CONDITION

Mercury poisoning

Mercury poisoning is illness caused by enough mercury entering the body to harm the brain, nerves, kidneys, lungs, or other organs.

WHAT IT IS
Toxic illness caused by too much mercury exposure

BODY SYSTEM
Nervous system, kidneys, lungs, digestion, and development

MAIN SYMPTOMS
Tremor, numbness, mood changes, poor coordination

WHAT CAUSES IT
Breathing mercury vapor or swallowing mercury compounds

HOW IT IS DIAGNOSED
Exposure history and mercury tests in blood or urine

MAIN TREATMENT
Exposure removal, supportive care, and specialist-guided chelation

CAN IT BE CURED?
Sometimes - lasting nerve or kidney damage may remain

IS IT AN EMERGENCY?
Sometimes - breathing trouble, collapse, or severe confusion

LONG-TERM OUTLOOK
Often improves, but neurological damage can be lasting

Overview

Mercury poisoning happens when mercury builds up in the body or when a large exposure causes immediate harm. Mercury is a naturally occurring metal, but its health effects depend on its chemical form, the amount involved, how it enters the body, and how long exposure continues.

Elemental mercury is the shiny silver liquid once commonly used in thermometers and some equipment. Its vapor can be absorbed through the lungs. Swallowing a small bead of liquid elemental mercury usually leads to much less absorption than breathing its vapor, but a spill can release vapor over time.

Inorganic mercury compounds may be present in some industrial materials, traditional remedies, or unregulated skin-lightening products. They can damage the digestive system and

kidneys.

Organic mercury, especially methylmercury, builds up in fish and shellfish. Larger, longer-lived predatory fish tend to contain more. Methylmercury mainly affects the brain and nervous system. Exposure during pregnancy can affect a developing baby's brain even if the pregnant person has few symptoms.

Most everyday contact does not cause poisoning. The condition matters because symptoms can be subtle at first, and some nerve, kidney, lung, or developmental effects may continue after the exposure has ended.

Symptoms

Symptoms differ between sudden, high-level exposure and smaller exposures repeated over weeks, months, or years. They can also resemble many other conditions, so symptoms alone cannot confirm mercury poisoning.

Long-term exposure to elemental mercury vapor may cause:

Breathing a high concentration of mercury vapor can irritate and injure the lungs. Symptoms may include cough, chest discomfort, shortness of breath, nausea, vomiting, or fever. Severe lung injury can worsen over several hours.

Inorganic mercury compounds can cause burning pain in the mouth, throat, or abdomen, as well as vomiting or diarrhea. Kidney injury may lead to reduced urination, swelling, or changes found on blood and urine tests.

Methylmercury mainly affects the nervous system. Possible symptoms include tingling or numbness around the mouth or in the hands and feet, poor balance, muscle weakness, difficulty speaking, and changes in hearing or vision. The field of vision may narrow in significant poisoning.

Young children may show irritability, weakness, developmental changes, or loss of previously gained skills. A rare childhood reaction called acrodynia can cause painful pink hands and feet, sweating, peeling skin, and raised blood pressure.

- Shaking or tremor, often beginning in the hands
- Irritability, anxiety, mood changes, or unusual shyness
- Problems with memory, attention, or sleep
- Numbness, tingling, weakness, or poor coordination
- Headache, tiredness, or a metallic taste

- Sore, swollen, or bleeding gums

Causes and risk factors

Mercury poisoning is caused by enough mercury entering the body through breathing, swallowing, or, less often, skin absorption.

Possible sources include:

Heating elemental mercury increases the amount of vapor released. Vacuuming a spill can also spread tiny droplets and mercury vapor through the room.

People who work with mercury may face greater risk if ventilation, safe handling, or protective equipment is inadequate. Family members can also be exposed if contaminated clothing, shoes, tools, or materials are brought home.

Pregnancy and early childhood are particularly sensitive periods because the brain is developing. This does not mean fish should be avoided altogether. Fish provides useful nutrients, and risk can usually be reduced by choosing lower-mercury options and following local food-safety advice.

