Hunting Wild Game With Lead-Based Ammunition May Contaminate Food Supply

New Zealand researchers publish a report which finds hunters using lead-based projectiles risk unsafe exposure to toxic lead in their meat

NELSON, New Zealand (PRWEB) December 20, 2017 -- Professors Eric Buenz and Gareth Parry of the Nelson Marlborough Institute of Technology (NMIT), have published a report in The American Journal of Medicine (AJM) titled, "Chronic lead intoxication from eating wild-harvested game." AJM is one of the most highly regarded general medical journals in the world. The report indicates that hunting with lead-based ammunition leads to contamination of harvested wild game with toxic lead fragments. Consuming this meat can expose hunters and the public to unsafe levels of lead, which can accumulate in the body over time. The authors state that converting hunters to a non-lead ammunition could significantly reduce health risks associated with this lead exposure.

Lead is a cumulative toxin, and exposure to it can affect multiple body systems where it accumulates over time. Lead exposure and poisoning can cause serious health effects, such as neuropathy (nerve damage), anaemia, hypertension, renal impairment and immunotoxicity. Lead is particularly harmful to young children, affecting brain development resulting in reduced intelligence and educational attainment. The neurological and behavioral effects of lead are believed to be irreversible. There is no known safe blood lead concentration.

Following up a previously published commentary on the subject (Buenz 2016), the authors observed a 54-year old New Zealand hunter whose diet over six years consisted entirely of self-harvested wild game meat he hunted himself using lead bullets, and had subsequently developed lead poisoning with lead levels 16 times higher than the level of concern. Under controlled experimentation, the authors established the precise amount of lead the patient was consuming in his daily intake of wild game, then converted him to hunting with non-lead bullets. This conversion significantly reduced his blood lead levels over the course of the following three months.

The authors conclude that although there are many affordable alternatives to lead ammunition for hunters, there is a lack of awareness of the risk of lead exposure through eating wild-shot game within the hunting community. Likewise, there is unwillingness within the hunting community to accept evidence linking the use of lead ammunition to consequential health risks. The implications of this ignorance and denial are far reaching, as a large majority of hunters still use lead ammunition and the meat harvested from this game is widely available for consumption outside the individual hunters, distributing the lead exposure and risking public safety. The authors urge a campaign of public awareness of the dangers of hunting-based lead exposure and that alternative non-lead ammunition is available, and to urge legislation to ban lead ammunition on federal lands.

KEY HIGHLIGHTS:

- The authors proposed to determine if converting a patient who consumed meat hunted with lead ammunition to non-lead ammunition would result in lowered blood lead levels. The patient had starting blood lead level of 74.7 μg/dl. The level of concern is 5 μg/dl.

- The authors analyzed the amount of lead contamination in the meat the patient consumed daily, and estimated he was consuming 259.3 ± 235.6 μg of lead per day.
The hunter converted to lead-free ammunition for hunting, and over a 3 month period he significantly reduced his blood lead levels. An estimated 15 years on this adjusted diet would be required to allow his blood lead levels to fall below 5 μg/dl.

Physicians should make patients aware of risks associated with hunting with lead-based ammunition and recommend lead free alternatives.

KEY QUOTES:

Dr. Eric Buenz, Research Professor NMIT

“We do not know the exact number of hunters in the world, but there are well over 10 million hunters in the United States. A majority of the hunters worldwide are using lead ammunition to harvest meat. I believe the threat and health implications of lead exposure to the general population is widely underestimated.”

Dr. Gareth Parry, Research Professor NMIT

“Lead accumulates in the body and negatively affects every body system. Lead exposure through eating wild-harvested meat is an underappreciated risk that hunters and their families need to consider. Children are particularly at risk to the negative consequences of lead exposure.”

KEY RESOURCES:

- 2018 AJM Study Article: http://www.amjmed.com/article/S0002-9343(17)31224-X/fulltext
- NMIT Website: http://www.nmit.ac.nz

ABOUT THE AUTHORS:

Dr. Eric Buenz completed his Doctorate in Biomedical Science at the Mayo Clinic College of Medicine, his Master of Business Administration at the University of St. Thomas, and his Master of Agriculture at the University of the South Pacific in Samoa. He is an expert in natural products, immunology, neurology, drug discovery and business development, having secured United States Food and Drug Administration Investigational New Drug status for novel compounds and directed the associated clinical trials for these compounds at Mayo Clinic. Dr Buenz has authored numerous peer-reviewed manuscripts, many in high-impact journals such as The British Medical Journal and Trends in Pharmacological Sciences; his work has also been covered in the popular press in publications such as The New York Times, The Economist, Wired, and The Scientist. He has a wide range of business management experience from successfully securing venture funding for start-up organizations, to serving on non-profit boards, advising governments and running departments of multinational firms.

Dr. Gareth Parry completed his medical degree at the University of Otago in 1970 and was admitted as a Fellow of the Royal Australasian College of Physicians in 1976. He completed neurology training at the University of Pennsylvania and held faculty positions at the University of Pennsylvania, the University of California, San
Francisco, the Louisiana State University in New Orleans and the University of Minnesota. He was Chairman of the neurology department at the University of Minnesota and continues to hold an emeritus position there. He is an international authority on autoimmune diseases of the nervous system, particularly Guillain-Barre Syndrome (GBS) and multiple sclerosis (MS). He has written or contributed to over 120 peer-reviewed publications in prestigious journals and has written two books and several book chapters. He has been principal investigator in numerous research studies. In 2009 he was awarded the NZ Order of Merit for his contributions to neurology.

ABOUT THE NELSON MARLBOROUGH INSTITUTE OF TECHNOLOGY (NMIT)

NMIT is a high quality tertiary education provider located at the top of New Zealand's South Island, with three campuses located in Nelson, Blenheim and Auckland. For over 110 years, NMIT has provided tertiary education in New Zealand's Top of the South, originally as the Nelson Technical School, which opened in Hardy Street, Nelson in 1905.

NMIT is owned by the New Zealand Government and offers specialist qualifications in Aquaculture, Winemaking and Viticulture, Conservation, Maritime and Aviation Engineering, along with career qualifications such as Nursing, Business, IT, Social Sciences, Arts and Design, Hospitality, and the Trades.

The diploma and degree research program at NMIT is focused on high quality applied research that is relevant to the nearby community and region. NMIT’s research tends to be more applied than theoretical and tutors and students work on real-world projects to help disseminate information in the community where it can be put to use, with expertise ranging from accounting to aquaculture. Their research links with other institutions in several countries and contributes to developing evidence and guidance on global problems.

Works Cited

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