

How to Reduce Your Exposure to Arsenic and Lead

This handout gives tips for protecting yourself and your family from coming into contact with arsenic and lead in soil.

Why is Exposure to Arsenic and Lead a Concern?

Arsenic and lead are elements naturally found in soil at levels that vary depending on the region. Natural processes such as weathering, or human processes such as mining, agriculture or manufacturing, may result in exposure to levels of arsenic or lead that are unsafe for human health.

Arsenic exposure at high doses can cause skin problems, stomach ache and nausea. Arsenic exposure over many years also raises the risk of bladder, lung, liver and skin cancer.

Lead exposure at high doses can cause anemia, stomach ache, muscle weakness and damage to the brain and kidneys. In children, even low doses can affect IQ, ability to pay attention and cause behavioral problems.

How Can I Be exposed?

Not all of the arsenic and/or lead present in the soil is in a form that can harm your health. A contaminant must be able to move into the body (exposure) and then be absorbed inside the body to have an effect on health. Routes of exposure to arsenic or lead in soil include:

- Ingestion (swallowing) of contaminated soil and dust (especially for children, who put objects and hands in their mouths).
- Ingestion of unwashed foods grown in contaminated soil.
- Inhalation (breathing) of soil particles or dust.
- Absorption of contaminants through the skin (low risk).

What Are the Health Effects of Arsenic and Lead Exposure?

Symptoms of arsenic exposure may include:

- Nausea and/or vomiting
- Abdominal pain
- Diarrhea
- Skin changes (such as darkening of the skin and the appearance of warts or corns)
- Abnormal heart rhythm
- Facial swelling
- Tingling in the fingers and toes

If blood lead levels in children exceed the Centers for Disease Control and Prevention's level of concern of 5 micrograms per deciliter of blood, a child might experience health problems such as the following:

- Delayed or slow learning and development
- Slowed or stunted growth
- Learning and behavioral problems
- Issues with hearing

What is Bioavailability?

Bioavailability refers to how much of a contaminant is absorbed into the body following contact (exposure) with contaminated soil. Ingestion (swallowing) of soil is the most common way a contaminant enters the body.

Arsenic and lead present in soil must be bioavailable in order to pose a risk to your health. Contaminated soil often contains different forms of arsenic or lead that have different bioavailability. Bioavailable forms of arsenic and lead will be absorbed into the body and processed or stored following ingestion of contaminated soil.

A contaminant that is not bioavailable is not absorbed, and leaves the body.

How Can I Reduce My Exposure to Arsenic and Lead?

- Practice safe gardening practices. Wash and peel all vegetables and root crops that are in direct contact with soil.
- Clean tools, gloves and shoes before bringing them indoors.
- Clean pets' feet and fur at the door before bringing them indoors.
- Wash hands after handling soil.
- Use damp mopping/dusting indoors.
- Be aware of other sources of exposure (e.g. drinking water, lead paint) and try to minimize your total exposure.



Are There Medical Tests to Show if I Have Been Exposed?

Lead

Most lead poisoned children do not act or look sick. The only way to know if your child has lead poisoning is to have a blood lead test. Children 6 years and younger are more likely to have lead poisoning. If you think a child of any age has come in contact with lead, then ask your doctor to test that child's blood for lead.

Arsenic

A urine test for arsenic is the most reliable test to show if you have been exposed in the last few days. Tests on hair and fingernails can measure exposure to high levels of arsenic over the past 6-12 months. These tests can determine if you have been exposed to above-average levels of arsenic. They cannot predict whether the arsenic levels in your body will affect your health.

For more information, contact:

Environmental Health
Chemical Hazards Program

www.dph.georgia.gov/chemical-hazards
(404) 657-6534

Georgia Healthy Homes and Lead Poisoning Prevention Program

www.dph.georgia.gov/healthy-homes-and-lead-poisoning-prevention

To read more about the health effects of lead and arsenic, visit:

Agency for Toxic Substances and Disease Registry
www.atsdr.cdc.gov/toxfaqs/index.asp