

Heavy Metals Linked to Heart Disease and Stroke, Study Says

You can encounter these toxic substances in the air, water, and even in your food. Here's what you need to know.

By Catherine Roberts
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Exposure to arsenic, cadmium, copper, and lead is linked to an increased risk of heart disease and stroke, according to a new analysis published today in the *British Medical Journal*. The greater a person's exposure, the study found, the greater the risk of cardiovascular disease.

These results are based on research synthesized from 37 studies that included a total of almost 350,000 participants.

The new findings reinforce the idea that in addition to well-known risk factors for cardiovascular disease, such as smoking, lack of physical activity, or poor diet, environmental exposures are important risk factors too, and "should not be ignored," says study author Rajiv Chowdhury, Ph.D, principal researcher and associate professor in global health at the University of Cambridge School of Clinical Medicine.

Although the levels of exposure to some of these substances, such as lead, have lessened in the U.S. in recent decades, people still regularly come into contact with them. They're ubiquitous, says Chowdhury—found in food, soil, cigarettes, even in contaminated drinking water and polluted air. A recent Consumer Reports investigation found heavy metals in baby food, for instance, and

research suggests these substances are also linked to behavior problems, lower IQ, and autism in children.

"This study and others help illuminate the toxic effects of heavy metals and arsenic—both for children, and also for adults who may have been exposed," says Tunde Akinleye, a chemist in Consumer Reports' Food Safety Division. "And this research suggests that the risks of adverse health effects exist even at relatively low exposure levels to these toxic metals."

"Consumers need to be aware of the damage these substances can do, and take steps to reduce their exposure," he adds.

Here's what you need to know about the new study, the risks of exposure, and how you can protect yourself and your family.

Heavy Metals and Heart Disease Link

The new study brings together previous research that looked only at specific substances, such as lead, to create a comprehensive picture of the link between several types of heavy metal exposure and cardiovascular health, says Ana Navas-Acien, M.D., Ph.D., professor of environmental health sciences at the Columbia University Mailman School of Public Health and an author of an editorial accompanying the new research.

The study found that people who had more exposure to arsenic, cadmium, copper, and lead—as measured in their blood, urine, toenails, or drinking water—were more likely to develop cardiovascular disease in general, and coronary heart disease specifically, than those with less exposure. (Coronary heart disease is when plaque builds up in the arteries that feed the heart.)

People who had more exposure to cadmium and lead were also more likely to have a stroke than those with less exposure.

The researchers also looked at one additional heavy metal, mercury, but found that it wasn't linked with cardiovascular disease. (That doesn't mean that mercury is safe, says study author Chowdhury, just that this analysis wasn't able to detect any cardiovascular harm from it. Mercury ingested during pregnancy may impair fetal brain development, for example.)

One potential limitation of the new analysis: Cardiovascular disease is complicated and has many interrelated risk factors, not all of which the studies in this analysis could account for. And the various studies in the analysis measured metal exposure in different ways, some more accurately than others, which could have influenced the overall results, cautions Bruce Lanphear, M.D., M.P.H., a professor of health sciences at Simon Fraser University in British Columbia, who wasn't involved in the research.

Still, he says, the study is well done overall and highly useful. “If we want to control the epidemic [of cardiovascular disease], we need to understand, quantify, and control all of the major risk factors,” he says—including exposures to heavy metals.

Part of that effort will involve governmental regulation. Consumers Union, the advocacy division of Consumer Reports, called for more aggressive regulation of heavy metals in food, for example.

What You Can Do to Protect Yourself

In the meantime, however, consumers can still take steps to reduce their exposure to these dangerous substances. Here are a few ways to do it:

Test for metals. Homes built before 1986 could have been constructed using lead pipes, so you may want to consider getting your water tested. Navas-Acien also recommends that anyone whose water comes from a private well have it tested for metal contaminants.

Eliminate smoking. “Smoking is a major source of metals,” says Navas-Acien, whether you’re smoking yourself or inhaling secondhand smoke. Ban smoking inside your house, and if you smoke, try to quit.

Be wary of e-cigarettes, too. A study published in February found that the aerosol produced by electronic cigarettes could contain toxic metals, including cadmium and lead. That study found that the metal coil used to heat the e-liquid inside the device could be the source of the metals.

Diversify your diet. Unfortunately, arsenic and other heavy metals do lurk in our food. Most recently, our food safety experts found heavy metals in baby food, and we’ve also detected these substances in rice and fruit juice products. Feed your family a diverse diet, with not too much of any one food that’s known to be a source of metals. For more advice on what to do, see our guide on the levels of arsenic in rice, and our report on heavy metals in baby food.