- Mercury vapor from spills in enclosed or poorly ventilated spaces
- Work involving mining, metal processing, electrical equipment, laboratories, or waste recycling
- Gold extraction using elemental mercury
- Frequent consumption of fish containing higher methylmercury levels
- Unregulated skin-lightening creams containing mercury
- Certain traditional medicines, remedies, or ceremonial products
- Industrial pollution of air, soil, or water
- Accidental or intentional exposure to mercury compounds

Diagnosis

Diagnosis begins with a detailed exposure history. A healthcare professional may ask about your work, hobbies, diet, home products, recent spills, traditional remedies, skin creams, and when symptoms began.

Blood or urine mercury testing can confirm that exposure has occurred, but the correct test depends on the type and timing of exposure. A test result must be interpreted alongside

symptoms and the suspected source.

Blood testing is often more useful for methylmercury exposure and for some recent exposures. Urine testing is generally more useful for elemental and inorganic mercury. Testing may also include kidney function, blood counts, electrolytes, and checks for lung or nerve injury.

Hair testing can sometimes provide information about methylmercury exposure, but collection and interpretation are difficult. Commercial hair analyses that report many metals may not reliably diagnose poisoning.

"Provoked" urine testing involves taking a chelating medicine before collecting urine. This can raise the amount of metal measured even in people without poisoning. Medical toxicology organizations do not consider it a reliable way to diagnose metal poisoning.

If a product or workplace is suspected, public health or occupational safety teams may test the material or environment. Do not handle or transport spilled mercury unless a poison centre or environmental authority says it is safe.

Treatment and management

The first step is to stop further exposure. This may mean leaving a contaminated area, arranging professional spill cleanup, stopping an unsafe product, changing workplace practices, or adjusting fish choices based on public health advice.

Treatment after a significant exposure may include monitoring, oxygen, fluids, and care for lung, kidney, digestive, or nervous system problems. People with serious symptoms may need hospital care.

Chelation is treatment with a medicine that binds to certain metals so the body can remove them more easily. It may be considered when mercury levels, symptoms, and the type of exposure show that the expected benefit outweighs the risks.

Chelation is not appropriate for every raised mercury result. These medicines can cause side effects and do not always reverse damage that has already occurred. Treatment should be guided by a clinician experienced in toxicology, often with advice from a poison centre or medical toxicologist.

Do not try to treat suspected poisoning with over-the-counter supplements, "detox" products, or chelating products bought online. They may be ineffective or harmful.

Follow-up may include repeat mercury tests, kidney tests, neurological examinations, hearing or vision assessment, and review of whether the exposure source has been controlled.

Complications

Possible complications depend on the mercury form and the amount and duration of exposure.

Nerve and brain effects can include lasting tremor, numbness, poor balance, memory problems, mood changes, hearing loss, or restricted vision. Recovery may be incomplete after substantial exposure.

Severe inhalation can cause ongoing breathing problems after lung inflammation or injury. Inorganic mercury can cause acute or long-term kidney damage. Major digestive exposure may injure the mouth, throat, stomach, or bowel.

Exposure during pregnancy can affect fetal brain development. Possible effects include later problems with movement, attention, language, learning, hearing, or vision. The degree of risk cannot be judged from symptoms alone.

Complications are more likely when exposure is intense, continues for a long time, or is not recognized promptly.

Prevention

Many mercury exposures can be prevented, although mercury cannot be completely removed from the natural environment.

Follow official fish advice for your location, especially during pregnancy, while breastfeeding, and when choosing food for young children. The aim is to choose fish lower in mercury rather than automatically avoiding all fish.

At work, use the required ventilation, protective equipment, hygiene measures, and monitoring procedures. Avoid bringing contaminated work clothing or equipment into your home.

Check the ingredients and safety information for imported or unregulated skin-lightening creams, traditional remedies, and similar products. Stop using a product and seek advice if authorities identify it as containing mercury.

