

# How can mercury affect my health?

The form of mercury, as well as how you come into contact with it, may result in different health effects. Typically how much (dose), how long (duration), your age, lifestyle choices, and physical well-being influence the effects that develop.

**Inorganic mercury salts** are toxic to many organs, primarily the kidney.

Both **metallic mercury** vapor and **methyl-** and **dimethyl-mercury** mainly affect the central nervous system.

Pregnant women, the developing fetus, and children are the most vulnerable to mercury neurological effects.

There is no conclusive evidence suggesting that mercury exposure causes cancer in humans.



## Short-Term, High-Level Exposure

- Generally only in occupational settings
- Organ damage (primarily kidney), nausea, vomiting, diarrhea, tremors, memory loss, and vision/hearing changes
- Increase in blood pressure and heart rate
- Irritation of the skin, lungs, and eyes

## Long-Term, Low-Level Exposure

- Negative effects on the central nervous system, motor ability, mood, concentration, short-term memory, speech and vision
- Cardiovascular and immunological effects

# Want to learn more about Mercury?

## AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

[www.atsdr.cdc.gov/toxfaqs/tf.asp?id=113&tid=24](http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=113&tid=24)

## DARTMOUTH SUPERFUND RESEARCH PROGRAM

[www.dartmouth.edu/~toxmetal/mercury/index.html](http://www.dartmouth.edu/~toxmetal/mercury/index.html)

## MONTEREY BAY AQUARIUM SEAFOOD WATCH

[www.montereybayaquarium.org/cr/seafoodwatch.aspx](http://www.montereybayaquarium.org/cr/seafoodwatch.aspx)

## U.S. ENVIRONMENTAL PROTECTION AGENCY

[www.epa.gov/hg/consumer.htm](http://www.epa.gov/hg/consumer.htm)

## WORLD HEALTH ORGANIZATION

[www.who.int/ipcs/assessment/public\\_health/mercury/en/](http://www.who.int/ipcs/assessment/public_health/mercury/en/)

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# What is Mercury?

Mercury is a shiny, silver metal found in the Earth's crust. The chemical symbol is **Hg** and it is also known as **quicksilver**. It is the only metal that is liquid at room temperature and slowly evaporates into the air.



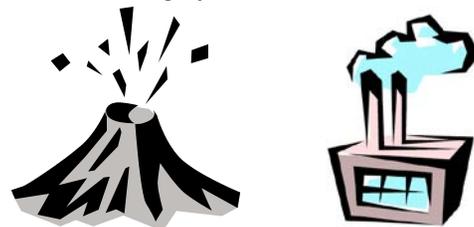
Mercury has different chemical types:

## • Inorganic Mercury (metallic and salts)

These non-carbon containing types include metallic or elemental mercury, which is the main form that is released into the air as vapor by natural processes such as volcanic eruptions. This category also includes mercury salts such as mercuric chloride or mercuric sulfide, the less volatile forms of mercury found in the Earth's crust.

## • Organic Mercury

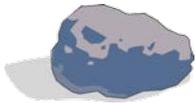
These carbon-containing forms include methylmercury and dimethylmercury, which are highly toxic.



Over half of the mercury found in the environment is due to human activity, such as coal combustion and mining.

Mercury can be found in:  
**Soil, Air and Water**

	Human Activity	Natural Sources
<b>Soil</b>	Mercury-containing substances dispersed on the ground	Weathering of rocks into soil
<b>Air</b>	Burning of substances containing mercury (e.g. coal and waste)  Manufacturing processes (e.g. gold mining)	Volcanic eruptions  Weathering of rocks into dust that becomes airborne
<b>Water</b>	Discharge of contaminated wastewaters  Mercury waste dumped in landfills or the environment (e.g. batteries)  Manufacturing processes (e.g. excavation or chemical production)	Weathering of rocks into the groundwater or into dust that falls on surface water



## How can I be exposed to mercury?

Most human exposure to **elemental mercury** occurs through the inhalation of mercury vapors. Some absorption through the skin may occur from contact with contaminated air. Workers in industries where elemental mercury is used (e.g. light bulb manufacturing) are exposed to levels much higher than the general public.

**Inorganic mercury** (e.g. mercuric chloride) can be present in water or soil and can be taken up by ingestion. **Organic mercury** (e.g. methylmercury) is usually taken up by ingestion. Fish consumption is the main source of human exposure to methylmercury (see next panel).

## Mercury In Seafood

Certain microbes in aquatic systems can transform inorganic mercury into the more toxic organic compound methylmercury. **Methylmercury** is easily taken up by animals (e.g. fish, shellfish) and stored. Predatory fish that feed on smaller fish and shellfish further concentrate the methylmercury (bio-magnification). Humans can be exposed by eating these mercury-contaminated animals.

Fish with high levels of methylmercury:

Fish Source	What Types of Fish?
<b>Ocean</b>	Swordfish Shark Tuna* King mackerel
<b>Fresh Water</b>	Small mouth bass Walleye pike Largemouth bass Lake trout Northern pike

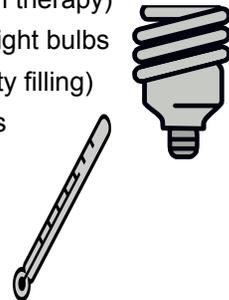


\* Albacore or white tuna contains three times more mercury than chunk light canned tuna.

However, fish and shellfish are an important part of a healthy, well-balanced diet. To balance health benefits from eating fish with mercury exposure, recommendations in the form of fish consumption advisories have been developed by state environmental agencies.

## Sources of Mercury in the Home:

- *Azogue*, *Crema de Belleza Manning*, and unlabeled whitening creams (used for folk medicine/religious practices, skin lightening treatment, and skin therapy)
- Compact fluorescent light bulbs
- Dental amalgam (cavity filling)
- Mercury thermometers
- Button cell batteries
- Electrical switches
- Thermostats
- Antiques



**Pay Attention to any recalls of products that contain mercury!**

## How can I reduce my exposure?

Be aware of the sources and quality of your water and food. If you are concerned, consult a doctor for tests to determine mercury levels in your body.

If you have mercury in your home, purchase a mercury spill kit (various spill sizes) or you can safely clean-up a small spill following this procedure: <http://www.epa.gov/hg/spills/> If you are not sure what to do after a mercury spill, contact your local environmental or health department to properly remove the material.

## What are the governmental policies regarding mercury?

The U.S. Environmental Protection Agency (US EPA), U.S. Food and Drug Administration (FDA), and the Occupational Safety and Health Administration (OSHA) have developed **regulations**<sup>o</sup> (can be enforced) regarding mercury exposure. In Mexico, the limit of mercury in potable water systems is enforced by the National Water Commission (CONAGUA). The World Health Organization has also posted **recommendations**\* (cannot be enforced).

<b>CONAGUA</b>	1 part per billion	Mexican drinking water system <sup>o</sup>
<b>US EPA</b>	2 parts per billion	U.S. public drinking water system <sup>o</sup>
<b>US EPA/ FDA</b>	0.3 parts per million	Methylmercury in fish filets <sup>o</sup>
<b>OSHA</b>	0.1 milligram per meter cubed	Organic mercury in workplace air <sup>o</sup>
<b>WHO</b>	1 microgram per meter cubed	Air annual average*