

NIH News in Health

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Hidden Hazards Clearing Out Toxins in the Home

Some hazards in the home are easy to see. Like a loose electrical socket. Or torn carpet on the stairs. But others are harder to spot. And some are invisible, in the very air you breathe. These include lead, mold, and radon.

But there are ways you can find and fix these unseen hazards. Learning about possible toxins in your home may be concerning. But knowledge can help you take action.



to the age of six, Chen explains. Your health care provider can check with a simple blood test. If your child has very high blood levels of lead, your health care provider can advise on whether they need to be treated and how.

You will also need to have the lead source cleaned up by a certified professional. Your local health department can provide information on what to do with lead paint. It's not safe to try to fix it on your own.

Getting the Lead Out •

Lead is a naturally occurring metal. It's used to make many products, like car batteries. But it doesn't belong in your body. It causes damage to the brain and nervous system. Lead exposure is especially dangerous for children. There is no "safe" level of lead in the bloodstream.

Lead exposure causes problems with thinking, learning, and memory, says Dr. Aimin Chen, an environmental health researcher at the University of Pennsylvania. This can affect how well children do in school. "It's also linked with attention problems and hyperactivity," he explains.

These effects aren't just found

with high levels of lead. "Even at lower levels, which are more common in children, you see some of these associations," Chen says.

Lead used to be added to gasoline and paint. These uses are no longer permitted. But paint lasts in homes for a long time. If you live in a house built before 1978, it likely has lead paint somewhere.

If older paint isn't chipping or peeling, it's not likely to create lead dust, says Chen. But paint can sometimes get damaged where you might not see it. Such areas include door frames and window sashes, Chen explains. Paint on the outside of a house can also chip and fall into the dirt where kids play.

Lead can get into drinking water through old lead pipes, faucets, and fixtures, too. Find out how to test for lead in paint, dust, and drinking water at epa.gov/lead.

Testing for lead is especially important for younger children, up

Water and Mold • If you've ever left a loaf of bread or piece of fruit out too long, you've likely seen mold grow. Most types of mold are harmless. But some can be dangerous. They can produce compounds that trigger allergies or asthma attacks.

Mold can grow in buildings when water gets in, explains Dr. Matthew Perzanowski, an allergy and asthma researcher at Columbia University. And any type of dwelling can potentially get water damage, he says.

"In urban communities, it's often poor ventilation in the bathroom, or a leak in another apartment," says Perzanowski. "But water can also

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Definitions

Asthma

A chronic lung disease that causes wheezing, coughing, chest tightness, and trouble breathing.

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come from storms, or floods, or other kinds of leaks. And if you live somewhere with high outdoor humidity, that makes it harder to dry things out inside the home.”

Sometimes, you can see mold on walls or other surfaces. Other times, such as with a leak behind the walls, you may just smell it, Perzanowski says. Some people describe this smell as musty, stale, or damp.

If you find mold in your home, “you have to make sure that the water source goes away,” he says. “Cleaning and painting won’t do any good if you don’t get rid of the water.”

You can clean small areas of mold growth—less than three feet by three feet—yourself, Perzanowski explains. But take precautions not to breathe in the mold.

“Wear an N95 mask and goggles. Use warm soapy water and towels you can throw away,” he says.

You may need to remove and replace sections of caulking or walls that are moldy. Or throw out fabrics or rugs that can’t be cleaned. Large areas of mold damage may require professional help.

Perzanowski’s team is currently tracking whether a large-scale mold

removal program in New York City helps reduce asthma symptoms in both children and adults. Learn more about mold cleanup at epa.gov/mold and cdc.gov/mold/cleanup.htm.

Radon on the Radar • You likely know that smoking cigarettes is one cause of lung cancer. But cigarettes aren’t the only toxin that increases that risk. An odorless, colorless, radioactive gas called radon can cause lung cancer, too.

Radon gas is found naturally in nearly all types of rock, in all parts of the country. It’s a risk if it gets inside. It can seep through cracks in floors, walls, and the foundations of homes and other buildings.

Even buildings without basements can have dangerous levels of radon, says Dr. Ellen Hahn, a nursing researcher who studies cancer risk reduction at the University of Kentucky.

Exposure to radon gas is most harmful to people who also smoke tobacco, says Hahn. “But breathing radon is really dangerous for everyone,” she explains. “There is no risk-free level of radon.”

Low-cost and free tests can measure radon levels in the home. If levels are high, a certified radon professional can vent it outside to make the home safe again. This process is called radon mitigation.

But few households test for radon. Even fewer mitigate. Hahn and her team have been looking for ways to increase radon testing in rural Kentucky. They have been recruiting and training local residents, including high school students, as “citizen scientists.” These volunteers perform home radon testing using digital radon detectors, which can be used over and over again. Standard kits for radon testing can only be used once. Her project also makes digital detectors available at local libraries.

