Water Talk

Reducing your Exposure to Lead from Drinking Water

Lead is a metal that is commonly found in the environment, both naturally and as a result of human activities. Everyone is exposed to trace amounts of lead through air, soil, household dust, food, drinking water and various consumer products.

A bit of history…

Lead was commonly used in a variety of products for many years. Lead has been commonly used in drinking water systems because it is easy to shape and resistant to corrosion. Lead has been used in drinking water systems since ancient Rome, where it was used to make water pipes. It continued to be used in water distribution systems for centuries, including in Canada. The National Plumbing Code of Canada allowed lead as an acceptable material in pipes until 1975 and in solder until 1986. That may seem like a long time ago, but many drinking water systems in Canada may still have some of these lead components in place today.

For more information on drinking and recreational water quality issues:

Visit Health Canada's Water Quality Web site at:
www.healthcanada.gc.ca/waterquality

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So why does it matter now…

Scientists have been studying the effects of lead on human health for a long time. Current science has determined that humans should not be exposed to lead, as it can cause adverse health effects even at very low levels. That is why it is important to reduce lead exposure as much as possible.

An overview of the health effects

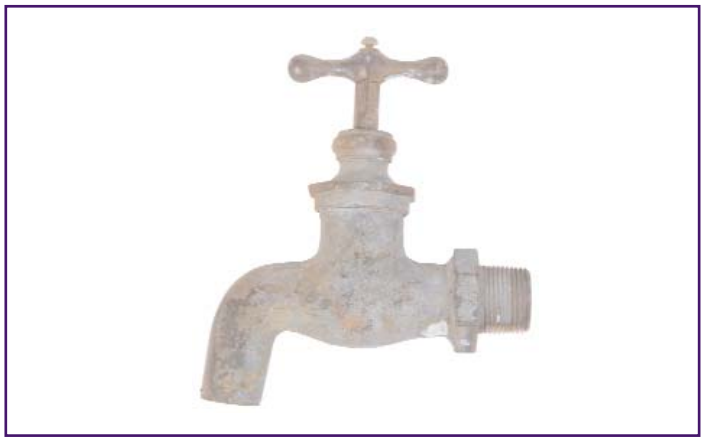
Lead toxicity has been extensively studied in humans, based on blood lead levels (BLLs). Effects that have been studied include neurological effects, increased blood pressure and kidney dysfunction in adults, as well as adverse neurodevelopmental and behavioural effects in children. The strongest association observed to date is between increased BLLs in children and reductions in intelligence quotient (IQ) scores.

But it's not only a drinking water concern…

Lead has many industrial uses, including in lead-acid batteries and other products in the automotive industry. It has been used in paints and as an additive to gasoline, uses which are mostly no longer permitted in Canada. It has been found in many other consumer products, and the Government of Canada's Risk Management Strategy for Lead identifies several actions aimed at reducing exposure to lead from these products. Drinking water is not generally the most significant source of exposure to lead in Canada but can become a concern in cases where lead leaches from plumbing materials.

Canada

So what is Health Canada doing about this?
Health Canada works in collaboration with the provinces and territories on the Guidelines for Canadian Drinking Water Quality in order to protect the health of all Canadians for exposure over a lifetime. The guidelines are used by all provinces and territories as a basis to establish the requirements for drinking water quality in their jurisdiction. Health Canada constantly monitors new science, in order to be able to recommend any necessary changes to the guidelines.



Where does the lead in drinking water come from?
For the most part, there is little lead in natural water sources in Canada. The water coming out of the drinking water treatment plant would also contain very little lead. The most significant source of lead in drinking water is usually from lead service lines (water pipes that link the house to the main water supply), although leaching can also occur from lead solder in plumbing, or from fittings such as faucets made of brass. The amount of leaching is affected by many factors, including the age of the plumbing system, the length of time the water sits in the pipes and the chemistry of the water.

How do I know if my house has lead?
The age of your home and neighbourhood is important. The National Plumbing Code allowed lead as an acceptable material in pipes until 1975 and in solder until 1986. This means that older neighbourhoods may have lead service lines, while more recent homes may have lead fittings or solder in their plumbing system. To determine whether there are lead service lines in your area, you can check with your municipality or water utility. Alternatively, a plumber can identify whether your service line is made of lead, or you can look at the line entering your home. If it is soft or easily dented when scraped with a knife, or if it is greyish-black, it is most likely made of lead or contains lead. You may want to call your municipality to find out whether lead is an issue in your town or neighbourhood. You can also look into having your tap water tested for lead content. Check with your province/territory or municipality to to find out what your options are.

Simple steps you can take to reduce exposure to lead from drinking water
If you know or suspect that your drinking water contains lead, you can make small changes to reduce exposure:
- Only use cold tap water for drinking or cooking, since hot water increases the leaching of lead and other metals from your plumbing.
- Flush out your plumbing after water has been sitting in the pipes for a few hours, such as first thing in the morning or when you get home from work. Flush the toilet, take a shower or start a load of laundry to clear the water from the service line, then run the tap until the water turns cold (about one minute) before drinking or cooking with any of the water from that tap.

Note that lead from drinking water is not absorbed through the skin and is not taken in through breathing. As a result, exposure to lead from showering, bathing, dishwashing or cleaning is not a concern.

Using a treatment device

There are household water treatment devices available that are certified to remove lead from drinking water at the tap. Carbon-based filters are very effective and affordable. Other effective but more costly treatment devices would use reverse osmosis or distillation technologies. For best results, these devices should be installed at the tap that is most commonly used for drinking water, in most cases the kitchen tap. Make sure that any device you purchase is certified to the NSF International standard for lead removal and that they are installed and maintained (or replaced) according to the instructions provided by the manufacturer.

If you want a permanent solution

To decrease exposure to lead from your drinking water permanently, the sources of lead that are affecting your water need to be removed. Removing lead service lines is the most effective way to reduce exposure from drinking water. In most communities, the municipality or water utility is only responsible for the service line up to the curb. If the portion of the lead service line from the curb to your house is lead-based, the homeowner would be responsible for its replacement. Some municipalities that are replacing the main service lines have also established programs where residents can replace their portion of the service line at the same time for a reduced cost. Contact your municipality to find out whether such a program exists in your community. If only a portion of the lead service line is replaced, there may continue to be a lead issue in the future. In addition, some lead particles may detach from the remaining lead pipe for 2-3 months due to disruption from the change. During that time, it is important to continue taking steps described above to reduce exposure (such as flushing your plumbing after water has been sitting in the pipes for a few hours) or to use a treatment device.

Other options would include removing or replacing any pipes, fittings or faucets in your home containing lead with appropriate materials certified for use in drinking water systems, and making sure that any solder used in your plumbing is lead-free.