

Daily potassium citrate wards off kidney stones in seizure patients on high-fat diet

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Children on the high-fat ketogenic diet to control epileptic seizures can prevent the excruciatingly painful kidney stones that the diet can sometimes cause if they take a daily supplement of potassium citrate the day they start the diet, according to research from Johns Hopkins Children's Center.

A report on the work is published in the August issue of *Pediatrics*.

"We can confidently say this is a safe and powerful way to prevent [kidney stones](#), and it should become part of standard therapy in all ketogenic dieters, not just those who already show elevated urine calcium levels," says senior investigator Eric Kossoff, M.D., a pediatric neurologist at Hopkins Children's. "If you wait, it might be too late."

The ketogenic diet, believed to work by initiating biochemical changes that eliminate seizure-triggering short circuits in the brain's signaling system, is given to many [children](#) whose seizures do not respond to medications. But the diet, which consists of high-fat foods with very few carbohydrates, causes a buildup of calcium in the urine and the formation of kidney stones in about 6 percent of those on it.

Hopkins Children's adopted the preventive treatment with potassium citrate two years ago, and doctors now believe this one major side effect of the diet is a thing of the past, allowing more children to remain on the diet for longer.

Potassium citrate taken twice daily, either as powder sprinkled on food or dissolved in water, is believed to inhibit stone formation.

In their study of 301 children treated for epilepsy with the ketogenic diet at Hopkins Children's the researchers found that those who got potassium citrate twice daily were seven times less likely to develop kidney stones — one of 106 (0.9 percent) developed a kidney stone compared to 13 out of 195 (6.7 percent) who were given potassium citrate only after testing positive for elevated levels of blood calcium. Most children received one 30-milliequivalent packet (about 1, 170 milligrams or 0.04 ounces) of potassium citrate twice daily.

Although rarely serious, kidney stones can cause significant pain, along with kidney and urinary tract infections, and may require surgery.

Source: Johns Hopkins Medical Institutions

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