PRINEstone

# Fundamentals OF THE PRINEstone Diet

DIETARY PREVENTION & NUTRITION MANAGEMENT OF KIDNEY STONES

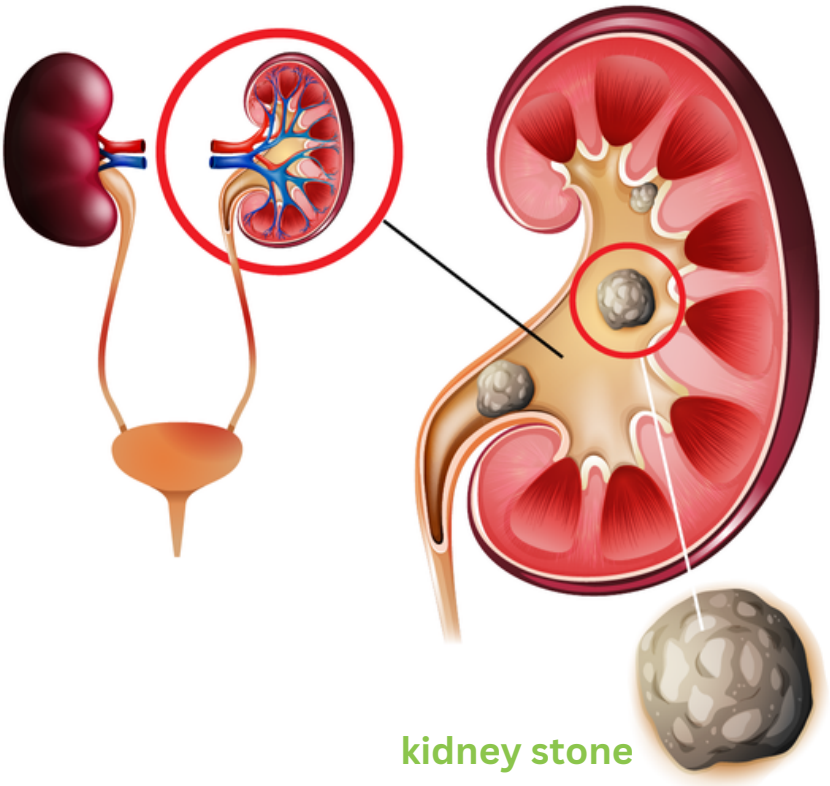
# what is a kidney stone?

**Kidney stones are hard deposits of minerals and salts inside your kidneys.**

Diet, excess body weight, some medical conditions, and certain supplements and medications are among the many causes of kidney stones.

Kidney stones can affect any part of your urinary tract — from your kidneys to your bladder.

Often, stones form when the urine becomes concentrated, allowing minerals to crystallize and stick together.



kidney stone

## four types of kidney stone

### CALCIUM OXALATE

The most common type of kidney stone which is created when calcium combines with oxalate in the urine. Inadequate calcium and fluid intake, as well other conditions, may contribute to their formation.

### URIC ACID

Foods such as organ meats and shellfish have high concentrations of a natural chemical compound known as purine. High purine intake leads to a higher production of monosodium urate, which, under the right conditions, may form stones in the kidneys.

## STRUVITE

These stones are less common and are caused by infections in the upper urinary tract.

## CYSTINE

These stones form in people with a hereditary disorder called cystinuria that causes the kidneys to excrete too much of a specific amino acid.

# what are the symptoms?

Severe, sharp pain in the side and back, below the ribs

Pain that radiates to the lower abdomen and groin

Pain that comes in waves and fluctuates in intensity

Pain or burning sensation while urinating

Pink, red, or brown urine

Cloudy or foul-smelling urine

A persistent need to urinate, urinating more often than usual or urinating in small amounts

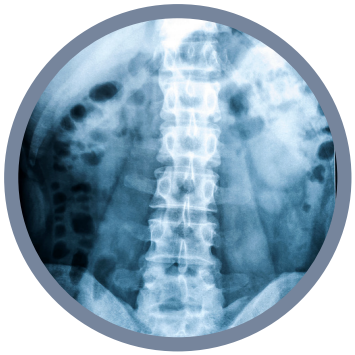
Nausea and vomiting

Fever and chills if an infection is present

# how are kidney stones diagnosed?

## Urine testing

The 24-hour urine collection test may show that you're excreting too many stone-forming minerals or too few stone-preventing substances.



