

Preventing Kidney Stones with Fluids and Citric Acid

Drinking enough fluids to keep your urine diluted can greatly lower your risk of developing kidney stones. When your urine is diluted, the particles that form stones are less likely to come together to form stones. You are likely drinking enough fluids if your urine is very light yellow in color and you are urinating often. Citric acid also helps prevent the most common type of stone which is calcium based kidney stones.

Increasing your fluids

Here are some guidelines for drinking fluids that will help lower your risk of developing more stones:

- Drink 1 to 2 full glasses of water when you wake up in the morning. Urine tends to get most concentrated during the night. Drinking a large amount of fluid shortly after you wake up will dilute your urine.
- After your first glass of water in the morning, drink 8 to 12 ounces of fluid every 2 to 3 hours throughout the day. Some people go long periods during the day without drinking. Get into a schedule where you drink fluids every hour to keep your urine diluted all day long.
- Setting reminders on your phone, using reminder apps, or a “smart” water bottle can all help you remember to drink.
- When you exercise or in hot weather, you will likely need to drink even more water to replace what you lose from sweat.
- Try to make at least half of your fluids water. You can get fluids from coffee, milk, and other low sugar beverages, but water should be your main source.

Adding citric acid

Drinking fluids with citric acid lowers your risk of calcium based kidney stones by increasing the amount of citrate in your urine. Citrate binds to calcium in the urine. This stops calcium from binding to oxalate and phosphate, which form kidney stones. Studies have shown that ½ cup or 4 ounces of lemon juice a day can double the amount of citrate in the urine. Any amount helps up to 4 ounces a day.



Here are some ways to get in more citric acid in your diet:

- Add ½ cup of lemon or lime juice, either fresh or bottled, to 1 to 2 liters of water and drink that throughout the day. Lemon and lime juice have the most citric acid and are the best options.
- Drinking lemonade daily will help add citrus to your diet. Choose low calorie lemonade to avoid taking in large amounts of sugar and calories. Sugary beverages, like regular lemonade, can actually increase the risk of stones.
- Grapefruit and orange juice are not recommended in large amounts. They have less citric acid than lemons and limes, and have more natural sugar.

Your fluid schedule

Use this table to help you plan how much fluid you are drinking throughout the day to help you reach the amount suggested for you.

Your total recommended fluid amount each day is _____ ounces.

Time	Fluid Amount	Time	Fluid Amount
5 a.m.		3 p.m.	
6 a.m.		4 p.m.	
7 a.m.		5 p.m.	
8 a.m.		6 p.m.	
9 a.m.		7 p.m.	
10 a.m.		8 p.m.	
11 a.m.		9 p.m.	
12 p.m.		10 p.m.	
1 p.m.		11 p.m.	
2 p.m.		12 a.m.	

This resource is for informational purposes only. Talk to your healthcare provider if you have any questions about your care. For more education, contact the Library for Health Information at 614-293-3707 or health-info@osu.edu.