



Environmental Health Information

Mercury

November 2008

Kids are fascinated by elemental mercury because it is a shiny silver liquid and forms small beads that roll like balls. Many older adults dismiss the dangers of mercury because they remember playing with it as kids with no apparent health effects. Yet mercury is a potent nervous system toxin that is especially dangerous for fetuses, infants and young children.

Mercury is an element that naturally occurs in rocks, soil, water, and air. In its pure form, mercury is a shiny, silver-white, odorless liquid. Mercury is the only metal that is liquid at room temperature. While mercury can come in many chemical forms, it cannot be created or destroyed because it is an element.

Mercury and Health

The relationship between mercury and health is complex. Two factors that determine how mercury affects our health are:

- * the specific form of mercury, and
- * the ways that mercury enters people's bodies.

Other factors that determine how mercury affects our health include how much mercury gets into the body, how often we are exposed to mercury, other chemicals we might be exposed to and a person's individual health status.

Mercury primarily affects the nervous system (brain, spinal cord and nerves) and the kidney. The health effects of mercury can range from none -- to subtle -- to severe -- and even death, depending on the factors listed above. Mercury exposure is a serious concern for fetuses, infants and children because their rapidly developing nervous system is especially vulnerable. Our advice about mercury is designed to protect fetuses, infants and children, as well as adults.

Forms of Mercury

Elemental mercury has been used in a wide variety of equipment and consumer products, such as thermometers, blood pressure cuffs, barometers, switches, pressure regulators, and in some types of light bulbs. For information on mercury in light bulbs, see <http://www.pca.state.mn.us/publications/w-hhw4-30.pdf>.

Elemental mercury that is not in a closed container will slowly give off vapor and can accumulate in indoor air. For example, a broken fever thermometer that is not properly cleaned up (especially in carpet or on fabric) can leave behind elemental mercury that will give off low levels of vapor for many years. Breathing in low levels of mercury vapor for months to years can be harmful, especially for the developing fetus, infants and children. For information on how to clean up the mercury from a broken fever thermometer, see <http://www.pca.state.mn.us/publications/hhw-mercurypills.pdf>.



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Elemental mercury vapor easily moves from the lungs to the bloodstream. Heating elemental mercury speeds up evaporation and can quickly lead to dangerous vapor levels in a very short time and at high levels can be very harmful, even fatal.

Methyl mercury easily passes from the stomach and intestines into the bloodstream and then can cause damage to the nervous system, especially when the nervous system is developing in fetuses, infants and children.

When mercury in the air falls onto lakes and streams, certain bacteria chemically combine it with carbon to form methyl mercury. Fish accumulate methyl mercury from their food. Fish that feed on other fish - such as walleye, northern pike, shark and swordfish - have the highest amounts of mercury. Fish that don't eat other fish, for example sunfish and salmon, have low levels of methyl mercury. Older, larger fish also have higher amounts because methyl mercury builds up in fish over time.

Fish provide many health benefits. Fish are an excellent source of low fat protein, omega 3 fatty acids and other nutrients. If you follow MDH's advice, the methyl mercury in the fish you eat will be safely eliminated between meals. For advice on how to choose which fish to eat and how often, see <http://www.health.state.mn.us/divs/eh/fish/index.html> .

Other forms of Mercury

Mercury naturally occurs in the environment in a salt form or in rock, such as cinnabar. Some inorganic mercury compounds were commonly used in the United States as medicine, but most are no longer in use.

Mercury compounds have been used in some products including fungicides, antiseptics or disinfectants. Some traditional medicines, such as skin lighteners or freckle creams, can contain high levels of mercury. All medicines with unknown ingredients should be avoided.

Ways mercury can enter people's bodies

Breathing – Spilled elemental mercury evaporates into the air and becomes an odorless, colorless, toxic vapor. Elemental mercury that is breathed into a person's lungs quickly moves into the bloodstream and is carried to the brain. Poor ventilation and heat can cause vapor levels to increase to dangerous levels in a very short time.

Eating – If someone swallows elemental mercury very little is absorbed through the stomach and intestines into the bloodstream. However, methylmercury in fish is easily absorbed by the stomach and intestines into the bloodstream. It is carried by the blood to the brain and nervous system.

Touching –Very little elemental mercury is absorbed through the skin. The more serious risk is from the mercury vapor that can be breathed in. Playing with elemental mercury also increases the risk of an accidental spill which could become a long term source of mercury vapor.

For more information contact:

MDH/Site Assessment and Consultation: (651) 201-4897 or 1 (800) 657-3908, press "4" and leave a message.
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