Lead is a metal that occurs naturally in the earth's crust. People have spread it through the environment in many ways. Lead used to be in paint and gasoline. Lead can still be found in contaminated soil, household dust, drinking water, lead-glazed pottery and some metal jewelry. Lead is a metal and that is poisonous and toxic to people, especially children, when it is ingested. It is no longer used as a gasoline additive (banned since the 1980s), or in lead-based household paint (banned since 1970s), but it does continue to be used in many products, including batteries, ammunition, solder, pipes, pottery glazes, toys, jewelry, printing inks and paint for industrial, military and marine use. And since lead that has contaminated soil from the past use of leaded paint and gasoline does not degrade or break down with time, children continue to be at risk for lead poisoning.

Approximately 310,000 U.S. children aged 1-5 years have blood lead levels greater than 10 micrograms of lead per deciliter of blood, the level at which CDC recommends public health actions be initiated. Lead poisoning can affect nearly every system in the body. Not all effects of lead poisoning are apparent unless the amount of lead is extremely high, showing up in mild outward signs like headaches, irritability, or abdominal pain, which is easily attributable to other things. Lead can enter your body if you put your hand or another object into your mouth that contains lead dust on it, lead containing paint chips or soil is ingested, or lead dust is breathed in. By continuing to be exposed to the harmful effects of lead poisoning you are risking further, more permanent damage.

Long-term, low level effects of lead poisoning can result in learning or behavioral problems like speech, learning, attention, behavior, and mental processing problems, and chronic high levels of lead exposure can lead to anemia, visible tooth damage, changes in kidney function, and nervous system damage resulting in seizures, comas, and death. Effects of lead poisoning during childhood and even before that is the most damaging time, but the cumulative effect of the lead based on the age of exposure, the amount of lead absorbed into the blood, and the length of exposure determines how much damage the effects of lead poisoning can cause.

Effects of lead poisoning by a pregnant mother can be very harmful to the fetus.

Effects of lead poisoning can cause premature birth, low birth rate, impairment of sensory motor development, miscarriage, and stillbirth. The EPA estimates that 9,150 children have an IQ score below 70 because of lead exposure. Effects of lead poisoning in adults may cause high blood pressure and damage to reproductive organs. When high lead blood levels exist in adults symptoms may range from death, coma, seizure, lack of coordination, vomiting, altered consciousness, bizarre behavior, a loss of recently acquired skills, and listlessness.

**SOURCES OF LEAD**

**Paint**

Lead was used in paint to add color, improve the ability of the paint to hide the surface it covers, and to make it last longer. It was used both inside and outside of a home. In 1978 the federal government banned lead paint for use in homes. In general, the older your home, the more likely it has lead-based paint. Painted toys and furniture made before 1978 may also contain lead-based paint. Children may eat paint chips or chew on the surfaces of cribs, highchairs, windows, woodwork, walls, doors, or railings. Lead-based paint becomes dangerous when it chips, turns into dust, or gets into the soil.
LEAD POISONING FACTS

The damage lead poison can have on the body is irreversible.

- Over 1 million workers may be exposed to lead poison at their jobs every day.
- Lead poison is the number one environmental killer of U.S. children under the age of six.
- There are approximately 1 million children five years and younger that have lead levels equal to or greater than the specified amount of dangerous lead levels.
- A child’s body absorbs up to 50% of the lead ingested.
- It is estimated that 9,150 children have an IQ below 70 due to lead poison exposure.
- Effects of lead poison on children include speech delay, hyperactivity, attention deficit disorder, behavioral disorders, learning disabilities, stunted growth, neurological and renal damage, mental retardation, anemia, and hearing loss.
- Lead poison affects babies that are not born yet, allowing up to 50% of lead ingested coming from fetal absorption when the mom has been exposed to lead.
- Lead does not dissolve in water, biodegrade, dissipate, decay, or burn and must be removed professionally in order to remove the source.

Where is Lead Found?

