

Lead exposure and firearms use

People that use firearms, handle ammunition, or visit shooting ranges are at increased risk of lead exposure. Lead can enter the body through ingesting or inhaling lead particles. Once in the body, lead circulates in the blood. It can remain in the soft tissues and organs (e.g., kidneys, liver, and brain) and also become stored in bone and teeth.

As lead can build up in your body, it is important to minimise your lead exposure to ensure you protect yourself and your family.

Early life exposure to lead can adversely affect child development and the Department of Health strongly recommends young children or pregnant or breast-feeding women stay away from gun shooting activities, firearms and ammunition.

How can I be exposed to lead through shooting activities?

Inhalation and ingestion of lead particles and fumes during firing and handling of weapons and ammunition

Most ammunition (bullets) contains lead. They are either made entirely from lead, a lead alloy (brass or copper casing) or include a lead primer, which is the explosive that ignites the gunpowder and commonly consists of lead styphnate.

When a bullet is fired, fumes and fine lead particles are released into the air. Any person standing close by can breathe in the fumes and particles which when inhaled into the lungs are absorbed directly into the bloodstream.

Lead particles can also settle on the skin of a person's hands and body or be transferred to the skin when a person handles ammunition particularly during reloading, cleaning the gun or firing the gun. You can ingest lead from your hands if you don't wash them before drinking, eating, smoking or preparing food.

Casting bullets

The highest exposure for people who cast bullets is from inhaling the lead fumes released during the melting process of lead. Ingesting fine lead particles released from processes involving the solid lead and handling bullets and spent casings without gloves also increases exposure.

Who is most at risk of lead exposure?

Lead exposure can cause serious health problems and lead is particularly hazardous to infants, children, and pregnant women.

If you are pregnant, take appropriate precautions to minimise exposure to lead.

We recommend children do not attend shooting ranges and that you take precautions to ensure that your clothes and body are free from any lead particles before hugging children or handling toys.

It is important that anyone in the household who uses guns and ammunition takes steps to reduce lead exposure so that lead particles are not brought into the car or home on clothes, body (face and hands), or the equipment used.

If you regularly visit shooting ranges let your GP or doctor know and get your blood lead level tested.

What are the health effects of lead exposure?

Symptoms of lead exposure can be difficult to recognise. Consult your GP or doctor if lead exposure is suspected. Some of the effects of ongoing exposure to low levels of lead can include:

- general fatigue
- headaches
- anaemia
- blood circulation problems
- weakness in the fingers, wrists and ankles
- reduced fertility
- reduced kidney function
- impaired brain development in children.

Although very rare in Australia, the absorption of very high levels of lead (>70 micrograms per decilitre of blood) into the body is considered a clinical emergency and symptoms can include:

- convulsions
- stomach pain
- vomiting
- loss of consciousness and even death.

What steps can I take to reduce my lead exposure?

Minimising contact with the lead fumes and particles is the best way to prevent exposure.

1. Choose your shooting range carefully

Before you use a shooting range, ask yourself the following:

- Is it well ventilated?
- Does the range have a well maintained and effective ventilation system?
- Is the range and the communal areas well maintained, clean and free from visible dust?
- Does the facility promote good hygiene practices?
- Does it offer showers and change rooms facilities?

2. Wear a properly fitted respirator (particularly when casting bullets)

Wear a properly fitted respirator that meets Australian Standards (AS/NZS 1716). A disposable or reusable Class P2 half face respirators (particulate filter for dust and fumes) is commonly used. Trim and shave facial hair so that you are clean shaven where the respirator seals/fits on the face. Remember to regularly replace filters on reusable respirators.

3. Wear gloves and eye protection

Wearing gloves and eye protection whilst shooting, cleaning and reloading will minimise your exposure to lead.

4. Don't eat, drink, chew gum or smoke while shooting

Lead particles can inadvertently be ingested by hand to mouth contact. Avoid eating, drinking, chewing and smoking when shooting. Cigarettes contain lead so quitting smoking will help to minimise exposure.

5. Wash hands, face and neck after shooting

Reduce the likelihood of fine particles of lead remaining on your body by washing your hands, face and neck after shooting in cold soapy water.

6. Change and clean your clothes

After shooting, change your clothes, preferably at the range, place them in a washable or disposable bag, and wash them separately to other laundry in the home.

7. Transition to lead free ammunition

Use lead-free primers and lead-free bullets or jacketed bullets (e.g. coated with copper/nylon).

How can I get tested for and/or manage lead exposure?

Discuss any concerns you have with your medical practitioner/doctor.

Confirmation of elevated lead levels is usually through a blood test. If the level in the blood is greater than 5 µg/dL, the source of lead exposure needs to be investigated and reduced.

Casting your own bullets

If you are casting your own bullets, consider the following:

- Establish a well-ventilated casting area – preferably outdoors. Do not cast near kitchen or food preparation areas in living areas used by other household members. If casting indoors make sure there is a ventilation exhaust that directs fumes away from you and out of the building.
- Don't use a portable fan as it will only blow air around the room.
- Ensure surfaces are easy to clean (hard, flat and non-porous) and not carpeted.
- Keep children and women who are pregnant or breastfeeding away from casting areas.
- Regularly clean surfaces in the work area by wet wiping using disposable cloths, mopping or vacuum with commercial Class H vacuum fitted with a HEPA filter. Do not dry sweep.
- Reduce your exposure by following steps 2-6 in the section 'What steps can I take to reduce my lead exposure?'

Where to get help

- If you have received this fact sheet as a result of a blood test, if you have not already done so, you should talk to your family doctor.
- Call the Poisons Information Centre on 13 11 26 (24 hours a day) if you suspect poisoning
- For information on exposure at work contact WorkSafe Customer Help Centre on 1300 362 128.
- Contact the Metro North Public Health Unit on 3624 1111 or send an email to EH_BrisbaneNorth@health.qld.gov.au.