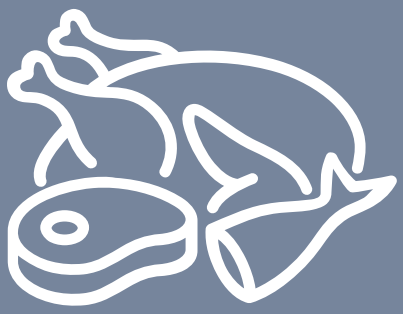
## Imaging

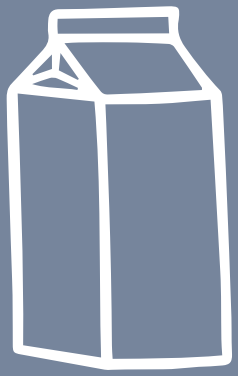
Imaging tests may show kidney stones in your urinary tract. Sonograms, CT scan or even abdominal X-rays can be used to identify kidney stones.

## Analysis of passed stones

You may be asked to urinate through a strainer to catch stones that you pass. Lab analysis will reveal the makeup of your kidney stones. Your doctor uses this information to determine what's causing your kidney stones and to form a plan to prevent more kidney stones.

# changing what you eat or drink can prevent kidney stones.





# drink lots of fluids

**This is the single best way to lower your risk of kidney stones.**

Stone crystals are less likely to form in urine that is not concentrated (pale, instead of dark yellow). Drink plenty of fluid each day. 10-12 cups or 2+ liters is ideal.

Water is the best fluid. This includes hot water, cold water, and sparkling water. It should make up at least half of the fluid you drink every day. Other drinks such as milk, juice, and soup also count towards your fluid intake. Limit drinks with added sugar like colas, sweetened iced tea, fruit drinks, and sports drinks, because these may increase your risk of kidney stones

## tips to get enough fluid every day

Drink 2 cups (500 mL) of fluid at each meal and snack.

Carry a water bottle with you during the day.

Add lemon, lime, or cucumber slices to water for flavor. Citrus fruits have additional benefits (keep reading).

If you wake up at night to pass urine, drink water to replace the fluid you lose

# citrus fruits can help

**Citrus fruits have been shown to help decrease the risk of kidney stones.**

Lemons contain citric acid that metabolizes in your body to protect you from stones. Eating citrus fruits or adding lemon juice to your water is a good strategy. However, be careful about lemonade which may be high in sugar and nullify the health benefits.

Lemon juice has also been utilized to help break down smaller stones and allow them to pass.

## avoid high doses of vitamin C supplements

Instead of taking vitamin C supplements, eat foods higher in vitamin C like citrus fruits, peppers, and tomatoes. Excessive vitamin C, especially from supplements can increase your risk of kidney stones.

It is recommended to take 60mg/day of vitamin C based on the US Dietary Reference Intake.
Excess amounts of 1000mg/day or more may increase urinary oxalate excretion and calcium oxalate stone formation.

# limit salt and high sodium foods

**If you eat a lot of salt (sodium) in foods, the amount of calcium in your urine will increase.**

This increases your risk of kidney stones. Limit the sodium in your meals and snacks to less than 2,300 mg a day. Each teaspoon of table salt has about 2,300 mg of sodium.

## tips to lower your sodium intake

Limit processed, instant, pre-made, and canned foods.

Limit fast food and restaurant food.

Don't add salt during cooking or at the table.

Season foods with lemon juice, herbs, spices, vinegar, garlic, ginger, or onions instead of salt.

Switch to no added salt seasoning mixes.

Read labels to help you choose foods lower in sodium. **Foods that have a Daily Value (DV) for sodium of 5% or less are low in sodium.**

# watch the labels!

You can also check for nutrient claims on food and beverage packages to quickly identify those that may contain less sodium.

