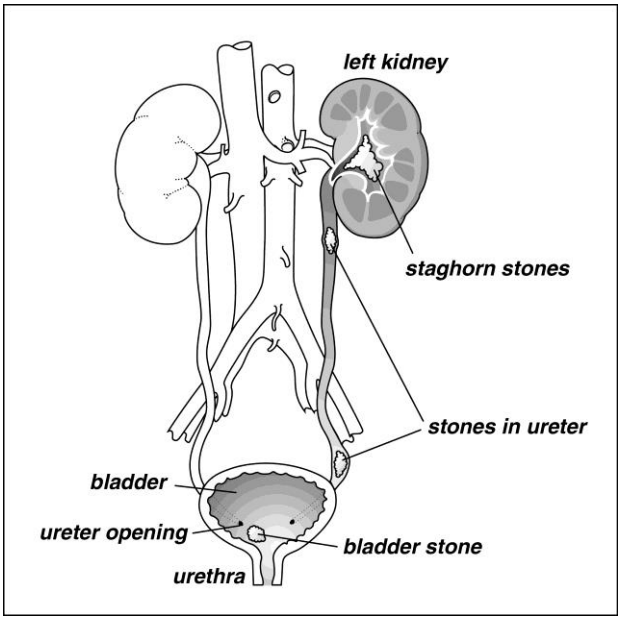
Kidney Stones

Kidney stones form from crystals in the urine. Small stones will often pass in the urine without symptoms. Stones can become large and block the flow of urine or cause pain.

Why do kidney stones form?
Stones form for many reasons. It is common for them to form when the compounds that make them are at high levels in the urine. Risk factors for kidney stones are:

- not drinking enough liquids
- abnormal urine system
- metabolic problems
- family history of kidney stones
- high or low intake of certain foods



Types of Stones
There are many types of kidney stones. These are the most common.

Calcium oxalate is the most common type of stone. It is found in about 70% of all cases. These stones vary in shape and size. They may be as small as a grain of sand or as large as a golf ball. These stones can have a smooth or a jagged edge.

Uric acid is found in about 10% of all cases. A high amount of uric acid in the urine can lead to this type of stones. People with gout are at greater risk for this type of stone. These stones are hard to see with standard X-rays.

Calcium phosphate makes up about 9% of all stones. High levels of calcium or phosphate in the urine cause these stones to form.

Struvite is found in about 9% of all stones. They are made of magnesium and ammonium phosphate. An infection in the upper urinary system can cause this type of stone to form.

Cystine makes up about 2% of all stones. Cystine is a by-product of the amino acid, cysteine. People who form these stones have a genetic trait that causes a high cystine level in the urine. These stones look like brown sugar.

Symptoms

- Sharp pain in the back that comes and goes
- Back pain that moves to the groin
- Blood in the urine
- Trouble passing urine
- Urge to pass urine often
- Nausea and vomiting

The only way find a stone is with x-ray, CT scan or ultrasound. The most common test is a CT scan.

Treatments
Many stones pass in the urine without treatment. Most stones can be treated without surgery. Drink 2-3 quarts of water and other fluids a day. This can help move the stone along in the urinary tract.

If the stone does not pass and causes constant pain, blocked urine flow, infection, or damage to the kidney, you may need further treatment.

Extracorporeal shockwave lithotripsy (ESWL) uses an x-ray machine to locate the stone. Sound waves break the stone into pieces small enough to pass in the urine. This works in about 75% of the cases that need treatment. This treatment works best for small stones in the upper urinary tract. The sound waves pass through your skin, there is no incision.

Ureteroscopy with laser lithotripsy is an exam of the ureter and kidney. A thin, lighted tube (a ureteroscope) is passed through the urethra into the bladder, ureter, and kidney. Laser energy is passed through the scope to break the stones into tiny and/or powder like pieces that can be passed in the urine. Most patients go home the same day.

Percutaneous nephrolithotomy (PCNL) treats very large or complex stones. A small incision is made in the back to reach the kidney. A thin wire placed into the kidney removes the stone. This requires a hospital stay.

Prevention
Once the stones are gone, medicine, a change in your diet and drinking more fluids can help prevent stones from forming again.