Lead enters the body by breathing or swallowing dust containing lead or ingesting soil or lead based paint. Instead increase the hazardous conditions by allowing the lead dust to spread further throughout the house.

Chipped lead based paint exposes children to a higher risk because they tend to put their hands, toys, and other objects in their mouths, ingesting the chips of lead based paint and risking permanent damage. Areas around windows or door areas, fencing, and porches and balconies wear more easily and should be taken care of if it contains lead based paint. Improper renovations on homes with lead based paint can increase exposure as well.

Soil

Before 1978 companies used to add lead to gasoline. Lead particles escaped from car exhaust systems and went into the air. This lead fell to the ground and mixed with soil near roads and is difficult to remove. Homes near busy streets may have high levels of lead in the soil. Today, lead still comes from metal smelting, battery manufacturing, and other factories that use lead. This too may contribute to the soil contamination of lead for homes near any of these sources. Flaking lead-based paint on the outside of buildings can also mix with the soil close to buildings. Lead-based paint mixing with soil is a big problem during home remodeling if workers are not careful. Once the soil has lead in it, wind can stir up lead dust, and blow it into homes and yards.

Drinking Water

Homes built before 1930 often have plumbing with lead in it. The lead in the plumbing can get into the water flowing through it. Older plumbing parts such as faucets, fittings, and pipes may contain lead. Older water well pumps made with brass or bronze parts may also contain lead. Copper pipes are now used in most homes, but lead solder may have been used to connect these pipes. In 1986 and 1988 laws were passed to prevent the use of lead in pipes, solder, and other plumbing parts. However, some new brass faucets and fixtures may still contain small amounts of lead. Lead is most likely to get into warm water that is soft or acidic. (Statement from MUD)

Dust

Lead dust is the most common way that people are exposed to lead. Inside the home, most lead dust comes from chipping and flaking paint or when paint is scraped, burned, sanded, or disturbed during home remodeling. Chipping and peeling paint is found mostly on surfaces that rub or bump up against another surface. These surfaces include doors and windows. Young children who crawl and often put their hands and other objects in their mouths usually get exposed to lead when they put something with lead dust on it into their mouths. Lead dust may not be visible to the naked eye.

Workplace & Hobbies

People exposed to lead at work may bring lead home on their clothes, shoes, hair, or skin. Some jobs that expose people to lead include home improvement, painting and refinishing, car or radiator repair, plumbing, construction, welding and cutting, electronics, municipal waste incineration, battery manufacturing, lead compound manufacturing, rubber products and plastics manufacturing, lead smelting and refining, working in brass or bronze foundries, demolition, and working with scrap metal. Some hobbies also use lead. These hobbies include making pottery, stained glass, fishing, and refinishing furniture. If you work with lead, you could bring it home on your hands or clothes, shower and change clothes before coming home. Launder your work clothes separately from the rest of your family’s clothes.

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IMPORTED ITEMS

Food Cans
In 1995 the United States banned the use of lead solder on cans. But lead solder can still be found on cans made in other countries. These cans usually have wide seams, and the silver-gray solder along the seams contains the lead. Cans containing lead may be brought to the United States and sold. Over time the lead gets into the food. This happens faster after the can has been opened. Foods that are acidic cause lead to get into the food faster.

Folk Medicines And Cosmetics
Some folk medicines contain lead. Two examples are Greta and Azarcon. Azarcon is a bright orange powder also known as Maria Luisa, Rueda, Alarcon, and Coral. Greta is a yellow powder. They are used to treat an upset stomach. Pay-loo-ah also contains lead. It is a red powder used to treat a rash or a fever. Other folk medicines that contain lead include Bala (or Bala Goli), Golf, Ghasard, and Kandu. Some cosmetics such as Kohl (Alkohl) and Surma also contain lead. They often are imported from the Middle East, Southeast Asia, India, the Dominican Republic, or Mexico.

