

**Human Element Issues KISHPNI-HEI-05-2020**  
**(Kidney Stones in Seafarers)**

**► Introduction:**

Nephrolithiasis, most commonly known as kidney stones is a very common cause for medical unfitness seen in the seafarers. One tenth of the population suffers from kidney stones. Which means one out of every ten people will suffer from kidney stones in their life.

The prevalence of kidney stones in India as an example is 15 % and approximately 5 to 7 million patients are suffering from this painful disease and related kidney problems.

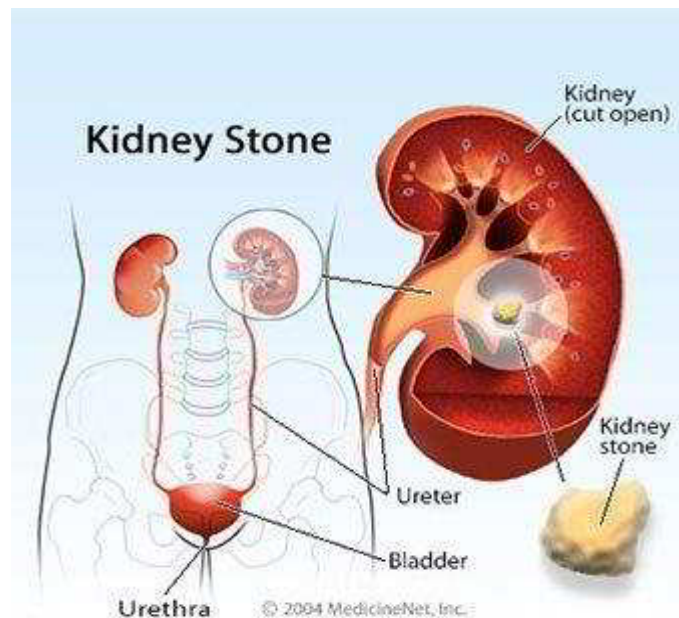
Kidney stones are formed as a result of a buildup of dissolved minerals on the inner lining of the kidneys. They usually consist of calcium oxalate but may be composed of several other compounds. Kidney stones can grow to the size of a golf ball while maintaining a sharp, crystalline structure. The stones may be small and pass unnoticed through the urinary tract, but they can also cause extreme pain as they leave the body.

**The causes:**

The leading cause of kidney stones is a lack of water in the body. When urine contains more fluid, it is less likely that minerals and salts will clump together and begin to form stones.

Darker urine is a sign of dehydration. Ideally, urine should appear faint yellow. Also diet, including high intake of animal protein, sodium, and sugar. Certain conditions, such as gout, diabetes, and obesity, some medications, including calcium supplements.

Kidney stones can run in families, although the specific contributions of shared genes versus shared environments and diets are uncertain. Stones are more commonly found in individuals who drink less than the recommended eight to ten glasses of water a day.



**To decrease the risk of kidney stones, a seafarer can try drinking at least 12 glasses of fluid daily.**

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At least half of a seafarer’s fluid intake should be pure water. Caffeinated, carbonated, and sweetened drinks can all increase the risk of stones. When there is not enough water to dilute the uric acid, a component of urine, the urine becomes more acidic. An excessively acidic environment in urine can lead to the formation of kidney stones. A kidney stone usually remains symptomless until it moves into the ureter.

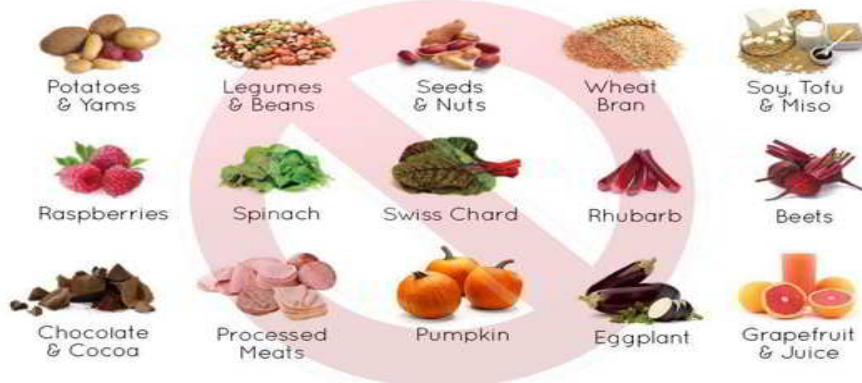
**► Symptoms:**

When symptoms of kidney stones become apparent, they commonly include:

1. Severe pain in the groin and/or side,
2. Blood in urine,
3. Vomiting and nausea
4. White blood cells or pus in the urine
5. Reduced amount of urine excrete
6. Burning sensation during urination
7. Persistent urge to urinate
8. Fever and chills if there is an infection.

Kidney stones that remain inside the body can also lead to many complications, including blockage of the tube connecting the kidney to the bladder, which obstructs the path that urine uses to leave the body. According to research, people with kidney stones have a significantly higher risk of developing chronic kidney disease.

## HIGH OXALATE FOODS - TO AVOID -



## LOW OXALATE FOODS - TO ENJOY -



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### ► **Treatments:**

The following treatments and procedures are available to manage kidney stones:

1-Diet: 70% of the diet of a seafarer suffering from kidney stones should include watery fruits and vegetables. Rest everything should be taken in moderation. Fruits like grapes, watermelon, oranges and plums should be taken as much as possible. Cherries are considered to be exceptionally good during this time. All these fruits and vegetables help in balancing the acidic levels in the body. However, fruits and vegetables with seeds, like tomatoes, eggplant, ladyfinger etc. must be avoided since seeds are hard to digest. Lemon water is highly recommended.

2- Medications: Medicines which can dissolve certain types of kidney stones (Kidney stones formed of calcium or uric acid can be treated with medicines.) Other medicines are also prescribed to relieve the symptoms of kidney stones which include:

- Pain killer medicines
- Muscles relaxants which assist the stones to pass through
- Antibiotics to manage any infection
- Antiemetic medication can be used in people experiencing nausea and vomiting.
- Other medications to manage the underlying disease that is causing the kidney stone surgical procedures to remove kidney stones which include procedures like lithotripsy. This is a treatment that breaks the kidney stone into smaller pieces and allows it to pass. People with large stones located in regions that do not allow for lithotripsy may receive surgical procedures, such as removal of the stone via an incision in the back or by inserting a thin tube into the urethra.

### ► **Detection:**

For individuals in good health, preventing kidney stones can be as easy as staying hydrated. Several different tests can verify the existence of a kidney stone. Ultrasounds have shown to have high detection rates and can diagnose many complications associated with kidney stones. A CT scan of the abdomen is also another way to detect kidney stones. A CT scan will ascertain the state of the ureter, bladder, and kidneys, whether or not a stone exists, the kidney stone's exact size and location, whether or not a blockage has occurred, and the state of other organs.

Using an ultrasound rather than a CT scan for patients suspected of having kidney stones could be preferable to reduce unnecessary radiation exposure, concludes a new study in the New England Journal of Medicine. In addition, an ultrasound examination of abdomen and pelvis is a relatively cheaper and of utmost significance during PEME to rule out kidney stones and to avoid medical emergencies caused due to the same. If you have had a kidney stone, you are very likely to develop another one in the near future.

The good news is that certain dietary measures may help reduce this risk. You can try increasing your fluid intake, consuming foods rich in certain nutrients, eating less animal protein and avoiding sodium, to name a few. Also periodic ultrasound examinations to detect even small stones so immediate medical treatment can be started and surgical intervention can be avoided. Just a few simple measures may go a long way in preventing painful kidney stones.

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