

# Users of guns & ammunition are at risk of **LEAD EXPOSURE & POISONING!** Protect yourself & your family



## WHAT IS THE PROBLEM?

Hundreds of thousands of South Africans regularly use guns and ammunition in the course of their work and recreational activities, as well as for personal protection. They include, for example, hunters, private citizens, target shooters, police officers, military personnel, game rangers and conservationists. Studies have shown that users of guns and ammunition are at elevated risk of lead exposure and poisoning, especially in indoor shooting ranges that are poorly designed, equipped and managed. Lead is a toxic metal that may cause serious physical and mental ill health problems.

## HOW USERS OF GUNS & AMMUNITION BECOME EXPOSED TO LEAD

During the course of using guns and handling ammunition, lead particles may be inhaled or ingested. Inhalation of lead fumes may occur while melting lead to cast bullets, or when lead particles are released into the breathing zone when a gun is discharged and the primer detonated. Lead particles may also settle on the ground, floor and other surfaces in shooting ranges. Users of guns and ammunition may from

time to time notice a powdery residue on their hands, which is likely to contain considerable amounts of lead. If hands are not regularly and properly washed, or if gun users eat, drink, smoke or chew gum in a shooting range or other lead-contaminated area, lead particles may enter the body through the hand-to-mouth pathway.

A further concern is that under certain conditions, lead particles on the hands or under the nails of gun users, as well as lead dust settling on their hands, skin, hair, clothing, shoes and equipment, may be transported to their homes, resulting in their families or other household members being chronically exposed to low levels of lead over an extended period.

## HOW LEAD HARMS HEALTH AND WELL-BEING

Lead is a highly toxic substance that may cause harm to virtually all cells and organs in the human body. As a result, exposure to lead may cause a wide range of detrimental health and social effects, including the following:

- Lowered intelligence scores or IQ levels, and learning difficulties, especially in reading and mathematics
- Hyperactivity and difficulty in concentrating
- Hearing loss
- Poor performance at school
- Aggression and violent behaviour
- Anaemia ("weak" blood that can cause tiredness and shortness of breath) and abnormal growth;
- In adults, lead exposure is associated with kidney damage, hypertension and cardiac disease. Lead is also associated with lowered fertility rates
- Permanent muscle paralysis, brain damage, coma and death may result, at very high levels of exposure.

Lead is especially harmful to young children whose brains and other organs are not yet completely developed. Lead exposure in childhood, or even at the foetal stage, may cause lifelong effects, even at very low levels in blood.








**If you use guns or ammunition regularly, and are concerned that you may be exposed to lead, ask your doctor for a blood lead test.**

For further information on lead poisoning prevention, go to the website of the SOUTH AFRICAN MEDICAL RESEARCH COUNCIL  
<http://www.mrc.ac.za/healthdevelop/educationtools.htm>






## If you use guns or ammunition, take these precautions to protect yourself and your family from lead exposure

- Don't use lead ammunition – or use safer alternatives
- Avoid melting lead to cast bullets – IF YOU DO CHILDREN SHOULD NEVER BE AROUND
- Never melt lead indoors
- Avoid high risk practices such as keeping bullets or airgun pellets in your mouth
- When handling guns or ammunition, use gloves if possible
- Always wash hands, arms and face after shooting or handling ammunition of any kind
- If you practise at an indoor shooting range, make sure that it is fitted with proper ventilation and air filtration systems, has excellent handwashing facilities (water, soap and paper towels for drying hands) and is cleaned by wet methods
- Where there are limited or poor handwashing facilities, use wet wipes (or lead decontamination wipes) if necessary & dispose of them immediately
- Never, eat, drink, smoke or chew gum while shooting, especially at an indoor range
- Outdoor shooting ranges are associated with lower levels of lead exposure relative to indoor shooting ranges
- Women and children are at greater risk, and should take extra care
- Change clothing immediately after shooting (before leaving the firing range)
- Wash clothing used at the shooting range separately from family's clothing before using again
- **BE PARTICULARLY CAREFUL WHEN TAKING CHILDREN TO A SHOOTING RANGE**
- If you are a regular shooter, have your blood lead level tested annually

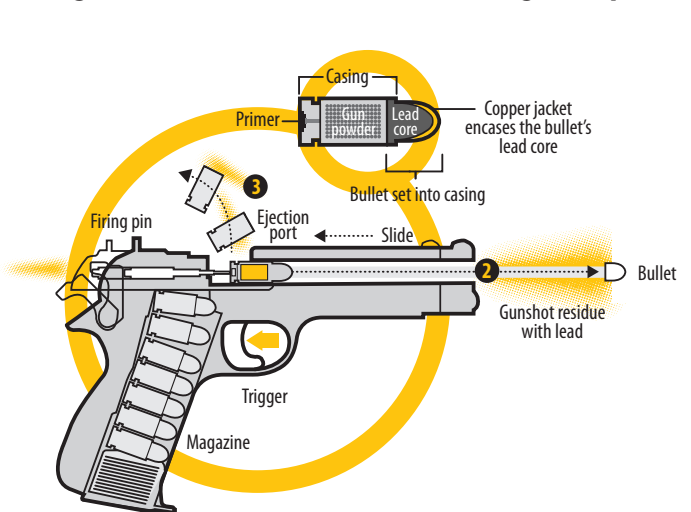
### The effects of exposure to lead in Adults

 <b>Brain:</b> Memory loss, lack of concentration, headaches, irritability, depression	 <b>Digestive system:</b> Constipation, nausea and poor appetite	 <b>Nervous system:</b> Damage including numbness and pain in the extremities	 <b>Cardiovascular:</b> High blood pressure
 <b>Body:</b> Fatigue, joint and muscle pain	 <b>Kidneys:</b> Abnormal function and damage	 <b>Reproductive system:</b> <b>Men:</b> Decreased sex drive and sperm count, and sperm abnormalities <b>Women:</b> Spontaneous miscarriage	

### The effects of exposure to lead in Children

 <b>Brain:</b> Behaviour problems, lower IQ, hearing loss, learning disabilities	 <b>Body:</b> Decreased muscle tone and muscle growth	 <b>Nervous system:</b> Damage	 <b>Kidneys:</b> Damage	 <b>Blood:</b> Anemia
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### How gunshot residue is released when firing a weapon



- 1 Gunshot residue with lead escapes near the hammer after the trigger is pulled and the firing pin hits the primer
- 2 As the bullet leaves the gun barrel, residue with lead is expelled
- 3 After the empty casing is discharged through the ejection port, it leaves a trail of lead residue in the air and on the ground

### A note on shooting range workers

Preliminary results from a study undertaken at shooting ranges in South Africa indicate that workers have amongst the highest blood lead levels. The worst lead exposure may be occurring in shooting ranges that are poorly designed and ventilated, do not make use of bullet traps, are not supplied with effective air filtration systems and cleaning equipment (such as HEPA vacuum cleaners), and where wet cleaning methods are not used. Some shooting ranges continue to use very basic equipment and cleaning methods such as brooms and feather dusters, which put both workers and clients at elevated risk of lead exposure and poisoning.