

# Toxin in seafood causes kidney damage in mice at levels considered safe for consumption

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A chemical that can accumulate in seafood and is known to cause brain damage is also toxic to the kidneys, but at much lower concentrations. The findings, which come from a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)*, suggest that officials may need to reconsider what levels of the toxin are safe for human consumption.

The world's oceans contain algae that produce certain chemicals that can be harmful to humans and other living creatures. Many of these chemicals are considered neurotoxins because they cause damage to the brain. The neurotoxin domoic [acid](#), also called "Amnesic Shellfish Poisoning," is a very stable, heat resistant toxin that is becoming more prominent in coastal regions, likely due to environmental changes. It can accumulate in mussels, clams, scallops, and fish, and the FDA has set a legal limit of domoic acid in seafood based primarily on its adverse neurological effects.

Because domoic acid is cleared from the body by the kidneys, P. Darwin Bell, PhD, Jason Funk, PhD (Medical University of South Carolina), and their colleagues looked to see if the toxin might also have detrimental effects on these organs. By giving mice varying doses of domoic acid and the assessing animals' [kidney](#) health, the team found that the kidney is much more sensitive to this toxin than the brain.

"We have found that domoic acid damages kidneys at concentrations that are 100 times lower than what causes [neurological effects](#)," said Dr. Bell. "This means that humans who consume seafood may be at an increased risk of [kidney damage](#) possibly leading to kidney failure and dialysis."

While the findings need to be verified in humans, the researchers would like to see increased awareness and monitoring of domoic acid levels in all [seafood](#). They say that the FDA may also need to reconsider the legal limit of domoic acid in food due to its kidney toxicity.

**More information:** The article, entitled "Characterization of Renal Toxicity in Mice Administered the Marine Biotoxin Domoic Acid," will appear online at [jasn.asnjournals.org/](http://jasn.asnjournals.org/) on February 6, 2014.

Provided by American Society of Nephrology

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