

# Combining certain meds with ibuprofen can permanently injure kidneys

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Anyone who is taking a diuretic and a renin-angiotensin system (RSA) inhibitor for high blood pressure should be cautious about also taking ibuprofen, according to new research.

Diuretics and RSA inhibitors are commonly prescribed together for people with hypertension and are available under various pharmaceutical brand names. Painkillers such as ibuprofen are available over-the-counter in most pharmacies and stores in popular brands.

Researchers at the University of Waterloo used computer-simulated [drug trials](#) to model the interactions of the three drugs and the impact on the kidney. They found that in people with certain medical profiles, the combination can cause acute kidney injury, which in some cases can be permanent.

"It's not that everyone who happens to take this combination of drugs is going to have problems," said Anita Layton, professor of applied mathematics at Waterloo and Canada 150 Research Chair in mathematical biology and medicine. "But the research shows it's enough of a problem that you should exercise caution."

Computer-simulated drug trials can quickly produce results that would take much longer in human clinical trials. Layton and her team use mathematics and computer science to give [medical practitioners](#) a [head start](#) with issues like drug complications.

The research, in this case, can also speak directly to the many people who are taking drugs for hypertension and may reach for a painkiller with ibuprofen without giving it much thought.

"Diuretics are a family of drugs that make the body hold less water," Layton said. "Being dehydrated is a major factor in acute kidney injury, and then the RAS inhibitor and ibuprofen hit the kidney with this triple whammy. If you happen to be on these hypertension drugs and need a painkiller, consider acetaminophen instead."

Layton's new research paper, with co-authors Jessica Leete, Carolyn

Wang, and Francisco J. López-Hernández, "Determining [risk factors](#) for triple whammy [acute kidney injury](#)," appears in the journal *Mathematical Biosciences*.

**More information:** Jessica Leete et al, Determining risk factors for triple whammy acute kidney injury, *Mathematical Biosciences* (2022). DOI: [10.1016/j.mbs.2022.108809](https://doi.org/10.1016/j.mbs.2022.108809)

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