Candies Or Foods
Candy especially from Mexico, containing chili or tamarind. Lead can be found in candy, wrappers, pottery containers, and in certain ethnic foods, such as chapulines (dried grasshoppers). More information and advisories on lead in candy can be obtained from the FDA at www.fda.gov or 1-888-463-6332.

OTHER SOURCES

Mini-Blinds
Some non-glossy, vinyl mini-blinds from other countries contain lead.

Some Pottery, Crystal and Tableware
Lead may get into foods or liquids that have been stored in ceramics, pottery, china or crystal with lead in it. Lead-glazed dishes usually come from other countries.

Metal Jewelry
Lead has been found in inexpensive children’s jewelry sold in vending machines across the country. It also has been found in inexpensive metal amulets worn for good luck or protection. Some costume jewelry designed for adults has also been found to contain lead. Check the internet for recalled children jewelry items.

ADDITIONAL ITEMS

Toys
Car Body Filler In Custom Cars
Firearms
Fishing Sinkers
Candle Wicks
Leaded Glass
Organ Pipes Are A Mixture Of Lead And Tin Imported Crayons
Lead Is Used As Electrodes In The Process Of Electrolysis
Lead Is Used In Solder For Electronics
High Voltage Power Cables As A Sheathing Material
Lead Is Use In Roofing Materials
Some Hair Dyes
Make Up Products
Billiard Chalk
Vinyl Lunch Boxes

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LEAD IN THE WORKPLACE

There are over 1 million workers in more than 100 different occupations that are exposed to lead everyday. Workers risk lead exposure at work and risk lead in their homes when returning from work. The worker can bring lead dust home on their clothing, hands, and hair and put the rest of the family at risk for lead exposure. There are certain occupations that expose workers to lead that include firearms instructors, automotive repair mechanics, painting, metals smelting and mining, brass and copper foundry workers, and bridge, tunnel, and elevated highway construction workers.

The Occupational Safety and Health Administration states that if a worker's blood lead levels reach 50 ug/dL they must be removed from the workplace. The EPA limits lead emissions within specific industries.

LEAD POISONING PREVENTION

Even children who may appear to be healthy can have dangerously high levels of lead poisoning. Although lead poisoning prevention is easier than treatment, detecting lead can be challenging. By educating families about the dangers and possible sources of lead serious lead poisoning health complications can be eliminated, many of which cannot be reversed. Recognizing lead poisoning sources in order to eliminate them can keep children safe.

There are temporary solutions and permanent solutions for reducing lead poisoning hazards. If you have damaged lead paint surfaces you can temporarily fix it by repairing it or planting grass over soil containing lead. While these actions do not eliminate all the risks of lead poisoning, they will create safer conditions immediately until a permanent solution is found.

Permanent solutions to preventing lead poisoning include hiring a lead abatement contractor to completely eliminate the lead hazard. Lead abatement services will remove, seal, or enclose any lead based paints with special materials. Simply painting over the lead paint with regular paint does not completely take care of the problem of possible lead poisoning.

Simple things like keeping your children's hands clean and their nails clipped short can help reduce the amount of potential lead they ingest. Since children tend to put their hands and other objects in their mouths, cleaning often and well can keep dust and dirt containing lead out of their mouths and into their blood, preventing lead poisoning. Keeping your home clean can also clear the lead in the air out and from letting it settle into carpet and furniture. Workers that are exposed to lead poisoning should change clothing before entering their home, and things as simple as wiping off your shoes before entering the house you can prevent dirt-containing lead from being tracked through your house.

References:
CPSP Consumer Product Safety Commission
Center for Disease Control
Environmental Protection Agency
National Institutes of Health
NSC.org

LEAD POISONING RESOURCES
The EPA's Office of Pollution Prevention and Toxics Lead Page provides information on lead, lead publications, lead fact sheets, and lead hazard guidance and standards, as well as other helpful lead poisoning information.
http://epa.gov/opptintr/lead/index.html

Lead Poisoning News
http://www.lead-poisoning-news.com

Protecting Your Family From Lead

Reducing Lead Hazards When Remodeling Your Home
http://www.hud.gov/offices/lead/outreach/RRPAMPH.PDF

Protecting Your Kids From Lead In Your Home

How To Find a Lead Professional
http://www.hud.gov/offices/lead/outreach/broch32e.pdf

Helpful Lead Resources En Espanol: Protecting Your Family From Lead

Remodeling Your Home

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Rental properties that have been around since before 1978 and have paint that is peeling or chipped should have the landlord notified. Any paint chips should be cleaned up immediately until a permanent solution is provided. It is a good idea to check our your town’s surroundings to make sure there are no industries giving off lead.

