

LEAD POISONING

What are the Sources? What are the Risks?

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T E X A S D E P A R T M E N T O F H E A L T H

Lead poisoning occurs when the body takes up lead faster than it can get rid of it. Follow these facts to protect yourself and your family from lead poisoning.

WHO IS AT RISK?

At high risk for lead exposure is:

- ◆ Anyone working with lead
- ◆ Anyone working where lead is produced, recycled, or used
- ◆ Young children
- ◆ The fetus of a pregnant woman exposed to lead

Because the body and brain of a fetus or a young child are still developing, they suffer the most serious damage if they get lead poisoning. Children are at high risk because they:

- ◆ May play in the dirt, on floors, and in other areas that may be contaminated with lead
- ◆ Put their unwashed hands and other contaminated objects into their mouths

HOW DOES LEAD ENTER OUR BODIES?

Just touching lead is not the problem. The danger comes from breathing in or swallowing lead. For unborn children, the danger is lead from the mother's blood. Protecting the mother is the key to protecting an unborn child.

Breathing It

You can breathe in lead if the dust in the air contains lead. The greatest risk to adults is from breathing in lead dust on the job. Also, cigarettes contain lead.

Swallowing It

Children who play with dirt or paint containing lead can swallow lead by:

- ◆ eating the dirt or paint
- ◆ putting their unwashed hands in their mouths
- ◆ eating or drinking without washing their hands or faces

A child's stomach absorbs more lead than an adult does, so swallowing lead is more dangerous to children than adults.

Special Case: Unborn Children

An unborn child depends on blood supplied from its mother through the placenta for all of its nutrition. Even very low levels of lead in a mother's blood could harm her unborn child.

HOW CAN LEAD AFFECT OUR HEALTH?

Lead is a strong poison that can affect almost every system in your body. The effects of lead on your health are the same no matter how it enters your body. Too much lead in the body can damage the brain and nervous system, the blood, the digestive system, and the reproductive system. In pregnant women, lead can cause serious harm to the unborn child.

Because our bodies store lead over a lifetime and release it slowly, even small doses over time can cause lead poisoning.

The Brain and Nervous System

For adults and children, lead in the body can cause headaches, nervousness, irritability, tiredness, sleeplessness, and memory problems. Hearing can be dulled, and hand-eye coordination can be impaired.

Lead is particularly harmful to the developing brain and nervous system of unborn children and young children. Even small amounts of lead in their blood can cause permanent damage, including slowed learning.

Blood

In all people, lead reduces the body's ability to make red blood cells. This can cause anemia.

The Digestive System

Lead can cause you to experience stomach pain, poor appetite, constipation, and weight loss.

The Reproductive System

Women with high levels of lead in their bodies may have trouble becoming pregnant or may have miscarriages. Men may become sterile.

Unborn Children

Lead is especially dangerous for an unborn child. It can cause the child to be born prematurely and smaller than normal. Later in life, the child may suffer learning difficulties and stunted growth.

Other Effects

Lead can contribute to high blood pressure in middle-aged men. In all people, it can cause muscle and joint pains. Exposure to lead can also cause kidney damage. High levels of lead in the body can also cause coma or death.

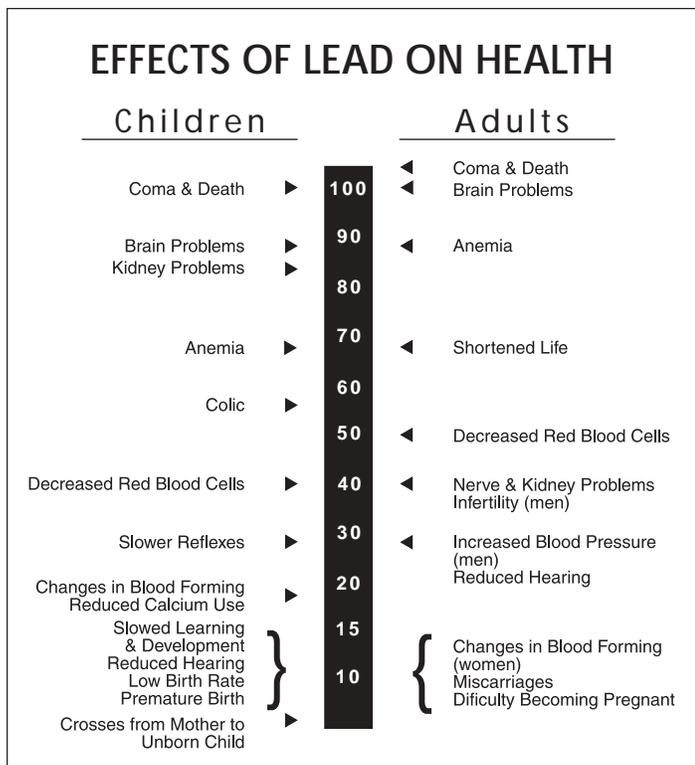
How Can I Tell If I Have Been Exposed?

