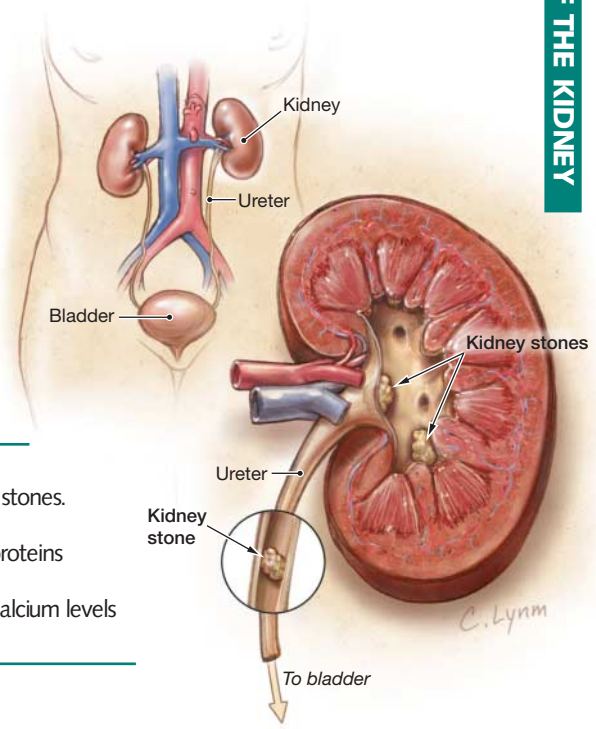
Kidney Stones

Kidney stones can be composed of different substances that are dissolved in the urine, such as calcium, oxalate, uric acid, and cystine. Kidney stones form when there is an imbalance between the concentration of these substances and the chemicals in the urine that usually keep the substances dissolved. Frequent urinary tract infections from certain bacteria can also lead to the formation of a type of stone called **struvite**. Often, stones in the urinary tract (**urolithiasis**) are small enough to pass through the urinary system without causing any symptoms. However, bigger stones can lodge anywhere in the **ureters**, the tubes that lead from the kidneys to the bladder. This can block the flow of urine and cause severe pain.



RISK FACTORS

- Working-age adults are more likely than elderly persons to develop kidney stones.
- Family history of kidney stones
- Diets that are rich in oxalate (found in tea, okra, sweet potato) or animal proteins
- Obesity
- Other kidney diseases and metabolic disorders that can affect the body's calcium levels
- Exposure to certain medications like furosemide or indinavir

SYMPTOMS

- Severe pain that can move from the back and sides to the groin
- Bloody urine (**hematuria**)
- Pain on urination (**dysuria**)
- Increased urinary frequency
- Nausea and vomiting

DIAGNOSIS

- To confirm the presence of kidney stones or eliminate other possible causes of the symptoms, physicians may request abdominal x-rays, ultrasounds, or computed tomography (CT) scans.
- A urinalysis may show microscopic amounts of blood in the urine.

TREATMENT

- Pain control, hydration
- Removal of the stones through a tube (**endoscopic stone removal**) or **extracorporeal shockwave lithotripsy** (using sound waves to break up the stones) if they do not pass on their own
- In some cases, treatment with medication may help the stones pass.

FOLLOW-UP

- Strain your urine to try to collect a stone.
- Once the stone has passed out of the urinary tract, it is important to determine why the stone developed in the first place.
- If a stone is collected, it will be sent to a laboratory for analysis.
- Doctors may analyze the chemicals in your blood and in a 24-hour urine collection to check for any imbalances.
- They may also advise you to drink water regularly and avoid certain teas, large amounts of salt, and animal protein, depending on the composition of your stones.

FOR MORE INFORMATION

- National Kidney and Urologic Diseases Information Clearinghouse kidney.niddk.nih.gov/Kudiseases/pubs/stonesadults/

INFORM YOURSELF

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Sources: National Institute of Diabetes and Digestive and Kidney Diseases, Mayo Clinic

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