

# Preventing Kidney Stones

*Urology Care*  
FOUNDATION™  
*The Official Foundation of the  
American Urological Association*

## WHAT ARE KIDNEY STONES?

Urine contains many dissolved minerals and salts. When the urine has high levels of minerals and salts, hard stones can form. These stones can be “silent” or very painful.

## WHAT CAUSES KIDNEY STONES?

- Low urine volume
- Diet
- Bowel conditions
- Obesity
- Medical conditions
- Some medications and calcium vitamin C supplements
- Family history

## WHAT WILL MY HEALTH CARE PROVIDER DO TO HELP ME PREVENT FUTURE STONES?

Your stone may not have caused you a lot of problems. Or you may have pain from a stone that caused your kidney to swell. What is important after you have a stone is preventing more in the future. Half of all people who get a stone will get another one.

Your health care provider should run tests to learn why you are getting stones. Based on the type of stone you have, your current health issues, age and nutrition needs, your health care provider can give you tips to prevent stones.

### *Medical and dietary history*

Your health care provider will ask questions about your personal and family medical history. They may ask you to keep a food diary. This information will provide clues about how likely you are to form more stones and why.

### *Blood and urine tests*

Blood tests detect if a medical problem is causing your stones. Your urine can be tested for a urinary tract infection or crystals in different stone types.

### *Imaging tests*

These tests are done to find stones in your urinary tract. Imaging tests may be repeated over time to check for stone growth. You may also need imaging tests if you are having pain, hematuria (blood in your urine) or recurrent infections.

### *Stone analysis*

Testing the stone will determine what type of stone it is. Knowing the type of stone helps you learn the best way to prevent future stones.

There is no “one-size-fits-all” for preventing kidney stones. Everyone is different. Results from these tests will provide

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your health care provider with the best information to help you, specifically. You may have to change your diet and/or take medications to avoid getting another stone.

## DIET TIPS TO PREVENT STONES

It is unlikely that you'll need to follow every tip below, but it's important to talk with your health care provider to learn which tips will help you. Check which tip your health care provider recommends.

### ❑ *Drink enough fluid each day*

If you are not producing enough urine, your health care provider will recommend you drink at least 3 liters of liquid each day (about ten, 10-ounce glasses). This is a great way to lower your risk of forming new stones. Aim to replace fluids lost when you sweat from exercise or in hot weather. All fluids count, but try to drink water or mostly no-calorie or low-calorie drinks. This may mean limiting sugar-sweetened or alcoholic drinks.

### ❑ *Reduce the amount of salt in your diet*

This tip is for people with a high sodium diet and high urine calcium or cystine. You may benefit from avoiding foods that have a lot of salt. The Centers for Disease Control (CDC) and other health groups advise not to eat more than 2,300 mg of salt per day.

### ❑ *Eat plenty of fruits and vegetables*

Eating at least 5 to 9 servings of fruits and vegetables daily is recommended for everyone. Eating fruits and vegetables gives you potassium, fiber, magnesium, antioxidants, phytate and citrate. These elements are known to help keep stones from forming.

### ❑ *Eat foods with low oxalate levels*

Learning how to control oxalate in your diet depends on why your oxalate levels are high in the first. You may be asked to limit certain high-oxalate foods. Oxalate is found in many plant foods, but mostly spinach, rhubarb and almonds. It is usually not necessary to stop eating foods that contain oxalate since they're healthy foods. Rather, you can eat calcium-rich foods with meals to control your urinary

oxalate level. Calcium lowers the oxalate level in your body.

### ❑ *Eat less meat*

If you have cystine or calcium oxalate stones and your urine uric acid is high, animal protein may be to blame.

If your health care provider believes your diet is increasing your risk for stones, he or she will tell you to eat less meat. This includes fish, seafood, poultry, pork, lamb, and game meat. You may be asked to eat animal protein only once per day or less, and eat smaller portions. The amount to limit depends on how much you eat now and how much your diet is affecting your uric acid levels.

### ❑ *Eat the recommended amount of calcium*

If you take calcium supplements, make sure you aren't getting too much or too little. Talk with your health care provider or dietitian about whether you need supplements. Foods and beverages, like broccoli, kefir or yogurt, are high in calcium but low in salt. Eating calcium-rich foods or beverages like milk with meals every day is a good habit. There are many non-dairy sources of calcium, such as calcium-fortified non-dairy milks (made from soy, almond, cashews or rice) as well. You can aim to get enough calcium in your diet without supplements.

Many foods and beverages have calcium in them. Some foods and beverages that might be easy to include on a daily basis with meals are:

Foods rich in calcium	Amount	Calcium (mg)
Calcium-fortified non-dairy milks, juices	1 cup	400-450
Milk, buttermilk (lower fat is best)	1 cup	300
Kefir	1 cup	300
Yogurt from cow's milk; soy yogurt	3/4 cup	150-300

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## ❑ MEDICATIONS TO PREVENT STONES

Changing your diet and increasing fluids may not be enough to stop stones from forming. Your health care provider may give you medicine to prevent stones from forming.

Check which medication your health care provider recommends:

- **Thiazide diuretics** lower urine calcium by helping the kidney take calcium out of the urine and put it back in the blood stream.
- **Potassium citrate** makes the urine less acidic or more alkaline (basic). This helps prevent cystine and uric acid stones. It also raises the citrate levels in the urine, helping to prevent calcium stones.
- **Allopurinol** not only lowers the level of uric acid in the blood but also in the urine. It may also be prescribed to help prevent calcium and uric acid stones.
- **Acetohydroxamic acid (AHA)** is for patients who produce struvite or infection stones. These stones form because of repeated urinary tract infections (UTIs). AHA makes it difficult for struvite stones to form.
- **Cystine-binding thiol** drugs are used only for patients who form cystine stones. They are often used when diet changes and other measures fail.

Vitamin supplements should be used carefully, as some can increase your risk of forming kidney stones. Ask your health care provider and a dietician about over-the-counter nutritional supplements.

## ABOUT UROLOGY CARE FOUNDATION

The Urology Care Foundation is the world's leading urologic Foundation—and the official Foundation of the American Urological Association. We provide information for those actively managing their urologic health and those ready to make healthy changes in their lives. Our information is based on the American Urological Association resources and is reviewed by medical experts.

To learn more about different urologic issues visit **UrologyHealth.org/UrologicConditions**. Go to **UrologyHealth.org/FindAUrologist** to find a doctor near you.

## DISCLAIMER

This information is not a tool for self-diagnosis or a substitute for professional medical advice. It is not to be used or relied on for that purpose. Please talk to your urologist or health care provider about your health concerns. Always consult a health care provider before you start or stop any treatments, including medications.

For copies of printed materials about VUR and other urologic conditions, visit **UrologyHealth.org/Order** or call 800-828-7866.