

Limit foods that are high in oxalate which can combine with calcium to 'crystallize' and form stones.



Soft Drinks

Nuts



Peanut Butter



Cocoa



Sweet Potatoes

Spinach



French Fries

Coffee



Tea



References:

1. <http://www.myhealth.gov.my/>
2. <https://www.nkfs.org/about-nkf>
3. <https://www.kidney.org/>
4. <https://www.nutritionadvance.com/high-oxalate-foods>

Kidney disease is a silent killer! Signs and symptoms occur late in kidney disease.

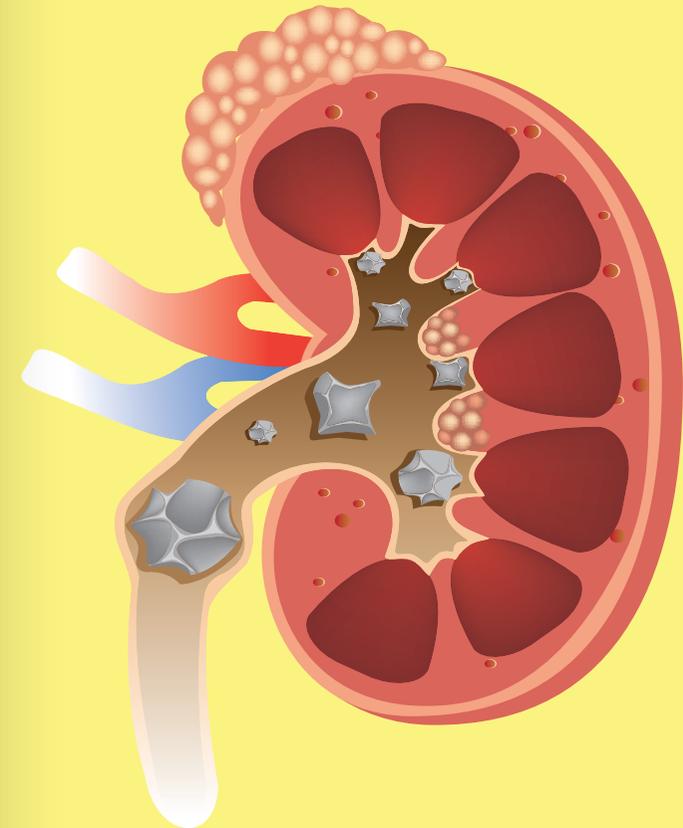
Screening tests are vital, especially if you are at high risk. The progression of kidney disease can be slowed or stopped if detected earlier.

This is public service provided by the National Kidney Foundation of Malaysia in collaboration with UKM Medical Centre. All information is intended for educational purposes only. Please consult your doctor or dietitian for further information.



70, Jalan 14/29, 46100 Petaling Jaya, Selangor Darul Ehsan, Malaysia.  
Website: [www.nkf.org.my](http://www.nkf.org.my) | Hotline: 1300-88-3110

# Kidney Stone



A kidney stone is a hard object which forms within the kidney or urinary tract due to the crystallization of substances present in the urine.

A stone in the kidney or ureter may cause obstruction. Long standing obstruction leads to damage of the affected kidney and may lead to kidney failure.

## HOW DO KIDNEY STONES FORM?

### MANY RISK FACTORS LEAD TO STONE FORMATION SUCH AS:

1. Drinking too little water
2. Family history of kidney stones
3. Previous history of urinary tract infections or kidney stones
4. Uncontrolled gouty arthritis
5. Certain metabolic conditions

## TYPES OF STONES

There are 4 main types:



### CALCIUM CONTAINING STONES (ALSO KNOWN AS CALCIUM OXALATE)

The most common type of kidney stone. Caused by low fluid intake and high level oxalate that is present in our foods. Kidney stones are formed when oxalate binds to calcium in the urine



### INFECTION STONES (ALSO CALLED STRUVITE)

Less common and struvite is a mineral that is produced by infection of certain bacteria in the urinary tract. Struvite and other mineral like calcium and phosphate can stick together to form a hard stone.



### URIC ACID STONES

Another common type which is caused by too much uric acid in the urine. It is due to high intake of foods containing high purine (a natural chemical compound) such as meat and shellfish. This condition tends to run in the families and commonly seen in those who have gouty arthritis.



### CYSTINE STONES

These stones are rare. They are occurred due to a high level of cysteine in the urine and are an inherited genetic disorder.

## SIGNS & SYMPTOMS

The size of kidney stones can be as small as a grain and up to a size of a golf ball. The larger the stone, the more noticeable are the symptoms. The symptoms could be one or more of the following:



SEVERE PAIN ON EITHER SIDE OF YOUR LOWER BACK



MORE VAGUE PAIN OR STOMACH ACHE THAT DOESN'T GO AWAY



FEVER AND CHILLS



NAUSEA OR VOMITING



BLOOD IN THE URINE



URINE THAT SMELLS BAD OR LOOKS CLOUDY



PAIN WHEN URINATING

## WHAT SHOULD I DO IF I HAVE ANY OF THESE SYMPTOMS?

See a doctor as soon as possible!

Tests usually done to confirm the presence of stone are:

- Urine test
- X-ray KUB (Kidney-Ureters Bladder)
- Ultrasound KUB
- CT scan (Computerized tomography)

## WHAT CAN I DO TO REDUCE THE RISK OF KIDNEY STONES?

### DRINK ENOUGH FLUIDS

To help keep your urine less concentrated with waste products which can lead to stone formation. Most of the fluids you drink should be water.



### EAT MORE FRUITS AND VEGETABLES

Which make the urine less acidic.



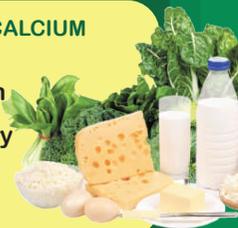
### CONSUME LESS ANIMAL PROTEIN

Animal protein produces urine that has more acid, which can then increase your risk of kidney stones.



### CONSUME FOODS THAT ARE HIGH IN CALCIUM

Calcium helps to prevent stones by binding with oxalate in the stomach and intestines before it gets into the kidneys. People with the lowest dietary calcium intake while taking high oxalate diet have an increased risk of kidney stones.



### REDUCE SODIUM (SALT) IN THE DIET

To reduce calcium excretion in urine.

