

Heavy metals and your health: Frequently asked questions about testing, treatment and prevention



This handout will help you understand what is known about testing for and treating chronic heavy metal toxicity, so that you, along with your health care providers, can make the best and safest decisions about your health.

What are “heavy metals”?

There are many heavy metals in our environment both naturally and from pollution. The term “heavy metal” applies to a group of metals with similar chemical properties. Some of these, including copper, iron and zinc, play important roles in our bodies. Others have no known benefit for health. Examples of these are lead, which is found in paint in old homes as well as many other sources; arsenic, which can be found in well water and wood products; and mercury, which can build up in fish that we eat. At very high levels, most heavy metals can cause health problems. Luckily, this is very uncommon. For more information on particular heavy metals, please visit <http://healthoregon.org/envtox> or call the Oregon Office of Environmental Public Health at 1-877-290-6767.

How are people exposed to heavy metals?

People may be exposed to small amounts of heavy metals through food, water, air, and commercial products. People can also be exposed in their workplace, as several industries use or produce these metals. Each metal is different in where it is found and how it behaves in our bodies. Exposure alone does not mean that it is causing any disease or harm.

What is acute heavy metal poisoning?

Acute heavy metal poisoning usually occurs when people are exposed to large amounts of a metal at one time. For example, swallowing a leaded toy can cause a large amount of lead exposure all at once. This generally does not occur from exposures that you are not aware of. Acute exposures are dangerous and can quickly cause serious health effects or death.

Some signs of acute poisoning can be confusion, numbness, nausea and vomiting, and coma. **If you are concerned about acute heavy metal poisoning, call the Oregon Poison Center at 1-800-222-1222 and contact your health care provider.**

What are the symptoms of “chronic” heavy metal poisoning?

There is growing evidence that “chronic” or long-term exposure to lower levels of heavy metals also causes health problems. The symptoms of chronic heavy metal poisoning can be severe, but are often less obvious and develop much more slowly over time than the symptoms caused by acute exposure. This is a topic of growing scientific evidence that still needs more research to clarify all the possible health effects. Chronic heavy metal poisoning can be challenging for both health care providers and patients because there are often many more questions than answers.

Many of the symptoms of chronic heavy metal toxicity can include:

- Headache;
- Weakness;
- Muscle and joint pains;
- Constipation;
- Feeling tired.

True chronic heavy metal poisoning is rare. More often, these same symptoms can be caused by other health problems not related to a metal exposure at all. It is important to know that it may not be possible to find the true cause.

How do you know if your symptoms are due to heavy metals instead of more common causes?

Diagnosing chronic heavy metal poisoning can be challenging for both health care providers and patients because there often are many more questions than answers. The bottom line is that diagnosis of chronic heavy metal poisoning relies on having a known exposure and positive results on approved tests that are specific to each metal.

If I have these symptoms, should I be tested for chronic heavy metal poisoning?

It is generally not recommended to test for chronic heavy metal poisoning unless directed to by your health care provider **based on your symptoms and a known exposure**. Exceptions to this include screening high-risk children for lead poisoning; and certain occupational settings where specific metals may be present. If you think you have been exposed to greater than normal amounts of a heavy metal, such as lead or arsenic, be sure your health care provider is aware of your concern.

How do you test for chronic heavy metal poisoning?

Different heavy metals are best tested for in different ways. Some are tested for in urine, and some are tested for in blood samples. One single test is not going to give the best information for all heavy metals.

Below is some information about the commercially available ways you may have heard about to test for heavy metals. Any of these can measure the amount of a given metal in the sample. The tests **do not** tell you if the metal is causing health effects. Again, because heavy metals are all around us, we are all expected to have some in our body. Whether heavy metals in your body are causing health problems is a different question, and must be determined in conversation with your health care provider.

Should I have a hair analysis?

Diagnosis or treatment should not be based on hair analysis alone. Hair is very good at picking up material such as sweat and dust that can contain many things, including heavy metals. This makes it hard to tell if a metal is from inside or outside of the body. Other sources of metals can include hair products such as shampoos, perm products, bleaches, and hair spray. These will show up on a hair test even though they may not have entered your body.

While a positive hair test can suggest that you have been exposed to heavy metals, it cannot tell you anything about how much of the metal is in your body or whether or not it is causing disease.

Should I get chelation challenge testing?

No. A “chelation challenge test,” also called a “provoked urine test,” is done by first giving a medication called a “chelator.” Chelators can be pills you take by mouth, or may be given through an IV or a shot. There are many concerns about chelation challenge testing, and it is not recommended. Concerns include:

- A chelator is a chemical designed to attach to heavy metal particles in your body and remove them through urine. Because of this, the amount of a metal found in urine from a chelation challenge test will always be higher than if you had not taken a chelator.
- This can give the impression that levels in your body are much higher than they actually are.
- There are no accepted standards for these results, making interpretation challenging.
- Chelation challenge tests can result in a diagnosis that is incorrect if not carefully interpreted. This can lead to costly treatments that may be unnecessary and may be harmful.

What about chelation therapy to treat heavy metal poisoning?

Chelation is the main treatment for acute heavy metal poisoning, but its medical use is generally limited to people with very high levels of the metal and clear symptoms. The reason it is not more widely used is because this treatment can be dangerous. Some of the risks are:

- Chelators bind to heavy metal particles, but they can also bind to important minerals in your body, such as calcium and iron, that you do not want to lose.

There have been deaths in Oregon and other states from chelation therapy causing people's calcium to fall below safe levels.

- Chelation products, even when used under medical supervision, can cause serious harm, including allergic reactions, dehydration, kidney failure, and death.
- Your body's natural response to heavy metals is to store them in the safest place possible while slowly excreting them over time, minimizing the chance of harm to the brain, nerves, or other organs. Chelators can take the metals out of a place in your body, like bone, where it is not causing as much harm, and put it back into your bloodstream. Once in your blood, there may be a risk of it entering other organs (such as the brain or kidneys) in greater amounts than it would have before taking the medication. In this way, it could potentially cause more damage than good.

What is the best treatment for chronic heavy metal poisoning?

The safest thing you can do if you are concerned about chronic heavy metal poisoning is to identify the source and remove it to prevent any further exposure. Preventing exposure in the first place is ideal. Some easy ways to do this include:

- Limit dust in the home and remove your shoes when you go inside as many metals collect in dust and dirt.
- Be aware of local fish advisories regarding mercury levels.
- Be aware of sources of lead exposure.
- Read labels on products coming into your home to see if they contain heavy metals.

Additional resources:

Agency for Toxic Substances & Disease Registry (ATSDR) Toxic Substances Portal: ToxFAQs:
www.atsdr.cdc.gov/

Occupational Safety and Health Administration. Safety and Health Topics: Heavy Metals at
osha.gov/SLTC/metalsheavy/index.html

U.S. Food and Drug Administration. "FDA issues warnings to marketers of unapproved 'chelation' products." Oct. 14 2010:
www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm229320.htm

U.S. Environmental Protection Agency information on health effects of metals:
www.epa.gov/mercury/ and www.epa.gov/lead/

The American Academy of Pediatrics has recommended against the routine chelation of children with autism spectrum disorders. See the AAP Policy Statement: Management of Children With Autism Spectrum Disorders

American Heart Association: Questions and Answers about Chelation:
www.americanheart.org/presenter.jhtml?identifier=3000843

For more information:

For questions about the material for this fact sheet, contact:

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