A blood test is one way to tell whether your body has absorbed lead. The level of lead in your blood, or "blood lead

level," indicates your exposure to lead for about the last month. An elevated blood lead level means that lead is building up in the body faster than the body can get rid of it.

WHAT LEVELS OF LEAD IN THE BODY ARE OF CONCERN?

The chart on the next page describes the problems that have been seen in children and adults at various blood lead levels. These problems can, but do not always, start at the levels shown. The Centers for Disease Control and Prevention (CDC) consider children to have an elevated level of lead if the amount in the blood is 10 micrograms per deciliter (µg/dL) or higher.



Lead may cross the placenta to the unborn child even when the mother's blood lead level is very low. Blood lead levels of 10 to 15 micrograms per deciliter in the mother or the umbilical cord might be associated with premature births and low birth weights. The effects of blood lead levels below 10 micrograms per deciliter on the developing fetus have not yet been completely defined.

WHERE CAN LEAD BE FOUND?

Lead can be in the air, in the soil, or in your drinking water. Old paint and food can be sources of lead if you are not careful. Many people also expose themselves to lead through their jobs, their hobbies, or even folk medicines.

Air

Lead dust gets into the air from these sources:

- ◆ the burning of coal and oil
- ◆ emissions from industrial sources
- ◆ the burning of wastes
- ◆ smoking cigarettes
- ◆ other localized sources

A few examples of "localized sources" are metal castings, the burning of wire, and the sandblasting of lead-based paint.

Exhaust from motor vehicles used to be a major source of lead in the air. Today, little if any gasoline contains lead, but the land next to roads may still have high levels of lead in the soil.

Soil

Lead gets into the soil from these sources:

- ◆ paint chips crumbling from building walls
- ◆ settled emissions from industrial sources
- ◆ settled dust from motor vehicle exhaust
- ◆ the poor management or disposal of lead-containing waste
- ◆ lead components of broken car batteries

Water

In Texas, lead has not been a problem in rivers, lakes, and other water sources, but plumbing with lead pipes or lead solder can leach lead into drinking water. This leaching is more of a problem where the water is naturally soft, as in East Texas, or in homes with reverse osmosis (RO) water treatment units. No problems have been observed in homes with all-plastic plumbing.

Old Paint

Houses built before 1977 may have too much lead in the paint. Older homes have the highest amount of lead in paint. Damaged paint can drop lead-containing dust in the home. Children who put dusty fingers or objects in their mouths can easily swallow this dust. Paint on surfaces where children chew—for example, window sills—is also dangerous.

Food

Food can contain lead if it is grown in lead-contaminated soil or in areas where airborne lead may settle on the growing crops. Food that is canned in lead-soldered cans or stored in lead-glazed pottery can also contain too much lead.

Lead Health and Safety Facts

- ◆ For the general public, the limit for lead in the air is 1.5 micrograms per cubic meter of air as a three-month average. *U.S. Environmental Protection Agency*
- ◆ Soil lead levels greater than 500–1,000 parts per million (ppm) can increase blood lead levels in children who play in the soil and breathe in or swallow the dust or dirt. *Centers for Disease Control*
- ◆ Acceptable drinking water should contain less than 15 micrograms of lead per liter of water. *U.S. Environmental Protection Agency*
- ◆ Lead-based paint contains at least 600 ppm of lead by weight of the dry flake. *Consumer Product Safety Commission*
- ◆ The U.S. Environmental Protection Agency's screening level for lead in residential soil is 400 ppm.

