

Kidney Stone Prevention

You have/had a kidney stone, now what?

Unfortunately, no one action on your part will prevent a future kidney stone. In this handout, you will find general guidelines to help prevent future kidney stones.

Water. Water. Water.

It is extremely important to drink lots of water <u>throughout the day</u>. Water intake ensures your kidneys are producing lots of urine. Continual urine production, which comes from consistent fluid intake, prevents the stone material from settling in your kidneys or urinary tract causing build up and possible stone formation.

While water is the best, other hydrating fluids such as Gatorade[®] or Pedialyte[®] work well. Stay away from soda and grapefruit juice, as those can have the opposite effect. In addition, be sure to remember to limit the amount of sugar in any drink.

Lemon has some benefit as well. Lemon contains a substance called citric acid. Citric acid helps raise the pH of your urine, making it less acidic. Less acidic urine helps prevent stone formation. It is unclear how much citric acid it required to raise the pH of urine. Adding 4 oz of lemon juice or lemon juice concentrate to your daily water intake can be helpful.

Some patients will benefit from additional citric acid supplementation. Please talk to your provider.

The National Kidney Foundation recommends aiming for 2.5 liters of urine production a day. In order to achieve this output, you will need to drink at least 2.5-3 quarts of hydrating fluids a day.

Remember your sweat. When you sweat, you loose fluids. This loss of fluids causes you to produce less urine. When you sweat, remember to drink more hydrating fluids.

Limit dietary sodium (salt):

High levels of sodium intake cause your kidneys to excrete calcium as well. Increased levels of calcium in your kidneys can cause stone formation.

According to the Federal Drug Administration (FDA), the recommend sodium intake for an adult is 2,000mg a day.

Watch out for processed and canned foods. These can have a lot of 'hidden' salt in them. Also fast food typically contains a large amount of sodium.

Even if you don't salt your food, many foods contain added salt. Read the nutritional labels for detailed amounts of sodium in the foods you eat.

Moderate amount of meat-based protein:

Protein intake from meat sources can affect kidney stone formation in a couple of ways. During digestion of animal meat, the substance purine is broken down to uric acid. High levels of uric acid in your urine can cause stone development. In addition, high levels of meat intake can cause calcium loss from your kidneys. The more calcium excreted from the kidneys, the more likely it will form a stone.

The recommendation is to limit your daily intake of animal meat to 6-8 oz. Meat includes red meat, chicken, pork, turkey, and fish. In addition, organ meat – liver, brain – contains a higher level of purines than other meats.

Many non-meat foods are good sources of protein. Due to their nature though, it is important to eat a variety of different non-meat sources to ensure you are getting enough complete protein. Below are just a few examples of non-meat protein sources. Keep in mind nuts can be high in oxalate, which can be problematic for some patients (see Oxalate section).

Eggs. Cheese. Milk. Soy. Tofu. Quinoa. Rice. Beans. Chia seeds. Most nuts.

Despite moderate amount of meat-based protein, some people still produce excessive amounts of uric acid. If this occurs, specific mediation can be prescribed to you to help prevent uric acid buildup in your urine.

Calcium – Balancing Act:

Your diet should include a normal amount of calcium intake, 800-1,200mg a day. Foods with calcium are generally better utilized by your body than supplements.

Too much or too little calcium in your body can lead to kidney stone formation. While limiting calcium intake might seem intuitive, it can cause more oxalate to be excreted in your urine, causing kidney stones. On the flip side, too much calcium at one time which typically occurs with calcium supplements taken without food, can cause the calcium to be excreted too quickly, causing possible stone formation.

Please discuss any calcium supplements with your all your providers. If you do take a calcium supplement, make sure it is taken with food/meal.

Oxalate – Balancing Act:

Many healthy foods are higher in their oxalate content. A diet full of higher-level oxalate foods can increase your risk of kidney stones.

The key is to eat higher level oxalate containing foods in moderation and when you eat them, drink additional water/hydrating fluids to help flush it out.

