

Arsenic is naturally higher in some areas of the Northwest Territories.

1948 First gold brick poured.

The process of gold mining released a toxic by-product called arsenic trioxide into the environment.

237,000 tonnes of toxic arsenic trioxide waste stored underground.

Questions about how much arsenic people are currently exposed to.

2017-18 Yellowknife Health Effects Monitoring Program begins

2021 Remediation of Giant Mine

2022 Retest children

2027 Retest children and adults

IS IT SAFE TO EAT LOCAL FISH?

Yes, it is safe to eat local fish except for ones from lakes near Giant & Con mines. For more information refer to the public health advisory at www.hss.gov.nt.ca/en/newsroom/arsenic-lake-water-around-yellowknife

Follow-up steps for people with metal levels ABOVE the reference levels

1. Meet with our nurse for a follow-up.
2. Answer additional questions about diet and lifestyle.
3. Provide another sample for retesting.
4. Get advice and tips to reduce exposure.
5. Continue to monitor individuals until levels are low.

Next Steps for YKHEMP

- Continue laboratory analysis.
- Prepare papers for publication.
- Provide annual study updates.
- Continue to monitor populations during Giant mine remediation.

FOR MORE INFORMATION

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ARSENIC

IN OUR COMMUNITIES

Yellowknife, Ndilo and Dettah



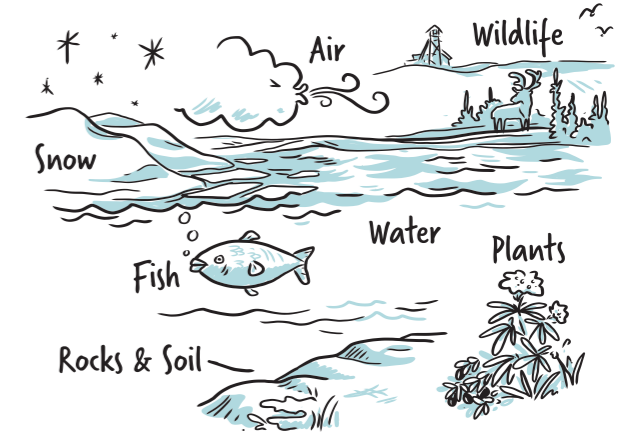
www.ykhemp.ca



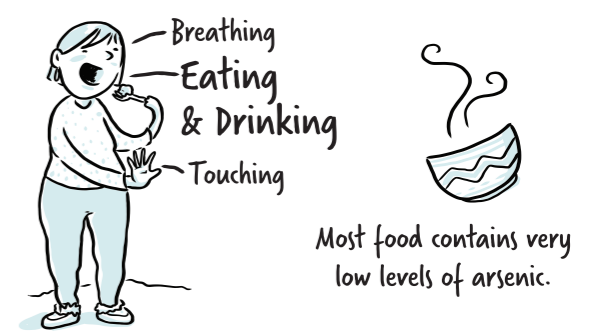
WHY THE STUDY?

To see whether residents of the Yellowknife area are currently exposed to higher levels of arsenic compared to other Canadians.

WHERE IS ARSENIC FOUND IN YELLOWKNIFE, NDILQ AND DETTAH?



Arsenic comes into human bodies by:



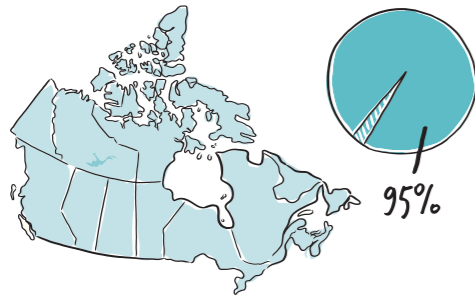
Some food has higher levels.



2 TYPES OF ARSENIC
 organic = less toxic (common in fish)
 inorganic = toxic to humans

THERE IS ARSENIC IN ALL THE CANADIAN POPULATION

Every few years, Statistics Canada measures arsenic levels with thousands of urine samples from around the country.



