

Lead poisoning

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What is lead?

Lead is a naturally occurring heavy metal that can be extremely useful due to its malleability and corrosion resistance properties, only if it wasn't such a potent environmental toxicant with damaging effects on the human central nervous system. (EPA, n.d.)

Where is lead found?

Lead and lead compounds have been widely used in numerous commercial products for more than 60 years in the last century. The most common exposures to lead have been through pottery, gasoline, plumbing materials, paint, solder, batteries, ammunition and even cosmetics.

Soil

Soil naturally contains lead concentrations around 50 parts per million (ppm) but lead levels in many urban areas exceed over 200 ppm. EPA's standards for lead in soil in play areas is 400 ppm and 1200 ppm for non-play areas. (EPA, n.d.) Former lead smelters and mining sites are also source from which lead can be emitted into the environment. Areas alongside such industrial sites are usually substantially lead contaminated, which leads to further contamination of the air, soil, surface and ground water in communities, located nearby those sites. East Helena, Anaconda and Butte are all communities in Montana, which have been exposed to lead toxicity for a long period of time through the former mining and smelting sites located in proximity.

Water

Water can get contaminated with lead through plumbing pipes, faucets and solders. Even though, new building codes require lead-free solder, older lead solders are still being used throughout the US, and it also can be found in some modern faucets. The level of lead determined to be safe is zero. EPA has created the regulation "Lead and Copper Rule" back in 1991, which has already gone multiple revisions in order to better protect citizens from lead contaminated tap and bottled water. The U.S. Food and Drug Administration has established a level of 5 ppb for all bottled water. (FDA, 2009)

Consumer Products and Foods

Foods grown in lead contaminated soil are automatically affected; deposits of lead in the atmosphere also contaminates crops. Food wrappers, bags and plastic containers with bright yellow and red paints, especially when imported from other countries, have been found to contain lead. (FDA, n.d.) Pottery, ceramic- and tinted glass-wear can also be harmful, due to lead containing glaze, or lead based paint used for decorating such products. Curtain weights, fishing tackles, jewelry, leaded wick candles, even artificial Christmas trees, particularly when imported, can also contain certain amount of lead. Lead-soldered cans have been successfully banned in 1991. The FDA has set a level of action for lead in baby food to be 0.5 µg/dL. Lead core bullets used in wild game hunting are another way, in which our food sources get contaminated with lead. Fragments of lead from such bullets can scatter up to 15cm around the bullet wound, and since they are not visible to the human eye, most people are not aware of this exposure. (World Health Org, n.d.)

Leaded gasoline

Leaded gasoline was also largely used in the 20th century and completely banned by the federal government in 1994, due to identified health risks by the scientific community. Tetraethyl lead has been blended with gasoline in order to boost engines' compression. Leaded gasoline was also known to protect exhaust valve seats from excessive wear. Both of these objectives are now accomplished without the use of lead in gasoline. (ATSDR, n.d.) The use of leaded gas has exposed millions of children and adults to the adverse health effects of lead. It has also created a great amount of lead contaminated dust, which has settled in the soil, water, even our households.

LEAD EXPOSURE CAN OCCUR THROUGH... #BanLeadPaint



There is no safe level of lead exposure World Health Organization

How to Reduce the Risk of Lead Poisoning



Lead-Based Paint

Lead-based paint was introduced to the American market in the early 1920s and was used all the way through 1978. Residential homes built between 1930 and 1978 have a very high chance of having lead-based paint still present. Deteriorated lead-based paint in households produces lead contaminated dust, which is an enormous health hazard and needs immediate professional attention (door and window frames, stairs, railings, windowsills, porches etc.) Renovation of lead-based paint should be executed by professional companies, which can eliminate any spread of lead contaminated dust and lead particles. (ATSDR, n.d.)

Health Effects

Due to lead's non-biodegradable nature and continuous use, its concentration accumulates in the environment with increasing hazards. That being said, it also accumulates in our bodies, where it is stored in bones along with calcium. During pregnancy or breastfeeding, mothers exposed to lead eventually expose the fetus or newborn. Lead can affect almost every organ and system. (Sanborn, 2002) Children in all ages are the most susceptible to the effects of lead. Even low levels of lead in the blood of children can result in:

- Behavior and learning problems
- Hyperactivity
- Slowed growth
- Hearing Problems
- Anemia
- Adverse effects on kidneys, central nervous system;
- In rare cases, ingestion of lead can cause seizures, coma and even death.

Lead is also harmful for adults. Adults exposed to lead can suffer from:

- Cardiovascular diseases, increased blood pressure and incidence of hypertension
- Decreased kidney function
- Reproductive problems

Lead testing kits

Lead testing kits are available in hardware stores, which can immediately confirm if there is lead on suspicious places like: painted surfaces, steel structures, vinyl and other plastics. They are EPA recognized and also non-toxic, odorless and easy to use.

Prevent Childhood Lead Poisoning

Exposure to lead can seriously harm a child's health.



References

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