

Study shows diet alone can be significant source of arsenic

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A Dartmouth College-led study found arsenic in toenail clippings is most strongly linked with consumption of alcohol -- especially beer for men and white wine for women -- and Brussels sprouts. Credit: André Karwath

Diet alone can be a significant source of arsenic exposure regardless of arsenic concentrations in drinking and cooking water, a Dartmouth College-led study finds.

The study also confirms that toenail clippings are a good biomarker of long-term exposure to [arsenic](#) from consuming alcohol, Brussels sprouts and dark meat fish. Exposure to arsenic has been linked to a variety of health problems, including cancer, vascular diseases and low birth weight.

The findings appear in [Nutrition Journal](#). A PDF is available upon request.

Previous studies have shown that diet can be an important source of total arsenic exposure, but the new study is the first to account for arsenic in drinking and cooking water before looking at dietary contribution. Household water is thought to be most significant source of [arsenic exposure](#) in regions where water arsenic concentrations are elevated.

Researchers asked 852 participants about their average consumption over the previous year of 120 different foods, including dairy, fruits, vegetables, eggs, meat, breads, beverages and baked goods. They found arsenic in toenail clippings is most strongly linked with consumption of alcohol—especially beer for men and white wine for women—and Brussels sprouts. Those who drank more alcohol and ate more Brussels sprouts had more arsenic in their toenail clippings, which makes sense because alcoholic beverages can have higher arsenic content and are known to interfere with the metabolic pathways that detoxify arsenic. The findings support recent studies that show high concentrations of arsenic in Brussels sprouts and related vegetables because arsenic binds to the sulfur-containing compounds that give them their characteristic odors.

Researchers also found increased toenail arsenic in people who eat dark meat fish, which include

tuna steaks, mackerel, salmon, sardines, bluefish and swordfish. Fish generally contain a form of arsenic that is thought to safely pass through the human body without being metabolized, but dark meat fish also contain arsenic compounds that can be metabolized.

Provided by Dartmouth College

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