

Groundbreaking study links levels of mercury in dolphins to exposure in humans

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Dolphins living in the Indian River Lagoon showed high levels of mercury, which led scientists to conduct a follow-up study of humans who live in the same geographic area.

What do mercury levels in dolphins say about mercury levels in humans? Quite a bit, according to a new study by scientists at FAU Harbor Branch, which sheds light on the potential dangers of consuming locally caught seafood.

This is the first time that researchers have closed the loop between marine mammal and human health, by taking findings from their research and applying them to explore the potential risks facing humans living in the same region.

The study centers around dolphins living in the Indian River Lagoon (IRL), Florida and humans who live along the estuary and consume much of the same seafood as the dolphins. Initial studies of IRL dolphins showed high levels of mercury, which led scientists to conduct a follow-up study of humans who live in the same geographic area. The most toxic form of mercury known as methylmercury builds up in [fish](#), shellfish, and animals that eat fish, and are the main sources of [mercury exposure](#) in humans.

The findings from this study, published in the current issue of the journal Veterinary Sciences, showed that the cross-section of people tested also had high levels of mercury and that much of that mercury was due to consumption of locally obtained fish and shellfish. More than half of the participants in the study had a concentration of mercury in their hair, which was greater than the guideline for exposure defined by the U.S. Environmental Protection Agency.

"This research exemplifies the role of dolphins as an animal sentinel in identifying a public health hazard," said Adam Schaefer MPH, FAU Harbor Branch epidemiologist. "It is a unique and critical example of closing the loop between animal and human health."

Mercury is an important global health problem, most of which is due to consumption of fish and shellfish that become contaminated through the food web. The major [human health](#) risk results from high exposure during pregnancy, since the developing nervous system of a fetus is highly vulnerable to environmental insults such as maternal exposure to mercury. Long-term effects have been shown in poorer performance on

standardized tests of learning, memory, visual-motor skills and cognitive development in multiple studies around the world.

"Fish consumption is recommended for a healthy diet and has many benefits including a reduction in the risk of developing cardiovascular disease," said John Reif, D.V.M., Colorado State University research professor and collaborator on the study. "Pregnant women can balance the risks and benefits of seafood consumption by continuing to eat fish, but avoiding fish caught in the Indian River Lagoon where the levels of [mercury](#) are higher."

More information: John Reif et al. Atlantic Bottlenose Dolphins (*Tursiops truncatus*) as A Sentinel for Exposure to Mercury in Humans: Closing the Loop, *Veterinary Sciences* (2015). [DOI: 10.3390/vetsci2040407](https://doi.org/10.3390/vetsci2040407)

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