

Southern Indiana Nephrology and Hypertension

Kidney Stones

Kidney stones are rock-like formations that occur when substances normally dissolved in the urine become solid. They may be **caused by** having too much of certain minerals, like calcium or uric acid, or too little of other products such as citrate. There are some diseases (Crohn's disease, hyperparathyroidism, and gout) that make kidney stones more likely. Certain medicines, like Lasix and high-dose vitamin C, may also increase the risk of stones. Specific types of kidney stones can run in families.

Kidney stones **occur** in about 10% of the population, and males are more frequently affected. If left untreated, you have a 50% chance of having another stone in 5 years, and an 80% chance over your lifetime.

People with kidney stones may have no **symptoms** when the stones stay in the kidneys. If the stone moves into the ureter, the draining tube of the kidney, people usually develop severe side or back pain that may radiate to the groin. Most people have blood in the urine, although it sometimes it can only be seen with a microscope. Others pass gravel or the stone in their urine. Some people develop nausea and vomiting.

Kidney stones can usually be **diagnosed** with x-rays. Additionally, most kidney specialists would recommend at least some **workup** if you have had one stone, and an extensive evaluation if you have had more than one stone, including blood and urine testing, and x-ray tests, such as ultrasounds and CAT scans.

Initial **treatment** of kidney stones usually involves IV fluids, pain control, and nausea medicines. About 90% of stones will pass by themselves in 1-2 months. If the stone does not pass, a scope can be inserted through the bladder to try to remove the stone. Other stones can be broken by sound waves (lithotripsy). Some people may need a scope inserted through their back into the kidney directly to remove the stone.

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Preventing Kidney Stones

In almost everyone, steps can be taken to **decrease the risk** of having another kidney stone. If you have had one kidney stone, you already know that you don't want to have another one!

Once the stone is passed or removed, it can be sent to the lab for **analysis**. Knowing the type of material in the kidney stone helps us to plan treatment directed at preventing additional stones. Blood work and urine testing done later provides more information needed to prevent further stones.

Almost everyone with kidney stones can benefit from **increasing the amount of fluids** they drink. Increasing your fluid intake so that you make 2-3 liters of urine a day decreases your risk of developing another kidney stone by 50%. Sodas, grapefruit juice, and teas are **NOT** recommended, since they may increase the risk of kidney stones. **Water** is recommended as the main source of liquid.

Changing your diet may help to decrease your risk of kidney stones. We recommend talking to a dietitian to help you with your dietary needs.

If you produce **calcium** stones, you will benefit from a salt (sodium) restricted diet. Restricting the amount of calcium in your diet may actually increase your risk of kidney stones, so this is **NOT** recommended.

If you form stones that contain **oxalate**, you would benefit from avoidance of high-oxalate foods, such as beets, beans, berries, beer, coffee, tea, chocolate, and peanuts.

People who form **urate** stones may benefit from a protein restricted diet.

Many people will benefit from **medications** to help prevent kidney stones. A "water pill," called hydrochlorothiazide, combined with a salt-restricted diet decreases the risk of calcium stones by up to 90%. Potassium citrate (UroCit-K) may also help decrease the risk of kidney stones in certain patients. Allopurinol is useful in a selected group of patients who form urate stones. Your physician will discuss medicines with you based on your results from your blood and urine testing.