If elemental mercury spills, keep children and pets away and ventilate the area to the outdoors if this can be done safely. Do not vacuum or sweep the beads. Follow poison-centre or environmental-agency instructions for cleanup and disposal.

Sound dental amalgam fillings are not routinely removed simply to prevent mercury exposure. Removal briefly releases more mercury vapor and removes healthy tooth material. Discuss a damaged filling or a specific concern with a dental professional.

Living with it and what to expect

The course over months and years depends on the mercury form, the exposure level, how long it continued, and which organs were affected.

Mercury levels usually fall after the source is removed, but this may take time. Digestive irritation and some general symptoms may improve over days or weeks. Tremor, sensation changes, concentration problems, or poor coordination can take months to improve. Some neurological or kidney effects may be permanent.

Follow-up is used to check that mercury levels are decreasing and that exposure has not continued. Testing schedules are based on the original exposure and the type of mercury involved; frequent testing is not useful in every case.

If symptoms affect daily life, rehabilitation may help. This can include physical therapy for strength and balance, occupational therapy for everyday tasks, or support for speech, hearing, vision, memory, or emotional health.

Children exposed before birth or early in life may need developmental monitoring over time. This can identify areas where educational or therapy support may be useful.

Many people return to their usual activities after the exposure ends, particularly when poisoning is identified before major organ damage develops. Others need longer-term support for persistent symptoms. Ongoing symptoms do not necessarily mean mercury exposure is continuing.

When to get medical help

Seek emergency help now after a suspected mercury exposure if you or someone else has:

Move away from fumes if you can do so without entering a contaminated area. Do not induce vomiting. Contact your local poison centre or emergency service for immediate instructions.

Get prompt medical or poison-centre advice after a significant spill in a heated, enclosed, or poorly ventilated space, even if no symptoms have appeared. Also seek prompt advice about exposure during pregnancy or in a young child.

Arrange a routine medical appointment if you have possible ongoing exposure with gradual symptoms such as tremor, numbness, memory changes, or gum irritation. Bring information about your work, diet, products, or spill if available, but do not bring contaminated material into a clinic.

- Trouble breathing, severe chest discomfort, or blue or grey lips

- Collapse, a seizure, extreme drowsiness, or severe confusion
- Repeated vomiting, severe abdominal pain, or bloody diarrhea
- Sudden severe weakness, inability to walk, or major loss of coordination
- Swallowed a mercury compound or an unknown mercury-containing product

Common questions

What does mercury poisoning feel like?

There is no single feeling. Gradual exposure may cause hand tremor, tingling, irritability, sleep problems, poor concentration, or loss of coordination. A large inhaled exposure may cause cough, chest discomfort, nausea, and shortness of breath. These symptoms have many possible causes, so testing and an exposure history are needed.

Can I get mercury poisoning from eating fish?

It is possible to take in too much methylmercury by regularly eating fish with higher levels. Risk depends on the species, source, portion size, and frequency. Choosing lower-mercury fish and following local advice can reduce exposure while preserving the nutritional benefits of fish.

Will a blood test show mercury poisoning?

A blood test can help detect methylmercury and some recent exposures. It is not the best test for every situation. Urine testing is usually more useful for elemental or inorganic mercury, and results must be matched to the timing and suspected source.

Is mercury poisoning reversible?

Some effects improve after exposure stops, especially when it is recognized early. Recovery from nerve injury can be slow, and significant brain, kidney, lung, hearing, or vision damage may remain. Chelation removes some mercury but cannot guarantee that existing injury will reverse.

What should I do if a mercury thermometer breaks?

Keep people and pets away, ventilate the space outdoors, and do not vacuum or sweep. Contact a poison centre or environmental health authority for cleanup instructions. A small spill does not automatically mean poisoning, but incorrect cleanup can spread mercury vapor.

Can dental fillings cause mercury poisoning?

Dental amalgam releases small amounts of mercury vapor. Available evidence has not shown that intact amalgam fillings cause mercury poisoning in most people. Routine removal is not advised solely to prevent exposure. A dentist can assess fillings that are broken, leaking, or

causing local problems.

Sources

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