REFERENCE LEVELS

Statistics Canada found that 95% of Canadians have **27 µg/L** or less **TOTAL ARSENIC** in their urine.

TOTAL ARSENIC = Organic + Inorganic Arsenic

And 95% of Canadians have **21 µg/L** or less **INORGANIC ARSENIC** (toxic) in their urine.

YKHEMP uses the reference levels to compare Yellowknife area populations to other Canadians.

INDIVIDUAL RISK

What does it mean to have results ABOVE the Reference Levels?

Reference levels used in YKHEMP study do not reflect toxic effects but are instead used to compare populations.

If your result is above the reference level, it means that at the time of testing your concentration was higher than 95% of other Canadians, and as a precaution we want to continue to follow-up with you.

WHO WAS TESTED?



TOTAL 2,037 PEOPLE

Yellowknives Dene First Nation
Adults = 138 Children = 87

North Slave Métis Alliance
Adults = 35 Children = 11

Yellowknife (random)
Adults = 673 Children = 217

Yellowknife (volunteers)
Adults = 685 Children = 191

HOW WERE THEY TESTED?

A person is shown with several icons connected to them, representing different testing methods:

- Lifestyle questionnaire** diet, occupation, health
- Saliva** will tell us how our genes may influence the way our body processes arsenic
- Urine** shows arsenic exposure in the previous 3-5 days
- Toenail clippings** show arsenic exposure in the past 2-12 months
- Medical records** for past 5 years will help us to investigate possible associations between arsenic and health

HOW YELLOWKNIFE, NDILO & DETTAH POPULATION COMPARES

YKHEMP can only measure current levels of arsenic in the body.

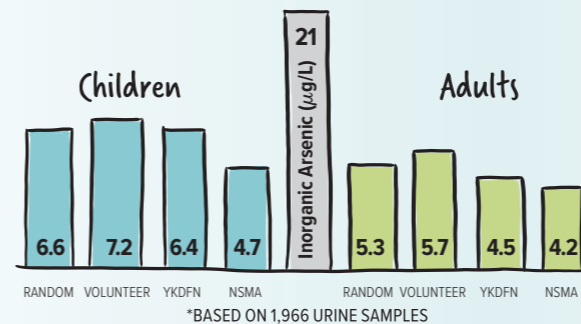
Most arsenic leaves your body through urine within 3-5 days. Some of the inorganic arsenic can stay a few months.

Each urine sample was analyzed for total and inorganic arsenic.

TOTAL ARSENIC FOUND IN URINE provides a quick overview of population exposure

Most people we tested have urinary total arsenic levels comparable to the average Canadian.

INORGANIC ARSENIC FOUND IN URINE compared to the **CANADIAN AVERAGE** of 5.4 µg/L



Some children from Yellowknife and the Yellowknives Dene have slightly higher average inorganic arsenic compared to adults in the study and other Canadian children. However, all averages are still well below the 21 µg/L reference level.

For adults and children with higher inorganic arsenic levels, we found that they ate store-bought seafood and rice more often.

ARSENIC RESULTS FROM TOENAIL SAMPLES

- 1,872 toenail samples were collected
- 158 people (72 adults, 86 children) had arsenic levels above the set reference level for toenails

We found that some children may be exposed to higher levels of arsenic. We found 2 possible reasons for this:

1. Children have smaller bodies and as a result have higher intake of arsenic per body weight, and/or
2. Children spend more time outdoors, not wash their hands, and put dirt or dirty hands into their mouth.

OTHER METALS

1. Higher Cadmium levels were mostly found in adults, most of whom smoked.
2. Higher Lead levels were confirmed with a more accurate blood test. Most tests came back low.

At present, we saw no evidence that peoples' health is at risk at the arsenic levels we are seeing in the Yellowknife area, including those above the reference level.

However, this is a long-term study and we will continue to look at health effects in future testing.

