

LEAD POISONING

Questions and Answers

What is Lead Poisoning?

A disease that is caused by swallowing or inhaling lead.

Why is Lead so Toxic?

The body mistakes lead for calcium when ingested. The lead attaches itself to and disrupts enzymes essential to the functioning of the brain and other cells. The lead remains in the bloodstream for a few weeks, then it is absorbed into the bones, where it collects for a lifetime. The body never decomposes the lead into another, more easily tolerated substance, because lead is an element. Most of the lead that is absorbed into a child's brain remains there forever. The U.S. Public Health Service estimates that one out of six children under age six has enough lead in his or her blood to place him or her in what scientists now consider high risk. The only cure for lead poisoning is prevention. Treatments exist, but most remove lead only from the blood, but not all from the bones.

Who is at Risk?

Lead is toxic to humans of all ages, but children six years and younger are most sensitive to lead due to their frequent hand to mouth behavior. They face great risks.

- Children's bodies absorb lead more easily than adult bodies.
- Children put everything into their mouths.
- Usually, there are no symptoms of lead poisoning. Fatigue, one of the first symptoms to appear as the disease progresses, is usually attributed to some other factor and not lead poisoning.
- More lead is absorbed on an empty stomach.
- Children need not ingest large quantities of lead to develop lead poisoning, just one milligram per day (less than one quarter of a teaspoon) can have health impacts.
- Lead harms every organ of the body, particularly the developing brain and central nervous system of young children.
- Ingestion of lead dust and soil during meals and playtime activity appears to be the most significant pathway of exposure for young children.

Lead poisoning is more prevalent in ethnic groups, primarily Hispanics and African Americans. Children in poverty are four times more likely to have high blood lead levels.

Why Should Everyone be Concerned with Lead Poisoning?

It is the most common and societally devastating environmental disease of young children. Those children that live in old, poorly maintained homes or homes under renovation face the greatest risk of exposure. Suburban and rural children also face these dangers if they live in older homes with peeling or chipping paint. Any child may be at risk because lead comes from many sources.

What are Sources of Lead Exposure?

Lead can be found in many items in our environment. Know where items in your house come from and how old they are. When in doubt, items should be replaced.

How are We Exposed?

The most common source of lead exposure occurs by ingestion of lead-contaminated surface dusts from lead-based paints used for repainting and remodeling, as well as lead contaminated soil from leaded gasoline and industrial sources.

I. Air

Lead dust can form when lead-based paint is dry scraped, dry sanded, or heated. Dust also forms when painted surfaces bump or rub together. Lead chips and dust can get on surfaces and objects that people touch. Settled lead dust can reenter the air when people vacuum, sweep, or walk through it.

II. Water

Homes might have plumbing with lead or lead solder. Lead cannot be seen, smelled, or tasted, and boiling water will not get rid of lead. Hot water is likely to contain higher levels of lead, because it absorbs lead more easily from the pipes and solder. The more time water has been sitting in pipes, the more lead it may contain. The lead in household water usually comes from the plumbing in the house not from the local water supply. Lead pipes and lead soldered joints can dramatically increase the concentration of lead. Lead in drinking water is estimated to contribute between 10 and 20 percent of total lead exposure in young children.

Lead-contaminated drinking water is most often a problem in houses that are either very old or very new. However, lead solder is the major cause of lead contamination of household water in U.S. homes today. Scientific data indicate that the newer the home, the greater the risk of lead contamination. Water should be tested to verify that harmful quantities of lead are not present, since lead dissolved in water cannot be seen, smelled or tasted.

III. Food

Lead residues can occur in food as a result of biological uptake of lead from arsenate pesticides, soils, surface disposition by plants consumed by food producing animals or

humans, inadvertent additions during food processing, leaching from improperly glazed pottery used as food storage or dining utensils, home food preparation practices, and lead in cooking water. Imported canned foods may also contain lead from the solder used to seal cans which can mix with food in the can.

IV. Beverages

Many cases of lead poisoning are caused by highly contaminated beverages. This refers to alcoholic beverages, mostly homemade alcohol. Contamination can produce lead intoxication if large quantities of the beverage are consumed. Lead is added to stop fermentation or improve the acidic taste of alcohol.

V. Paint

Many houses and apartments built before 1978 have paint that contains lead (lead-based paint). Lead from paint, chips, and dust can pose serious threats to your health if not taken care of properly. Removing lead-based paint improperly can increase the danger to your family. In general, the older your home, the more likely that it has lead-based paint. Lead can be found in homes in the city, country, suburbs, apartments, single-family homes, and both private and public housing. Lead-based paint that is in good condition is usually not a hazard. Peeling, chipping, chalking, or cracking lead-based paint is a hazard that needs immediate attention.

