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Risk Assessment of Dietary Lead Exposure among First Nations People living on-reserve in Ontario, Canada using a Total Diet Study and a Probabilistic Approach

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Highlights:

- Lead exposure was 1.7 times higher among First Nations
- Lead intake increase the risk of high blood pressure
- Traditional food accounted for 73% of dietary intake
- Lead containing ammunition is a major source

Abstract

Indigenous peoples have elevated risk of lead (Pb) exposure as hunted traditional food can be contaminated with lead-containing ammunition. Recent scientific consensus states that there is no threshold level for Pb exposure. The objective of this study was to estimate dietary exposure to Pb among First Nations living on-reserve in the province of Ontario, Canada. A total diet study was constructed based on a 24-hour recall and Pb concentrations for traditional foods from the First Nations Food, Nutrition, and Environment Study (FNFNES) and Pb concentrations in market foods from Health Canada. A probabilistic assessment of annual and seasonal traditional food consumption was conducted. Results indicate that traditional foods, particularly moose and deer meat, are the primary source of dietary Pb intake (73%), despite providing only 1.8% of the

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