



BLOOD LEAD LEVEL STUDY RESULTS

FACT SHEET

In May 2008, 738 North Dakotans participated in a study conducted by the U.S. Centers for Disease Control and Prevention (CDC) and the North Dakota Department of Health designed to measure the risk of higher blood lead levels caused by consuming wild game harvested with lead bullets. On Nov. 5, 2008, the CDC released a preliminary analysis of the lead levels.

The study shows a link between eating wild game shot with lead bullets and higher blood lead levels.

Study Results

In the study, people who ate a lot of wild game tended to have higher lead levels than those who ate little or none. The study also showed that the more recent the consumption of wild game harvested with lead bullets, the higher the level of lead in the blood.

Wild game is not the only or most important risk factor for human lead exposure; however, the study findings suggest that it is one important risk factor.

The correlation is statistical and adjusts findings for other potential sources of lead exposure; consequently, some individuals who eat a great deal of wild game may have lower blood lead levels than some other individuals who eat little or no wild game but who have other sources of lead exposure.

The lead levels among study participants ranged from none detectable to 9.82 micrograms per deciliter. Wild game consumption among study participants ranged from zero to heavy consumption. Some study participants had no identifiable risk factors for lead exposure, while others had more than one potential risk factor for lead exposure.

No single study can claim to be the final answer; however, this represents the best information we have to date to guide policy recommendations. As more information becomes available, these recommendations may change.

Background

In late March 2008, the North Dakota departments of Health, Agriculture, and Game and Fish advised food pantries across the state not to distribute or use donated ground venison because of the discovery of contamination with lead fragments. The agencies also suggested that anyone who had concerns about how their venison was cleaned and processed should not serve it to children and may decide whether to eat it themselves. A few weeks later, Minnesota made a similar advisory after laboratory tests discovered lead in venison that had been donated to food pantries in Minnesota.

The steps that were taken in response to the discovery of lead are similar to precautions taken when any food product is found to be contaminated. According to the North Dakota Department of Agriculture, if these lead fragments had been found in beef, the meat would have been recalled.

Because no study had ever been done to determine if there is a link between consuming wild game shot with lead bullets and higher lead levels in the blood, the Department of Health asked the CDC to help with a study analyzing the blood lead levels of North Dakotans.

Health Concerns Related to Lead Exposure

Swallowing lead can cause serious health problems and, in extreme cases, even coma and death. Most of the time, however, the effects are subtle and can't be easily seen. Studies show that pregnant women and younger children are especially sensitive to the effects of exposure to lead because they absorb most of the lead they take in, and the brains of infants and young children are still developing.

For children 6 and younger, any exposure to lead is considered too much. In young children, lead can cause:

- Lower IQs.
- Learning disabilities.
- Stunted growth.
- Kidney damage.
- Attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD).

In pregnant women, high lead exposure can cause:

- Low birth-weight babies.
- Premature births.
- Miscarriage.
- Stillbirth.

Although lead is also toxic for adults, they are less sensitive to the effects of lead and absorb less of the lead they take in. Adults may experience a wide range of potential health effects, depending on the blood lead level, including:

- High blood pressure.
- Hearing loss.
- Infertility.

Anyone who is concerned about possible exposure to lead may want to talk to his or her doctor about testing for blood lead levels.

Minnesota Bullet Fragmentation Study

In October 2008, the Minnesota Department of Natural Resources released results of a study to determine how different types of bullets commonly used for deer hunting might fragment.

- The study indicated lead particles commonly are found farther from the wound channel than previously thought and that the number of lead fragments varies widely by bullet type.
- In addition, the study indicated that most lead particles in venison will be too small to see, feel or sense when chewing.

Recommendations

Based on the results of the CDC blood lead level study and the Minnesota bullet study, the North Dakota Department of Health has developed the following recommendations to minimize the risk of harm to people who are most vulnerable to the effects of lead:

- Pregnant women and children younger than 6 should not eat any venison harvested with lead bullets.
- Older children and other adults should take steps to minimize their potential exposure to lead, and use their judgment about consuming game that was taken using lead-based ammunition.

- The most certain way of avoiding lead bullet fragments in wild game is to hunt with non-lead bullets.
- Hunters and processors should follow the processing recommendations developed by the North Dakota Department of Agriculture.
- If food pantries choose to accept donated venison or other wild game, they should follow these recommendations:
 - Shot with lead bullets – Accept only whole cuts rather than ground meat. (Studies indicate that whole cuts appear to contain fewer lead bullet fragments than ground venison.)
 - Shot with bows – Accept whole cuts or ground meat.

These are recommendations only; they are intended to help the citizens of North Dakota to make informed choices. Not every state will necessarily issue the same recommendations.

Next Steps

- The Department of Health has added questions about eating venison to the screening process used when investigating cases of high blood lead levels.
- During the next year, the departments of Health, Agriculture, and Game and Fish plan to conduct further testing of venison to evaluate and refine the cleaning and processing guidelines.
- The Department of Agriculture has developed guidance for processors about how to properly clean and dress wild game to reduce the changes of lead in meat.

Additional Information

Information about lead can be found on the following websites:

- U.S. Environmental Protection Agency – www.epa.gov/lead/
- National Institutes of Health – www.niehs.nih.gov/health/topics/agents/lead/index.cfm
- U.S. Centers for Disease Control and Prevention – www.cdc.gov/lead/

The following websites have information about lead bullet fragments and wild game:

- North Dakota Department of Health – www.ndhealth.gov/lead/venison/
- Minnesota Department of Natural Resources – www.dnr.state.mn.us/hunting/lead/index.html

Questions about the health effects of lead can be directed to the North Dakota Department of Health at 701.328.2372.

Questions about venison processing can be directed to the North Dakota Department of Agriculture at 701.328.2231.

Questions about cleaning wild game can be directed to the North Dakota Game and Fish Department at 701.328.6300.

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