

Dangers in your water

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Whether you live in a city, the suburbs, or the country, your drinking water may contain dangerous pollutants. Here's how to clean them out.

IN THE 1970s the residents of Woburn, Mass., were suffering from a health epidemic. The rate of childhood leukemia was four times higher than average, and adult residents suffered from unusually high rates of health disorders, such as cardiac arrhythmia, and liver, nervous system, and immune system dysfunction. People began to suspect there was something wrong with their drinking water, which was often discolored and smelled like rotten eggs. State health officials uncovered unusually high levels of organic solvent chemicals but blamed the results on faulty test equipment. Then, in 1979, barrels containing hazardous chemicals were discovered near two municipal wells. The water was tested again and extremely high levels of the carcinogen tetrachloroethylene were detected. Within days, the wells were capped.

Although an extreme case, water contamination is not uncommon. More than 45 million people a year drink publicly supplied water that fails to meet standards set by the Environmental Protection Agency (EPA). And according to the Centers for Control (CDC), nearly 1 million people get sick from drinking contaminated water each year, about 1,000 of those cases are fatal.

Fortunately there are ways to protect yourself. First, find out what, if any, contaminants are present in your water and decide whether or not they pose a risk to you. Once you know that you can buy a water filter designed to remove those particular pollutants. Since the three most popular types of filters--carafe filters, faucet filters, and reverse-osmosis filter systems--vary considerably in price and power, we've put together a first-time buyer's guide so you can choose which is most suitable for you. Here's how to get started.

Step 1: Testing the Waters

Home testing kits are available, but they may be unreliable and do not test for everything. Your best option is to go through a professional testing lab. The EPA has a safe drinking water hot line (800-426-4791) where operators can direct you to a state-certified agency that provides lists of local testing laboratories. Testing prices range from \$10 for one contaminant to \$350 for packages.

Step 2: Weighing the Risks

The types of contaminants likely to surface in your water depend on where you live, explains Erik Olson, a drinking water specialist with the Natural Resources Defense Council, a New York-based nonprofit organization. Typically, if you live in a big city, you should be concerned about chlorine byproducts in water, as well as lead and microbial contaminants. If you live in a rural or suburban area, where water is supplied by municipal and private wells, you may have nitrates, pesticides, and bacterial and fecal matter in your drinking water. All can pose serious health hazards.

These are the most common contaminants:

CHLORINE BYPRODUCTS

What they are: Chlorine mixed with decaying plant material

Why they're there: Many municipal water systems add chlorine to kill microorganisms.

What they do: At its most benign, chlorine can make your water taste like it came from a swimming pool. But chlorine can also combine with decaying vegetation to form trihalomethanes (THMs), which cause 10,000 cases of bladder and rectal cancer each year, says the Environmental Working Group, a public interest organization. And THMs don't enter the body through drinking water alone. If you shower with THM-contaminated water, you can easily inhale them. A well ventilated bathroom can cut the inhalation risk in the shower, and specially-made shower filters can remove it completely.

Who's most at risk: A new study, conducted by the California Department of Health Services studied 5,144 pregnant women and found women who drank at least five glasses of cold tap water per day containing THMs (specifically, bromodichloromethanes (BDCM)), had more miscarriages; 16.4 percent compared with 6.1 percent for those who had low levels of BDCMs in their tap water.

LEAD

What it is: A toxic metal

Why it's there: Household water may contain lead that has been leached from plumbing joints by corrosive water with a high pH content. Lead can also enter water supplies from natural and industrial lead deposits and brass alloy faucets.

What it does: Lead has adverse effects on virtually every system in the body, according to the CDC. Elevated levels of lead in adults can increase blood pressure and impair hearing. But children under the age of five are the most vulnerable to lead's noxious effects; lead contamination can severely delay their mental and physical development.

Who's most at risk: People living in older houses face risk from significant corrosion of lead service connections and the lead solder used to join copper pipes.

MICROBIAL ORGANISMS

What they are: Bacteria and parasites

Why they're there: Wells situated near livestock or septic systems can become contaminated with fecal matter that contains microbial organisms such as giardia and cryptosporidium. Urban water supplies that have been successfully treated for parasites may become recontaminated when the water passes through plumbing where organisms live along the walls.