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Kidney Stones

The cause of most kidney stones is not known. A stone may cause no problems, but often it causes pain. Most kidney stones are small, and pass out with the urine. About half of the people who have a stone develop another one at a later time. Drinking lots of water may prevent a recurrence.

How common are kidney stones?

About 3 in 20 men, and 1 in 20 women in the UK develop a kidney stone at some stage in their life. It can occur at any age, but most commonly in middle age. About half of people who develop a kidney stone will have at least one recurrence at some stage in the future.

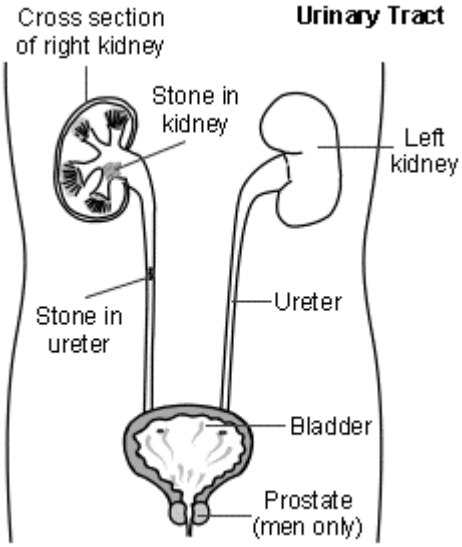
How do kidney stones form?

The kidneys filter the blood, and remove excess water and waste chemicals to produce urine. Urine travels from each kidney down a tube called the ureter, into the bladder, then out of the body when the bladder is full. Many waste chemicals are 'dissolved' in the urine. Sometimes the waste chemicals form tiny crystals in the urine, which may clump together to form a small stone.

What causes kidney stones?

In most cases, there is no known reason why a stone forms. Most stones are made of calcium. However, in most cases, the amount of calcium and other chemicals in the urine is normal. You are more likely to form a stone if your urine is concentrated. For example, if you live in a hot climate, or work in a hot environment when you may lose more fluid as sweat, and less as urine.

In a small number of cases, an underlying condition is the cause. Various uncommon disorders can lead to high levels of chemicals in the body such as calcium, oxalate, uric acid, and cystine. If the level of these chemicals is high enough in the urine, they can form into stones. Also, recurrent urine or kidney infections may lead to a stone forming.



What are the symptoms of kidney stones?

- **No symptoms.** In some cases a kidney stone lies in a kidney and causes no problems.
- **Pain.** A stone that is stuck in a kidney may cause pain in the side of the abdomen.
- **Renal colic.** This is a severe pain caused by a stone that passes into the ureter (the tube that leads from the kidney to the bladder). The stone becomes 'stuck' and the ureter 'squeezes' the stone towards the bladder. The pain is in the side of your abdomen, and may radiate down into the lower abdomen or groin. You may sweat or vomit due to the pain.
- **Blood.** You may see blood in your urine caused by a stone 'rubbing' against the inside of your ureter.

Are any tests needed?

- Special x-rays of the kidneys and ureters are commonly done to confirm the diagnosis of a kidney stone, and to check that it is not blocking the flow of urine.
- In some cases, further tests are advised to look for an underlying cause for the stone. These may be done if you:
    - Have more than one kidney stone.
    - Have symptoms of an underlying condition.
    - Have a family history of a particular condition.

  Investigations may include blood and urine tests, and an analysis of the stone if you pass it out. (To catch a stone, pass urine through gauze, a nylon stocking, or a filter such as a coffee filter.)

What is the treatment for kidney stones?

- No treatment may be needed for some stones that lie in the kidney and do no harm.
- Most stones that cause renal colic are small, and pass out with the urine in a day or so. Strong painkillers are often needed to ease the pain until you pass the stone.
- A larger stone may become stuck in the ureter or kidney and cause problems. You may need an operation to have it removed.
- 'Shock wave' treatment (lithotripsy) may be an option if you have a large stone that is 'stuck'. This uses ultrasound waves to break up stones. You then pass out the tiny broken fragments with the urine.

Are there any complications from kidney stones?

Complications from kidney stones are uncommon (although the pain at the time can be severe). Sometimes a large stone can completely block the passage of urine down one ureter. This may lead to infection or damage to the kidney. This is usually avoided as x-rays will detect a blockage, and large stones can be removed.

What can I do to help prevent a recurrence of a kidney stone?

About half of people who have a kidney stone develop another one within 10 years. Sometimes stones can be prevented from forming.

Have lots to drink

If you have had one stone, you are less likely to have a recurrence if you drink lots of fluid, mainly water, throughout the day (and night). The aim is to keep the urine dilute. Aim to drink at least 3-3.5 liters a day (unless your doctor advises otherwise if you have other medical problems). Have a large glass of water at bedtime, and also during the night if you wake to go to the toilet. If you work or live in a hot environment, you should drink even more.

Other advice

For the few people who have a high level of certain chemicals in the body, further specific advice may be given. For example, the advice of a dietician will help people with high blood levels of calcium to reduce calcium in the diet. Uric acid stones can be prevented with a medicine. Other advice from a specialist

may be appropriate for rarer conditions.