“Libraries are trusted sources of

information and resources,” Hahn says, “so why not make them places to check out a radon test kit as well?”

Her team is also looking at ways to get landlords to test for and mitigate radon. Renters can test, but the landlord decides whether to mitigate, she explains.

Certain regions can be hotspots for radon gas. Learn more about radon in your state at epa.gov/radon. ■



Wise Choices

Reducing Home Health Hazards

You can test for or prevent many home health hazards.

- **If your home was built before 1978, test exposed paint for lead.** You can buy test kits yourself or hire a professional. Some city health departments provide free test kits.
- **Have children tested for lead exposure regularly,** from at least birth through age six.
- **Use vent fans in rooms that have lots of moisture,** like the bathroom, to prevent mold growth.
- **If you have a leak or flood in your home, dispose of damaged items as soon as possible.**
- **Clean small areas of mold on walls or fabric with hot, soapy water.** Be sure to wear a mask, gloves, and goggles while cleaning.
- **Test your home for radon.** Some local, county, or state programs offer free test kits. You can contact the National Radon Program Services at 1-800-SOS-RADON (1-800-767-7236).
- **Learn more about other potential toxins in the home** at go.usa.gov/xucEz.

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Web Links

For more about home health hazards, see “Links” in the online article: newsinhealth.nih.gov/2022/05/hidden-hazards

Noise Complaints

Taking On Tinnitus

Do you hear sounds that no one else can hear? It might be a ringing. A clicking. Or maybe a buzzing, hissing, or humming. Hearing such noises can be disconcerting—especially if they don't go away. Some people hear these noises for a few hours. Others may hear them for a lifetime. This condition is called tinnitus.

About 10% of U.S. adults have experienced tinnitus that lasted for at least five minutes in the past year. The noise can be soft or loud, high pitched or low pitched. You may hear it in one ear, or both.

Most of the time, tinnitus isn't a sign of a serious health problem. Many people experience tempo-

rary tinnitus after going to a loud concert or event. But it can also be a sign of damage to your inner ear and its connections with the brain. If it doesn't go away or gets worse, tinnitus can make it hard to hear, concentrate, or even sleep.

Many things increase your risk for tinnitus. "Noise exposure is a very common cause," says Dr. Fan-Gang Zeng, a hearing and speech expert at University of California, Irvine.

People who work in noisy environments can develop hearing damage and tinnitus over time. Examples include factory and construction workers, road crews, musicians, and military service members.

"Aging and many drugs, including aspirin, also increase your risk of tinnitus," Zeng says. More than 200 drugs are known to cause tinnitus when you start or stop taking them.

If you're experiencing tinnitus, see your health care provider. There's no test to diagnose it. But your doctor can check for possible causes. They can see if anything is blocking your ear canal. They can also look for medical conditions or medications that may be causing it.

If they don't find anything, they may refer you to an ear, nose, and throat doctor (ENT) or an audiologist. These specialists can determine if you need to be tested for hearing loss. Many people with hearing loss experience tinnitus, but it's not clear why.

Zeng says that, in certain cases, tinnitus may help protect the brain. Some brain areas may no longer be active after hearing loss. That may lead to brain cell loss. Zeng's study found that people with both hearing loss and tinnitus are less likely to have **cognitive** decline than those who had hearing loss alone.



He speculates that tinnitus may help keep certain brain areas active despite hearing loss.

But not everyone who has tinnitus has hearing loss. For those who do, hearing aids or surgical treatments for hearing loss may help.

There is currently no cure for tinnitus. But some treatments can help you cope—see the Wise Choices box. Researchers are also looking for new ways to treat tinnitus. For example, Zeng's team is testing ways to stimulate the nerve that goes from the inner ear to the brain, called the auditory nerve. His team hopes this can help reduce tinnitus.

To search for studies you can join to help advance tinnitus research, visit clinicaltrials.gov. ■



Wise Choices

Living With Tinnitus

- **Protect Your Hearing.** Loud noises can lead to or worsen tinnitus. Keep the volume down when listening to music or watching TV. Wear earplugs or earmuffs if you're in a loud environment. Move away from loud noises when possible.
- **Try sound therapy.** Background noise machines, fans, or quiet music can help mask tinnitus. You can also try a wearable sound generator. This small electronic device fits in your ear and plays a soft, pleasant sound.
- **Talk with a cognitive behavioral therapist.** They can help you learn to live with tinnitus. You may also learn things to help you relax during the day or to fall asleep at night. Stress and lack of sleep can make tinnitus worse.
- **Use your hearing aids or cochlear implants.** For people with hearing loss and tinnitus, hearing aids or cochlear implants may help with both.



Definitions

Cognitive

Related to the ability to think, learn, and remember.



Web Links

For more about tinnitus, see "Links" in the online article: newsinhealth.nih.gov/2022/05/noise-complaints