If you have any type of bowel disease, such as irritable bowel, Crohn's disease, or Ulcerative Colitis, or have had bowel surgery talk to your provider about specific strategies to help with oxalate build-up.

Foods (3.5 oz or 100 g)	Oxalate (mg)	Foods (3.5 oz or 100 g)	Oxalate (mg)	Foods (3.5 oz or 100 g)	Oxalate (mg)
Flours & Mills		Seed containing vegetables		Leafy vegetables	
Barley flour Buckwheat flour Corn meal Rice flour, brown Rye flour, dark Semolina flour Soy flour Wheat flour, white unbleached Wheat flour, whole Wheat Germ	56 269 54 37 51 48 183 40 67 269	Cucumber, raw Eggplant, raw Eggplant, green, long, raw Okra, raw Pepper, raw Snap beans, raw Squash, raw Tomato, raw Yard long beans, green, raw	20 190 55 50 40 360 20 50 38	Amaranth leaves, raw Beet leaves, raw Brussels sprouts, raw Cabbage, green raw Chicory, raw Chinese cabbage, raw Chinese, kale, raw Chives, raw Collards, raw Coriander, raw Endive, raw	1,090 610 360 210 6 23 1,480 450 10 110
Fruits		Legumes (Beans & Peas)		Leek	20
Bitter melon, raw Papaya raw Green goose berries Black berries Blueberries, strawberries, red raspberries Black raspberries Concord grapes Currents Lemon peel Lime peel Rhubarb	71 5 88 19 15 55 25 19 83 110 800	Anasazi beans, boiled Azuki beans, boiled Black beans, boiled Cowpeas (blackeye peas), boiled Gabanzo beans, boiled Great northern beans, boiled Kidney beans, red cooked Lentils, boiled Lima beans, large, boiled Navy beans, boiled Peas, green, split, boiled Peas, raw Peas, yellow, split, boiled Pink beans, boiled	80 25 72 4 9 75 16 8 8 57 6 50 5 50 5 75 27	Lettuce, raw Parsley, raw Purslane, raw Spinach, raw Turnip greens, raw Watercress, raw Tuber & Root vegetables Beetroot, boiled Carrot, raw Cassava root, raw Parsnip, raw Potato, raw Radish, raw	330 1,700 1,310 970 50 310 675 500 1,260 40 50 480 30
		Red beans, boiled Soybeans, boiled	35 56	Turnip, raw	240
Nuts		White beans, small boiled	78	Other vegetables	
Almonds, roasted Cashews, roasted Hazelnuts, raw Macadamia nuts, raw Peanuts, raw Pecans, raw Pine nuts, raw Pine nuts, roasted Pistachio nuts, roasted Soy nuts (1 oz) Walnuts, raw	469 262 222 42 142 64 198 140 49 392 74			Corn, sweet, raw Garlic, raw Onion, raw	10 360 50
				Miscellaneous foods	
		Stem & Stalk vegetables Asparagus, raw Broccoli, raw Cauliflower, raw Celery, raw	130 190 150 190	Black pepper Chocolate Cocoa powder Indian tea (1 C) Soy protein Soy yogurt Soybean cracker Tofu	419 117 623 72 496 113 207 275

Oxalate content of common foods:

Sources: references [80-83].

Vitamin C:

While vitamin C is an important part of a well-balanced diet, too much can lead to kidney stone formation. Keeping your total intake of Vitamin C to around 60mg daily is recommended by the FDA. If your intake is closer to 1000mg daily, this can lead to increase oxalate formation.

Recipes:

Scan the QR Code below to view and download a copy of the <u>Urology Care Foundation™</u> Living Healthy: Fight Kidney Stones with Food Cookbook. Site: <u>https://www.urologyhealth.org/educational-materials/kidney-cookbook</u>.



Prevention of kidney stones is not an exact science. Many factors, including genetics, play a role in kidney stone formation. Be sure to ask your provider about any additional tests and/or follow-up you need to help stay kidney stone free!