**WHAT CAN PARENTS DO TO PREVENT THEIR CHILDREN FROM GETTING LEAD POISONING?**

There are a number of simple, low-cost steps parents can take to reduce their children’s lead exposure:

- **DO:** Wash, or have children wash, their hands frequently, especially before eating, after playing outside or on the floor, and before sleeping.

- **DO:** Wash toys and other objects young children handle and put in their mouths.

- **DO:** Have everyone take off their shoes and leave at the door entrance to the home.

- **DO:** Offer children a nutritious diet high in iron and calcium and low in fat.

- **DO:** Clean floors and window sills by using a damp mop or sponge and detergent.

- **DO:** Know if any paint has lead. **DO:** Remove only using special precautions, or by a state-certified Lead Abatement Contractor.

- **DO:** Wash work clothes separately from the family laundry if parents or caregivers work in a job that uses lead. **DO:** Shower and change clothes before leaving work if possible.

- **DO:** Keep children away from hobbies that use lead. Keep children out of the workshop, or clean-up carefully after using lead.

**LEAD POISONING AND NUTRITION**

Nutrition can play a pivotal role in childhood lead poisoning prevention. Once a child ingests lead, it enters the blood system. Some of the lead is eliminated through bowel movements. Most of what is left gets stored in the bone, where it can stay for decades, until it finally gets released during pregnancies and during menopause. When lead that is stored in the bone gets released during a pregnancy, it crosses the placenta and affects the fetus.

One of the keys to childhood lead poisoning prevention is to minimize the amount of lead that gets absorbed.

Good nutrition helps accomplish this goal. A child’s body craves certain minerals, including calcium and iron. When these minerals are deficient in the body, lead absorption is increased. Zinc may also have a beneficial impact with respect to lead absorption. Children whose diet is deficient in these minerals retain more of the lead than they would have otherwise.

To maximize the effectiveness of good nutritional habits in helping reduce lead absorption, the following principles should always be remembered:

- Children need to have plenty of calcium in their system. Foods that are rich in calcium include: milk, yogurt, cheese, turnip greens, spinach, sardines, salmon, tofu, and peanuts.

- Children need to have plenty of iron in their system. Foods that are rich in iron include: lean red meat or ham, skinless chicken or turkey, oatmeal, split peas, lentils, beans, raisins, dates, prunes, wheat germ, collard greens, and kale.

- Vitamin C helps the body absorb iron. Foods that are rich in vitamin C include: kiwi fruit, oranges, grapefruit, tomatoes, bell peppers, fruit juice, strawberries, collard greens, and kale.

- Children need to have some zinc in their system. Foods that are rich in zinc include: beef, oysters, clams, cashews, sunflower seeds, and brewer’s yeast.

- Fatty foods allow the body to absorb lead faster and should generally be avoided. However, it is critical to note that dietary fat is an important component of a healthy diet for children under the age of two. Nevertheless, to avoid fatty foods, minimize the intake of fried foods and fast foods, meat that has not been trimmed of fat, chicken skin, potato chips, cupcakes, donuts, bacon, butter, and lard.

Finally, kids whose stomach is empty tend to absorb more lead than kids who eat regularly throughout the day. Accordingly, it is best for children to eat between 4 and 6 times daily, with an emphasis on the healthy foods listed above.

[www.leadtestconfirm.com](http://www.leadtestconfirm.com)
This information pack was brought to you courtesy of Confirm Biosciences.

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