



LEAD TOXICOSIS

Other names: Lead Poisoning, Lead Toxicity



CAUSE

Lead is a toxic metal, exposure to which is considered unsafe at any levels. When lead is used in ammunition and fishing sinkers it provides a route of food chain contamination. The acidic environment of an animal's digestive tract dissolves lead allowing it to enter the blood stream and tissues resulting in morbidity and potentially death.

SOURCE OF POISONING

Lead poisoning can occur in animals that initially survive being shot with lead ammunition. Scavengers (e.g. eagles, vultures, hawks, etc.) often consume fragments of lead ammunition left in the discarded carcasses of hunter killed animals. Upland game birds (e.g. doves, turkey, quail, pheasant, etc.) and waterfowl (e.g. geese, loons, ducks, etc.) often accidentally consume lead shot and fishing lures while foraging, and species that use gizzard stones may also consume these lead items mistaking them as grit. In heavily hunted areas and firing ranges, lead is also commonly ingested by small mammals, amphibians, and song birds.

SIGNIFICANCE

Lead poisoning is a significant cause of mortality in raptors. Among cases submitted to the CWHC from Saskatchewan, poisoning was the top cause of death in bald eagles; poisoning and trauma were equally common as the top causes of death for golden eagles. Lead was found to be the second most common poison impacting eagles within the province behind organophosphate and carbamate insecticides, which are chemicals commonly used illegally to kill pest animals. Lead also has been shown to have negative impacts to other scavenging raptors (e.g. red-tailed hawks, vultures, etc.), upland game birds, water fowl, passerines, small mammals, and amphibians.

RISK TO HUMAN AND DOMESTIC ANIMAL HEALTH

The use of lead ammunition poses health concerns for people as well. Aerosolized particles of lead resulting from the discharge of lead based ammunition from firearms can be inhaled by hunters. Research has found that big game shot with lead based ammunition often exhibit concentrations of lead in the meat higher than the reference limit of 1mg/kg. Consumption of game killed using lead ammunition has also been found to result in increased blood lead concentrations. Hunters and their families consuming game killed with lead ammunition are at risk of health impacts from elevated blood lead concentrations. Even at low levels, lead can cause serious damage across bodily systems including potentially irreversible neurological and behavioural effects. Children are particularly vulnerable to lead poisoning. The symptoms of lead poisoning include developmental delay, learning difficulties, irritability,



loss of appetite, weight loss, fatigue, abdominal pain, nausea, vomiting, constipation, hearing loss, seizures, pica (eating things that are not food), elevated blood pressure, joint and muscle pain, headaches, seizures, impaired concentration, hearing loss, colic, anemia, myalgia, encephalopathy, hypertension, irritability, reduced sperm count/abnormal sperm, and miscarriages/stillbirths/premature births in pregnant women. Developing babies exposed to lead prior to birth may be born prematurely, may have lower birth weights, and slowed growth.

CLINICAL SIGNS

Lead poisoning in wild birds is characterized by lethargy, progressive weakness, green-stained feces and cloaca, inability or reluctance to fly, weight loss, and emaciation. Poisoned animals often fail to exhibit an escape response to humans or predators but will seek shelter and isolation.

MANAGEMENT AND PREVENTION

The impacts of lead poisoning to both humans and wildlife are entirely preventable by simply shifting to non-toxic ammunition and fishing tackle. Numerous types of lead free ammunition and tackle exist (typically made of solid copper) that represent safe, readily available, and comparable alternatives. If lead ammunition or fishing tackle are used it is important to bury any carcasses or remains that may contain lead so they cannot be scavenged by wildlife. Additionally, any pieces of lead introduced into the environment (ammunition, fishing tackle) should be collected and properly disposed of.

Report any sick or dead mammals to the Canadian Wildlife Health Cooperative. Find your closest regional centre at: <http://www.cwhc-rcsf.ca/contact.php>

SUGGESTED READING

- <http://blog.healthywildlife.ca/big-game-meat-consumption-and-lead-exposure/>
- <http://blog.healthywildlife.ca/nsfah-decision-to-promote-non-lead-ammunition/>
- <http://blog.healthywildlife.ca/causes-of-eagle-mortality-in-saskatchewan/>
- <http://blog.healthywildlife.ca/lead-poisoning-in-eagles-worries-researchers/>
- <http://cwbm.name/wp-content/uploads/2016/04/3-Vol-4-Issue-1-Scott-and-Bollinger.pdf>
- https://www.nwhc.usgs.gov/disease_information/lead_poisoning/
- https://www.nwhc.usgs.gov/publications/fact_sheets/pdfs/lead_poisoning_wild_birds_2009.pdf



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