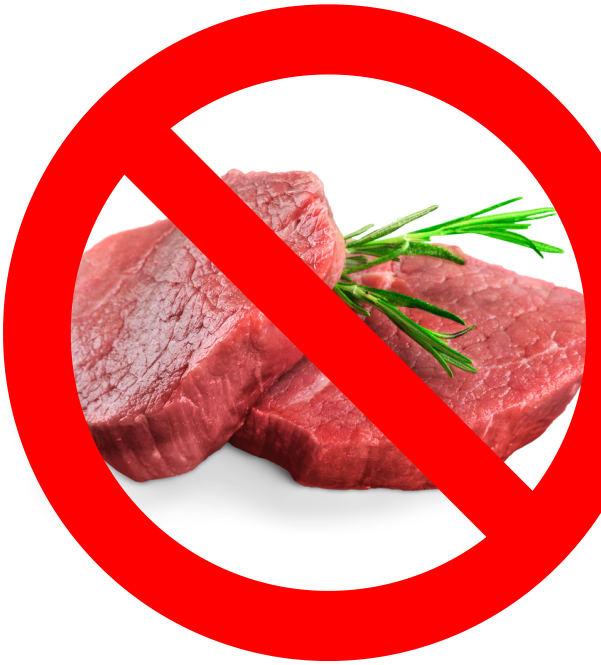
Here's a guide to common claims and what they mean:

| | |
|---|---|
| **Salt/Sodium-Free** | Less than 5 mg of sodium per serving |
| **Very Low Sodium** | 35 mg of sodium or less per serving |
| **Low Sodium** | 140 mg of sodium or less per serving |
| **Reduced Sodium** | At least 25% less sodium than the regular product |
| **Light in Sodium or Lightly Salted** | At least 50% less sodium than the regular product |
| **No-Salt-Added or Unsalted** | No salt is added during processing – but these products may not be salt/sodium-free unless stated |

# eat moderate amount of protein

Consuming animal protein increases the risk of developing kidney stones. Limiting animal protein such as milk, eggs, fish, shellfish, chicken, mutton, beef, pork, and especially organ meats is always recommended.

## Protein should be limited to no more than 80 grams of protein per day.



Replace animal protein with plant-based foods to have enough proteins in your diet plan.

Although you may need to limit how much animal protein you eat daily, you still need to ensure you get enough protein.

Consider replacing some of the meat and animal protein you would typically eat with beans, dried peas, and lentils, which are plant-based foods that are high in protein and low in oxalate.

Talk with a Renal Dietitian about how much total protein you should eat and how much should come from animal or plant-based foods.

# limit foods high in oxalate

## The most common type of kidney stone is Calcium Oxalate.

A 24-hour urine test can quantify oxalate in the urine and it may be more important in some than others. But keeping oxalate intake down is a good general strategy to observe in the prevention of stones. Oxalate is found naturally in some vegetables, fruits, and grain products.

### Very high oxalate foods to avoid:

- almonds
- cranberry concentrate pills
- baked potato with skin
- dried cooked beans and lentils
- beets
- French fries
- bran cereals
- nuts
- brown rice
- nut butter
- cocoa powder
- rhubarb
- spinach
- raspberries
- sweet potatoes
- soy products and tofu
- tea, black
- wheat bran

# get enough calcium from foods

Even though you may think low calcium diets would help prevent stones, that is surprisingly not the case. A moderate calcium diet is recommended. If dietary calcium is too low, there can be negative consequences, including increased stones. In the right amounts, calcium can block other substances in the digestive tract that may lead to stones.

Talk with a health care professional about how much calcium you should eat to help prevent getting more calcium phosphate stones and to support strong bones.

It may be best to get calcium from plant-based foods such as calcium-fortified juices, cereals, breads, some kinds of vegetables, and some types of beans. Ask a dietitian or other health care professional which foods are the best sources of calcium for you.

# Remember, prevention is always better than cure.

By adopting a healthy diet, staying hydrated, and taking necessary precautions, you can greatly reduce the likelihood of kidney stone formation.

Please note that the recommendations here are general preventative in nature. You are encouraged to consult with your healthcare provider and dietician for personalized advice and guidance based on your medical history and specific needs.

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For more information or individualized dietary recommendations contact us for more at
www.prinehealth.com/stone
516-951-1950

## Here are a few takeaways to remember


Stay hydrated


Lemons can help


Mind your sodium intake.


Embrace a balanced diet of protein.


Limit oxalate-rich food


Moderate calcium intake


Be cautious with taking Vitamin C supplements

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