

Making a Healthier Home Cast Toxins from Your Living Space



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Take a look around your home. Do you know what's in your household goods and products? Some chemicals can harm your health if too much gets into your body. Becoming aware of potentially harmful substances and clearing them out can help keep you and your family healthy.

"There's a range of chemicals that you can be exposed to in your home, generally at very low levels," says Dr. Andrew Rooney, a toxicology and risk expert at NIH. Possible toxic substances can be found in building materials, cookware, cleaning products, shower curtains, furniture, carpet, and other common items.

Not all chemicals are harmful. In fact, most substances in our environment are likely safe, explains Dr. Heather Patisaul, a neuroscience and toxicology expert at North Carolina State University. "Only a small subset is probably toxic," she says. "Although that's worrisome, there are many simple things you can do to help minimize your exposure."

Often, it's how much you're exposed to that can make a chemical harmful. The amount that's "safe" varies for each substance. NIH-funded researchers are working to learn more about how chemicals in the environment can affect our health, so we can better address any issues.

Sometimes it's obvious when a chemical is hazardous. You may get a rash from spilling a household cleaner on your skin. Or you may start coughing when you breathe in irritating fumes. To avoid known

health risks, be sure to read the instructions carefully on your household products, and follow any safety precautions.

Some toxic chemicals cause no immediate or clear symptoms. [Lead](#), for example, is well known for its poisonous effects. Generally, the more lead you have in your body, the more likely you'll have health problems. Lead can cause high blood pressure, fertility problems, muscle and joint pain, and memory and concentration problems. As a result, lead is no longer allowed in paints, gasoline, and cans used for food. But lead can still be found in lead-based paint used in older homes, household dust, and drinking water pumped through leaded pipes.

"The best way to protect yourself from the health effects of lead is not by treatment but rather by preventing exposure," Rooney explains. If you live in an older home, check with your local health department about any lead that may be in the paint, dust, or drinking water. Local experts can guide you in steps you can take to prevent lead exposure.

Young children are more vulnerable to lead and many other chemicals. That's because their bodies and brains are still developing. Kids can also be exposed to toxins from normal childhood behaviors, like playing on the floor and putting their toys or hands in their mouths.

"Chemicals can come out of our products and end up in the air and dust in the home, where they can enter your body," says Dr. Ami Zota, an environmental and public health expert at George Washington University. Her team recently discovered 45 different chemicals that are commonly found in indoor dust. Many of the identified chemicals belong to a group called "[endocrine disruptors](#)."

When endocrine disruptors get into your body, they can mimic or block the natural [hormones](#) your body makes. Evidence suggests that endocrine disruptors might reduce fertility, raise the risk for some cancers, or cause other harms. These chemicals may pose their greatest health risks when people are exposed in the womb or during their first few years of life, when hormones are guiding development of the body's organs and brain.

Substances thought to cause endocrine disruption include certain fragrances, pesticides, and stain-resistant coatings. NIH-funded researchers study the health effects of several types of chemical classes tied to hormone disruption, including [phthalates](#) (pronounced THAL-ates), [PFCs](#) (or perfluorinated chemicals), and [flame retardants](#).

Phthalates are a family of man-made chemicals used to make plastics, cleaners, and fragrances. The human health effects of phthalates are not yet fully known but are being studied by several government agencies, including NIH. In animals, phthalate exposure has been linked to many reproductive health and developmental problems. To reduce your exposure, read product labels and avoid using products that contain phthalates. Some—but not all—phthalate-containing products might be clearly labeled: “contains phthalates.” But sometimes phthalates might be listed as a 3- or 4-letter abbreviation, such as BBP, DBP, or DEP. These phthalates must be listed among the ingredients on product labels, unless they are added as a part of the “fragrance.”

“Many hundreds of chemicals can be classified as fragrance,” Patisaul explains. “So when you use a cleaner with a scent, it probably has some phthalates in it—even though the label doesn’t specifically say phthalates.” You can look for “fragrance-free” products. The U.S. Environmental Protection Agency (EPA) also provides the “Safer Choice” label, which is used on products made with ingredients that are safer for human health and the environment.

PFCs are widely used to make everyday products more resistant to stains, grease, and water. They can be found in nonstick cookware, stain-resistant sofas and carpets, and waterproofed clothing and mattresses. In animal studies, some PFCs disrupt normal hormone activity, reduce **immune system** function, or cause developmental problems. Some evidence suggests that certain PFCs may also affect human health, with possible ties to low birth weight, obesity, and testicular and kidney cancers.

Certain PFCs, like those used to make Teflon, are being phased out of use in the U.S. But some older household items, like nonstick pans, may still contain them. If you have an older nonstick pan that is dinged and worn out, try to replace it.

Flame retardants are added or applied to materials to slow or prevent a fire. But a growing body of evidence links many of these chemicals to negative health effects in animals and humans. Flame retardants can be found in foam, upholstery, mattresses, carpets, curtains, and fabric blinds. Flame retardant use has been declining in recent years. But these chemicals are still found in some products. When buying new items, especially for children, try to purchase furnishings filled with cotton, polyester, or wool, instead of polyurethane foam.

“The best thing is to become aware that there are chemicals in your environment, and there are very simple things that you can do to lower your exposure,” Patisaul says.

Chemicals are everywhere, and most are harmless. Limiting the potentially toxic ones in your day-to-day life can help you create a safer, healthier home.

Learn what's in the products you purchase, and make informed decisions. You can also take steps to get rid of risky chemicals by keeping the dust down in your house. See the Wise Choices box for some useful tips.

References

[Consumer Product Chemicals in Indoor Dust: A Quantitative Meta-analysis of U.S. Studies](#). Mitro SD, Dodson RE, Singla V, et al. *Environ Sci Technol*. 2016 Oct 4;50(19):10661-10672. PMID: 27623734.

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