

Lead Contamination in Gardens

Answers to Frequently Asked Questions

What is lead?

Lead is a naturally occurring metal found in the earth's crust. In the past, lead was widely used in products like gasoline, paints, batteries, metal products and ammunition. However, as people have learned more about the toxic health effects caused by lead, companies have stopped using lead to make many products.

Once lead is released into the environment, it sticks to soil and stays there for a long time. If the contaminated soil is uncovered and open to the air, or if it becomes disturbed, lead dust can enter the air. This dust can easily be breathed or swallowed.

How does lead get into my body?

People are mainly exposed to lead when they breathe in (inhale) lead dust or when they swallow (ingest) lead in food and water, or by accidentally eating soil or lead dust. Skin (dermal) contact with lead does not cause much of a concern since lead cannot easily enter your body through your skin.

How can lead cause problems for people who keep gardens?

Some vegetables grown in soil that contains lead can have lead in them. Certain root vegetables (tubers) like beets, carrots, turnips, radishes, potatoes, and rutabagas easily absorb lead through their roots.

Gardening can disturb soil and expose it to open air. This can create small amounts of lead dust which can easily be breathed in or swallowed. This dust can also fall onto above-ground vegetables like lettuce and spinach.

Eating vegetables that have absorbed lead through their roots or that have been covered in lead dust can put lead in your body.

Young children and toddlers tend to put objects and their fingers into their mouths. Children who help out or play in the garden may eat soil or eat vegetables from the garden that have not been washed.

What kind of health problems can lead cause?

Illness caused by lead in the body is called lead poisoning. The harmful effects of lead are the same whether you breathe it or swallow it. Lead can damage every organ system in the body, but its main target is the central nervous system, which includes the brain and the spinal cord.

Some signs and symptoms of lead poisoning can include kidney damage, stomach pain, a poor appetite, sleep disorders like insomnia, hearing problems, damage to the male reproductive system, and memory problems.

Children are more at risk (vulnerable) of lead poisoning than adults because they play outside more often, are closer to the ground, and tend to eat more dirt than adults. Compared to adults, a bigger proportion of the lead that children swallow will enter their blood. Also, children's bodies aren't as good at getting rid of lead as adults' bodies are.

Children who are exposed to lead before they are born (in the womb) or in early childhood can have slow mental development and lower intelligence later in childhood. Lead can also cause children to be irritable (angry) and aggressive. Pregnant women who are exposed to high levels of lead can give birth to babies with low birth weight or can have miscarriages.

Is there a medical test that can show if I have been exposed to lead?

Yes. The primary screening method is the measurement of total lead in the blood. This test can tell you if you have recently been exposed to lead.

Lead can also be measured in teeth and bones by using X-ray techniques. These tests can tell you about long-term exposure to lead, but they are not widely available.

How can I protect myself and my family while gardening?

Fresh fruits and vegetables are an important part of your family's diet, and fresh produce from your very own garden can help provide vitamins and minerals. Good nutrition may reduce some of the toxic effects of lead.

Follow the tips below to be sure that you can enjoy gardening safely if your soil has been contaminated with lead.

- Always wash your hands with soap and water or take a shower after gardening to remove lead dust and soil. This is especially important before meals since keeping your hands clean will help prevent you from eating lead dust.
- Watch children in the garden closely and help them wash their hands when they are finished.
- Bag up your gardening or yard-work clothes before you go inside your home.
- Regularly clean your home of dust and soil that is tracked inside. Door mats can help lower the amount of soil that is tracked into your home. You can also remove your shoes before you enter your house.
- Plant your garden away from roads, driveways, and old painted structures that may use lead-based paint.
- Grow crops in raised beds using lead-free soil.
- Plant fruiting crops like tomatoes, peppers, squash, cucumbers, peas, beans, corn, melons, strawberries, etc.
- Limit planting leafy vegetables like lettuce, spinach, and kale. If you grow leafy vegetables, remove the outer leaves and discard. Do not compost the outer leaves.
- Avoid planting root crops like carrots, beets, turnips, potatoes, and radishes. If you grow root crops, scrub well and peel before eating them. Do not compost the peels.
- Wash all vegetables with a 1% vinegar in water solution (use 1 or 2 ounces of vinegar per gallon of water). Use a stiff brush to scrub vegetables before eating.
- Test your soil's pH. Lime your soil as recommended by the test to get a pH of 6.5. Lime can be found at farm and garden supply stores.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological profile for lead.

Ohio Department of Health
Bureau of Environmental Health and Radiation Protection
Ohio Healthy Homes and Lead Poisoning Prevention Program
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Where can I get more information?

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Your family does not have to stop gardening because of lead in the soil. Following these tips will let you enjoy gardening and stay healthy.