

Fish consumption still safe despite initial fears over mercury levels

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The benefits of consuming traditional foods tend to outweigh the risks of possible mercury contamination, according to a recent study.

The research, which was part of a larger biomonitoring project to address community concerns about environmental contaminants in traditional foods, such as fish, also found that mercury exposure in people may be low even when it is sometimes present in elevated levels. Additionally, the researchers discovered that mercury levels in people in northern regions vary by season and region.

"Previously, elevated levels of mercury were found in some fish species in some lakes and therefore, communities wanted to know if these sometimes-elevated levels in fish also meant they were elevated in people," said Sara Packull-McCormick, a PhD candidate at the University of Waterloo's School of Public Health Sciences.

"The good news is that generally, the exposure in communities we studied was low. It means the benefits of consuming these foods tend to outweigh the risks, which is important for these communities since fish consumption has nutritional, cultural and economic benefits."

In conducting the study, the researchers obtained 443 [blood samples](#) and 276 hair samples to determine mercury levels present in the body. Generally, the measured human mercury exposures were relatively low. They also used a Food Frequency Questionnaire to assess fish intake, with 170 people participating. The responses showed that total fish intake peaked in late summer, decreased during the winter and increased again in the spring. Hair mercury levels seemed to follow the same seasonal pattern as [fish](#) intake but peaked in the fall.

The advantage of blood monitoring is that it provides an accurate snapshot of recent mercury levels. However, blood samples are more invasive, require specialized personnel to draw them, as well as consistent refrigeration. The researchers wanted to see if hair samples, which are easier to collect and show mercury levels over a larger span of time, could be used at the individual level. They found that the ratios

between blood and hair mercury levels were inconsistent, meaning blood levels cannot be accurately estimated for an individual based on a hair sample.

Elevated levels of mercury can have negative effects on [human development](#) and health, including increased risk of cardiovascular disease and neurodevelopmental impairment. The Canadian Health Measures Survey measured mercury in human biological samples but did not include participants from the Canadian territories or Indigenous peoples living on reserves.

"This study is important because it provides these communities with the information they need to help guide their decision-making," said Brian Laird, a professor in the School of Public Health Sciences and principal investigator. "Mercury can pose serious risks to people's health, but these communities now have a baseline to see what changes occur in the future, especially taking into account those that may be caused by climate change."

The study was published in *Environmental Research*.

More information: Sara Packull-McCormick et al, Hair to blood mercury concentration ratios and a retrospective hair segmental mercury analysis in the Northwest Territories, Canada, *Environmental Research* (2021). [DOI: 10.1016/j.envres.2021.111800](https://doi.org/10.1016/j.envres.2021.111800)

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