally cleanse your body—but make sure you check with your doctor before trying one. Keep in mind, too, says Crinnion, that “anything that promotes better excretion helps move toxins out of the body.” For more info on detox programs, see the Digestive Concerns Condition Center at naturalsolutionsmag.com.

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Phthalates

Manufacturers add these manmade compounds to cosmetics, shampoos, perfumes, soaps, lotions, and other personal-care products to thicken them or to preserve their fragrance. They also use them to make plastic products more pliable. The problem? The skin easily absorbs phthalates, where they tend to accumulate in the body's fat tissue.

How they harm: Research suggests phthalates pose the greatest risk to young children and babies still in the womb. A February study in *Pediatrics* examined 163 infants and found that 81 percent had detectable amounts of phthalates in their urine, and the younger the infant, the higher the levels. Exposure came from baby lotions, powders, and shampoos. Additionally, a 2005 report in *Environmental Health Perspectives* discovered a strong relationship between a mother's exposure to phthalates during pregnancy and abnormal testicle development in baby boys.

Protect yourself: Switch to all natural or organic personal-care products. This goes for you and your baby. Note that some products that label themselves "natural" still contain phthalates, so avoid those that list "fragrance" or "synthetic fragrance" in the ingredients. Any scent should come from pure essential oils. You can find out which products contain phthalates at cosmeticdatabase.com or safecosmetics.org.

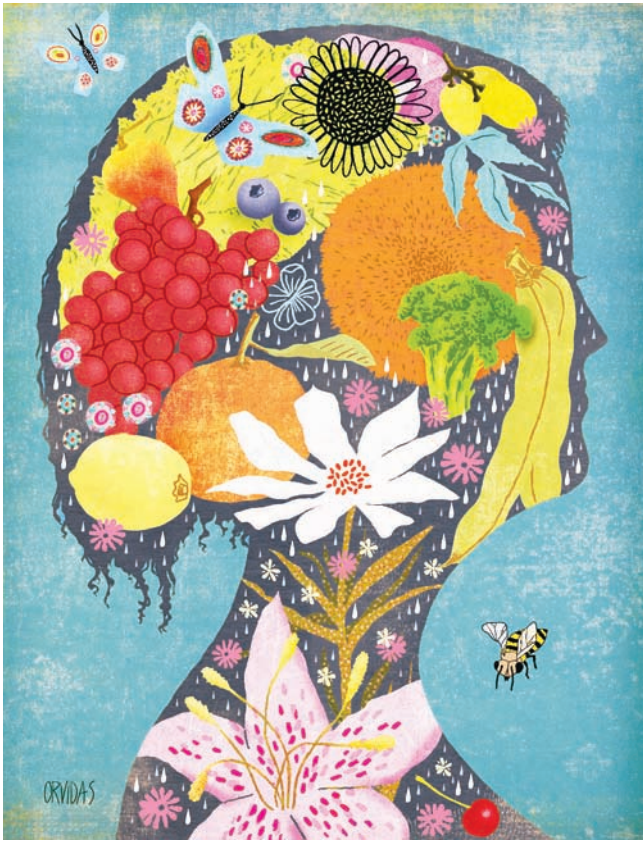
Triclosan

Used as a disinfectant, triclosan lurks in numerous household products, such as antibacterial hand soap, detergents, and dishwashing liquids.

How it harms: A 2005 Virginia Tech study found that 16 household products made with triclosan emitted chloroform gas when combined with chlorinated tap water. Numerous countries and some states consider triclosan a carcinogen, and chronic exposure can cause depression and damage your liver and kidneys.

In the study, researchers used a concentration of 4 mg per liter of dishwashing liquid in 104-degree tap water—which followed EPA concentration guidelines and cleaning recommendations from the Soap and Detergent Association. Under these conditions, the soap suds generated more than 50 ppb (parts per billion) of chloroform. (The EPA's maximum allowable amount is 80 ppb.) The researchers said people using these products would be exposed—through skin absorption and/or inhalation—to chloroform levels 40 percent higher than normally found in tap water. The gas levels were too small to trigger short-term problems like headaches, fatigue, or dizziness, but the long-term health implications of frequent low-dose exposure to chloroform are unknown.

Protect yourself: Eschew antibacterial soap. A review of 27 studies in the August 2007 issue of *Clinical Infectious Diseases* found antibacterial soap to be no more effective at reducing illness and bacteria than regular soap. If you still



We are what we eat—but also what we breathe and touch.

want antibacterial cleaning products, choose those containing antibacterial essential oils, such as tea tree, peppermint, or sandalwood. “Also, use natural dishwashing liquid, and wear gloves to reduce contact with your skin,” says Doris Day, MD, an assistant professor of dermatology at New York University Medical Center.

Benzene

A volatile liquid in crude and refined petroleum, benzene hides in tobacco smoke, gasoline, motor vehicle exhaust, and industrial emissions. Chances are you inhale or absorb it through your skin every day.

How it harms: Your greatest exposure probably occurs when you fill up your car, since the air around gas stations contains higher levels of benzene. According to the safety limits set by the Occupational Safety and Health Administration, if the atmospheric concentration of benzene is 1 ppm (parts per million), you shouldn’t breathe that air for longer than eight hours (and preferably not at all). If the

concentration is 5 ppm, you shouldn’t breathe it for longer than 15 minutes. But exposure to benzene while parked at gas stations can range from 1 to 32 ppm. Not even a rolled up window will protect you.

Long-term exposure (a year or longer) to low levels may increase your risk for leukemia, according to the American Cancer Society. Initial studies also suggest prolonged exposure may alter a woman’s menstrual cycle and raise the risk of children being born with low birth weight, delayed bone formation, and bone marrow damage.

Protect yourself: Ride your bike when you can, and try to stay clear of heavy traffic areas. When you do drive, don’t idle the engine. Minimize gas station stops—always fill up the tank. Or switch to a hybrid to further reduce visits to the pump. And when you exercise outside, stay away from heavy traffic areas, or beat the rush-hour with an early-morning run. ■

MATTHEW SOLAN is a health writer in St. Petersburg, Florida (matthewsolan.com).