

What is mercury?

Mercury is a naturally-occurring metal, which is widespread and persistent in the environment. It exists in three forms: elemental or metallic mercury, inorganic mercury, and organic mercury. Most of the mercury in the atmosphere is elemental mercury vapor; most of the mercury found in water, soil, plants, and animals is either inorganic or organic (methylmercury). The majority of mercury found in fish is methylmercury, which tightly binds to protein in all fish tissue. Methylmercury is a particular concern because it can build up to levels in fish tissue that can be toxic to people.

Who is exposed to mercury?

Anyone may be exposed to mercury. Eating fish is the principal way that people are exposed to methylmercury. People may also be exposed to other forms of mercury from breathing contaminated workplace air or through skin contact, particularly in occupations involving chemical or dental work. Exposure may also occur by breathing vapors in air from spills, incinerators, and industries that burn mercury-containing fuels.

How can mercury affect my health?

The nature and extent of health effects from exposure to mercury will depend on the amount to which a person is exposed. The nervous system is sensitive to all forms of mercury. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

How can mercury affect children?

Though mercury can affect adults, young children and developing fetuses are more sensitive. Mercury passes from mother to fetus through the placenta and from the circulating blood stream into the brain. Mercury can also be excreted in breast milk. The fetus may have higher levels of mercury in the blood than that of the mother. Fetuses exposed to elevated levels of mercury can result in brain and other developmental effects. Children exposed to elevated levels of mercury may develop nervous and digestive system problems, in addition to kidney damage.

How likely is mercury exposure to cause cancer?

There are no studies that definitely show that elemental mercury causes cancer in humans or animals. The U.S. Environmental Protection Agency (EPA) has determined that mercuric chloride and methylmercury are possible human carcinogens.

Is there a medical test to determine whether I have been exposed to mercury?

Tests are available that measure the amount of mercury in blood, urine, breast milk, or hair samples. However, some of these tests do not determine the form of mercury to which one is exposed. Mercury in urine is used to test for exposure to metallic mercury vapor and to inorganic forms of mercury. Measurement of mercury in whole blood is used to monitor exposure to methylmercury.

How can I reduce the risk of exposure to mercury?

Carefully handle and dispose of products that contain mercury, such as thermometers and compact fluorescent light bulbs. Because it can potentially vaporize, do not vacuum spilled mercury. If a large amount of mercury has been spilled or identified, contact your local health department. Do not purchase or use imported, homemade skin-lightening creams, and do not store them in your home. Finally, be mindful of local fish consumption advisories in your area. The Virginia Department of Health (VDH) has established guidelines for issuing a fish consumption advisory when fish from certain waters are found to contain contaminants at levels of concern. For mercury, this level is 0.5 parts per million (ppm) of mercury in fish tissue. For information, visit <https://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/>.

Compact fluorescent lights (CFLs) are safe to use in your home. No mercury is released when the bulbs are in use and they pose no danger to you or your family when used properly. CFLs do, however, contain approximately 4-5 milligrams (mg) of mercury (the amount equivalent to the tip of a pen), and thus should be managed responsibly when they burn out. Because of the small amount of mercury in the CFLs, if a CFL bulb breaks, following proper clean-up and disposal guidelines will minimize any risk from exposure. Guidelines can be found at <http://www.epa.gov/mercury/>.

Has the federal government made recommendations to protect human health?

The EPA has established a limit of 2 parts per billion (ppb) of allowable mercury of drinking water. The Food and Drug Administration (FDA) has set a maximum permissible level of 1 part of methylmercury in a million parts of seafood (1 ppm). The Occupational Health and Safety Administration (OSHA) has set limits of 0.1 milligrams of organic mercury per cubic meter (mg/m³) of workplace air and 0.05 mg/m³ of metallic mercury vapor for 8-hour shifts and 40-hour work weeks.

Where can I get more information on mercury?

- If you have concerns about mercury, contact your healthcare provider.
- Call your local health department. A directory of local health departments is located at <https://www.vdh.virginia.gov/local-health-districts/>. Contact the Virginia Department of Health at (804) 864-8127 or at toxicology@vdh.virginia.gov.
- Visit the Agency for Toxic Substances and Disease Registry website at <https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=24>.

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