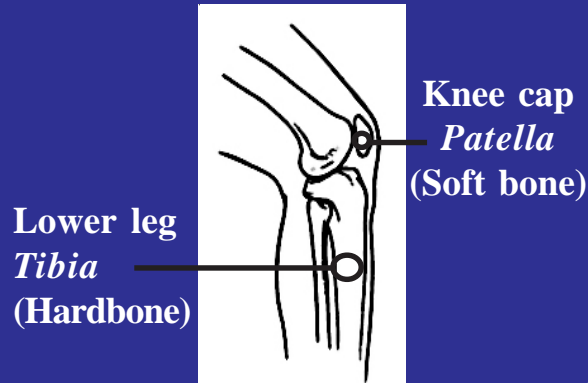


How is lead measured in the body?

Lead can be measured in the blood, teeth, bone, urine and feces. The most common method is to test current lead levels through blood testing. To test long-term lead exposure, we measure

XRF will measure lead in the lower leg and knee cap



lead in bone. Bone lead levels are measured by a technique called X-ray fluorescence (XRF). It is best to measure lead in two types of bones, hard and soft bone. Hard bone is found in the long bones of the legs and arms. This gives a measure of the total dose of lead throughout your lifetime. Soft bone is found in smaller bones such as the knee, heel, ribs and skull. This gives the best measure of lead that can be released into the bloodstream.

What is XRF?

X-ray fluorescence (XRF) is a technique that measures lead in the bones. It uses a small amount of radioactive material called Cadmium 109. **There is very little risk from XRF.** A very small amount of radiation, much less than a chest X-ray, goes into your bones. No needle sticks are necessary. It involves the same amount of radiation as standing in the sun for 10 minutes. This amount of radiation is considered to be very low and of no significant risk to your health. The Baltimore Memory Study will be measuring lead in the lower leg and in the knee cap. This allows us to determine the amount of lead in your body over your lifetime and how much lead can be released now. You will be seated in a plastic chair and asked to roll your pant leg above the knee. The XRF instrument will be moved into place and measurements will be taken for 30 minutes.

XRF instrument measuring tibia bone lead



What can be done about lead in my body?

Lead exposures leading to high blood lead levels, can be treated with medicines to remove lead from the body and reduce the damage to target organs. We do not know whether these medicines work to prevent health problems in persons who had lower exposures to lead and who now have lead in their bones.

Where can I go for more information?

Agency for Toxic Substances and Disease Registry

Division of Toxicology
1600 Clifton Road NE, Mailstop E-29
Atlanta, GA 30333

Information line:
1-888-42-ATSDR (1-888-422-8737)

Web address:
<http://www.atsdr.cdc.gov/toxprofiles/tp13.htm>

Centers for Disease Control and Prevention

1600 Clifton Rd.
Atlanta, GA 30333

Information Line:
1-800-311-3435
Web Address:
<http://www.cdc.gov/nceh/lead/lead.htm>

**Lead:
How it affects
your body and
your health**



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What is lead and how is it used?

Lead is a poisonous metal found naturally in small amounts in soils. Humans have mined and worked with lead for more than 2,500 years, but this activity became massive during the 20th century. Millions of tons of lead were mined between 1920-2000.

How does lead contaminate the environment?

Homes built before 1978 were painted with lead based paint and many outdoor structures are still painted with lead paint. Over time, this paint can chip and release lead dust into the air. Lead got into water supplies from lead in water pipes and into food via cookware, tin cans, pottery, and glassware. The most serious widespread contamination was due to the use of lead in gasoline, starting in 1923. Millions of tons of lead were released into the environment in car exhaust.



How was I exposed to lead in the past?

From 1930 to 1950 there was much more lead in the environment and in diets than there is now. Children and adults were inhaling and ingesting millions of lead particles from air, water, food, and soil. People who worked in industries that used lead were also exposed. These children and young adults are now between 50 and 70 years of age. Past lead exposure caused lead to collect in their bones. This bone lead can be released over time back into the bloodstream. The Baltimore Memory Study wants to know if any of this lead affects health.



How am I exposed to lead now?

Today, children and adults are exposed to smaller amounts of lead. Lead is a long lasting pollutant and has remained in the environment from past activities. Although lead is no longer released into the air from the burning of leaded gasoline, lead dust is present in the air from windblown soil and the chipping of lead paint in older housing. Children are still at high risk for lead poisoning if they

live in housing with lead paint. This is still a big problem in Baltimore. Adults can still have exposure to lead if they work in industries that still use it.

How does lead get into the body?

Inhaling lead dust from the air is a common way lead gets into the body. Lead can also be ingested through the foods we eat and from hand to mouth activity from lead in dust and soil. Drinking water may contain lead if it flows through lead pipes or fittings.



Once in my body, where does lead go?

Once lead enters the body, it is absorbed into the blood. It then travels in the blood to the nerves, kidneys, brain, muscles, and heart. In children and adults most of the lead in the body is stored in the bones and teeth. This lead can stay in bones for many decades. Over time, some of this lead can leave the bones, reenter the bloodstream, and travel to organs again, where it can affect health. Lead slowly leaves the body in urine and feces.

What does lead do to health?

Lead can cause many health problems after short-term high level exposure. Children and adults who absorb large amounts of lead may develop blood anemia, colic (severe “stomachache”), kidney damage, muscle weakness, brain damage and death. An objective of the Baltimore Memory Study is to look at the health effects from low-level long-term exposure. Studies have shown that people had an increase in blood pressure at lower levels of lead exposure. Studies in workers exposed to low levels of lead over time have shown a worsening of reaction time, memory, and ability to learn new information.

Does lead affect memory?

Memory often declines with increasing age. Studies in people who have worked in lead industries have shown that lead in the bones may cause gradual decline in memory. It is not known if people who have lead in their bones but who never **worked** around lead also have this same problem. Another objective of the Baltimore Memory Study is to understand how lead in the bones can work with blood pressure and other medical problems to cause memory decline.