VI. Cigarettes

Approximately 5-10 percent of the lead in tobacco appears in the form of smoke from cigarettes. The lead volatilizes during the burning of the cigarette. The use of arsenate pesticides is the predominant source of lead in tobacco.

VII. Housewares

The source of lead exposure from housewares ranges from inhalation of lead released from the burning of paper logs in a fireplace to ingestion of lead from foods contaminated by lead released from silver-plated holloware. Additional sources include colored newspapers, curtain weights, leaded soldered electric water kettles, cocktail glasses, and lead paint on kitchen utensils. Ceramic containers may release heavy metals to foods or beverages, increasing their metal contents.

VIII. Gasoline

Leaded gasoline contains dangerous lead particles that escape into the air through the exhaust systems of vehicles.

IX. Work

People who work with lead professionally bring it into their homes by accident. If you work with lead, wash hands and face before eating, drinking, smoking, blowing your nose or applying cosmetics. Use protective clothing. Keep street wear away from your

work area. If possible, shower and change into clean clothes before leaving the work area. Never wear contaminated work clothes including shoes home. Also, wash your work clothes separately from that of your family.

Industries and Trades that Work with Lead

- automotive repair shops
- chemical workers
- gas stations
- industrial machinery operators
- lead smelters and refiners
- painters
- police officers
- printers
- scrap and sheet metal workers
- cable makers or splicers
- construction workers
- glass manufacturers
- jewelers
- metal polishers
- plumbers/pipe fitters
- pottery and ceramics workers
- roofers
- steel welders/cutters

X. Pregnancy

Pregnant women and women planning to have children should take all precautions to avoid lead exposure. Protecting the child begins even before conception. Levels of lead which may pose no threat to an adult can be dangerous to the unborn child. Lead builds up in the body, where it is stored primarily in bones. The bones release this stored up lead into the blood stream, and it passes through the placental barrier to the fetus. Pregnant women should consult their doctor and consider having their blood tested for lead if they think they are exposed to lead.

XI. Calcium Supplements

Certain supplements can contain lead and some may contain a lot of lead. Calcium supplements containing the highest levels of lead are often those being marketed as “all-natural”. Calcium supplements found to contain high levels of lead include calcium phosphate or bonemeal (made from bones, which are storehouses of lead) and “natural source” calcium carbonate, mined from limestone rock composed of fossilized oyster shells (which also store lead).

Government statistics show that eight percent of all children age two to six years take an over-the-counter calcium supplement. So does one out of every four women. Each six micrograms of lead in a calcium supplement will translate into approximately one additional microgram of lead in a child’s blood-lead level. Families should carefully read labels and select a lead-free calcium supplement. Some sources of lead-free calcium include:

- antacids such as Tums® or Roloids®;

- supplements manufactured to USP (United States Pharmacopeia) standards; and
- supplements manufactured to NNFA (National Nutritional Food Association) standards.

XII. Toys

Toys don't have to be old to be dangerous. Toys containing lead paints or inks still show up in the marketplace. Things meant for child's play should not contain more than 0.06 percent amount of lead. Be careful of things that look like toys but aren't, such as household items. Many children play with them and many are loaded with lead paint.

Toys that may be Contaminated with Lead

- toys sold during the holidays, especially during Christmas. Many of these toys are imported from foreign countries and may contain lead. These include toys such as wooden trains, toy soldiers, toy nutcrackers, and metal baby carriages.
- imported toys especially from China (notorious for containing high and illegal levels of lead) such as colored chalk and crayons.

XIII. Folk and Ethnic Remedies

Many families may not know that they are feeding large quantities of lead into their children's mouth while they are thinking they are helping their sick child. This happens mostly in Mexico and American southwest, but it also happens in immigrant communities and homes all across the country. The home remedies that are found to contain the most lead are Greta and Azarcon. They are used to treat empacho, a folk term covering vomiting and diarrhea.

Azarcon is also used externally for skin problems. Azarcon is lead tetraoxide, a bright reddish-orange powder which is readily available from local drug stores and drug wholesalers. Greta is a yellow to grayish yellow powder which is sold in local hardware and supply stores in areas where it is used as a pottery glaze. Greta has a lead content between 94.1 and 97.3 percent lead, while Azarcon has a lead content between 93.3 to 95 percent lead.

The use of lead compounds as medicine is by no means limited to Azarcon and Greta; they just happen to be the remedies most commonly encountered in the U.S.

XIV. Hobbies

One person's profession may be another person's hobby. The same materials are used by all. Ceramics, stained glass, jewelry, metal sculpture, enameling, printing and painting all may involve the use of lead in some form or another. Children should be kept out of these work areas at ALL times. They as well as hobbyist may be exposed while engaging in these activities. Lead dust and residue remains long after the projects are completed. Keep leaded materials safely out of reach.

Where can I get more information?

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