Work Areas

People who work with lead are exposed at higher levels than the general public. Mine workers and workers at plants that make batteries, lead products, tile or pottery, chemicals, steel, or ammunition might be exposed to lead on the job. Workers may also encounter lead in radiator repair shops, construction or demolition, paints and plastics, wire reclamation, and firing ranges.

Workers can carry lead on their clothes or bodies and can contaminate their homes and cars if they do not shower and change clothes before leaving the job site.

Hobbies

Ceramic glazes or paints may contain lead. Lead is also used in making stained glass objects. Loading bullets, casting bullets, and fishing weights are other activities that expose people to lead dust and fumes. Restoring older houses can also expose residents and workers to high levels of lead in paint.

Folk Medicine

Folk remedies and cosmetics from Latin American, East Indian, Pakistani, and Chinese cultures that can contain lead include alarcon, azarcon, coral, rueda, Maria Luisa, liga, greta, bali goli, kandu, gliasard, kohl, alkohol, pay-loo-ah, and surma.

HOW CAN I REDUCE MY FAMILY'S RISKS?

Now that you know where lead is most often found and how it gets there, you can take these steps to reduce your risk for exposure to lead, if you think you might be at risk:

Diet and Health

- ◆ Eat regular, well-balanced meals, including foods that are high in calcium and iron. Include a daily supplement of vitamins as recommended by your doctor. Your body will take up less lead if there is food in your stomach. Iron and calcium also decrease lead uptake.
- ◆ Wash your children's hands and faces often. Be sure that your children wash their hands and faces before they eat, drink, or sleep and after they play in dirt.
- ◆ Wash toys and pacifiers at least once a day.
- ◆ If you must work with lead, wash your hands and face before eating, drinking, or smoking.

Lead in Paint

- ◆ Don't let children chew on painted surfaces or put paint chips in their mouths.
- ◆ Move all cribs and playpens away from surfaces where paint is peeling.
- ◆ Put furniture in front of areas where paint is damaged to keep children away.
- ◆ Consult a qualified professional before removing any paint that might contain lead. It is best not to remove lead-based paint yourself.
- ◆ Make sure that no one, especially children and pregnant women, is living in a house where lead-based paint is being removed.
- ◆ Never remove lead-based paint by sanding or burning. These methods create a fine dust that is very hard to clean up.

Lead in Soil

- ◆ Don't let children play in soil that has a lead content that the TCEQ has determined to be unsafe.
- ◆ Be careful if you must eat vegetables grown in gardens that contain lead at levels determined to be unsafe. Although the lead is not easily taken up by plants, it can contaminate the surface of vegetables—especially leaf and root crops. Thoroughly wash or peel home-grown fruits and vegetables.
- ◆ Lead can be carried into the house on your shoes. Leave your shoes at the door or take other steps to cut down the amount of lead dust brought into the house.

Lead in Household Dust

- ◆ Following a regular schedule, wet-clean all floors, window sills, window wells, countertops, and other surfaces that may have lead dust settling on them. For this wet cleaning, use detergent and water. Sponges, rags, or mops use for this purpose should not be used for anything else.
- ◆ Steam-clean carpets, or use other cleaning methods that do not raise dust.
- ◆ If you are exposed to lead at your job, don't bring lead dust home. Shower and change clothes at your job site. Leave all your work clothing and equipment there, too.
- ◆ Don't use lead-containing materials for hobbies inside the house. Work with these hobbies only in well-ventilated workshops away from the house.

Lead in Drinking Water

- ◆ If lead is leaching from household plumbing, let the water run from all the faucets for two minutes each morning before using it for drinking, cooking, or washing. This will flush out the water that has been standing in the pipes overnight.
- ◆ Use water from the "hot" water faucet for washing only—not for drinking or cooking. If lead is leaching from your plumbing, it will leach into hot water faster.

WHERE CAN I LEARN MORE?

This pamphlet might answer many of your questions about lead and lead poisoning, but you might have other questions. Please contact one of these state agencies if you need more answers:

*Texas Commission on Environmental Quality
Toxicology Section
PO Box 13087
Austin TX 78711-3087
Telephone: 512/239-1795 or
1-800-633-9363*

*Texas Department of Health
Texas Childhood Lead Poisoning Prevention Program
Environmental Epidemiology and Toxicology Division
1100 West 49th Street
Austin TX 78756
Telephone: 512/458-7269 or 1-800-588-1248*