

PREVENTING KIDNEY STONES

Kidney stones are caused by a build-up of minerals, such as calcium, oxalate and phosphorus, in the urine. Most stones are so small that they pass through the urinary system without pain. However, a large enough stone can cause extreme pain, or even urinary blockage, and require treatment or surgery.

Calcium oxalate stones are the most common type of kidney stone. Calcium oxalate stone formation may be caused by high levels of calcium and oxalate in the urine.

Why is fluid intake important?

Drinking enough fluids each day is the best way to help prevent most types of kidney stones. You should drink 10 to 12 glasses a day in order to keep urine diluted and to flush away materials that might form stones. At least 5 to 6 glasses should be water.

Some studies suggest drinking lemonade (using lemon or lime) to protect against kidney stones because it contains citrate, which stops crystals from growing into stones.

Why should I reduce salt and sodium?

Sodium causes the kidneys to excrete more calcium into the urine. High concentrations of calcium in the urine combine with oxalate to form stones. Reducing salt and sodium intake is preferred to reducing calcium intake.

Read **Nutrition Facts** labels when shopping to learn more about the sodium content of foods, and use less salt and salt-containing condiments when preparing meals at home.

How does oxalate in the diet affect kidney stone formation?

High concentrations of calcium in the urine combine with oxalate to form stones. Some of the oxalate in urine is made by the body. However, eating certain foods with high levels of oxalate can increase the amount of oxalate in the urine. For more information on high oxalate foods, see list overleaf.

How does calcium in the diet affect kidney stone formation?

Calcium from food does not increase the risk of calcium oxalate stones, in fact calcium binds to oxalate in the digestive tract and stops it being absorbed by the body. If you do eat high oxalate foods, you should include high calcium foods at the same meal.

You should aim to include 800 mg of calcium in your diet every day, not only for kidney stone prevention but also to maintain bone density. Milk and other dairy products such as cheese and yogurt are high in calcium. Aim for 2 to 3 servings every day.

How does animal protein in the diet affect kidney stone formation?

Meat and other animal proteins, such as fish and eggs, may raise the risk of calcium stones by increasing the excretion of calcium and reducing the excretion of citrate into the urine. Citrate prevents kidney stones, but the acid in animal protein reduces the citrate in urine. Limit meat to no more than 6 ounces a day.

What about supplements?

- Calcium supplements may increase the risk of calcium oxalate stones and should always be taken with food. Calcium citrate is the preferred form.
- Your body may turn extra vitamin C into oxalate. Avoid vitamin C supplements containing more than 500 mg of vitamin C.

How can the DASH diet help?

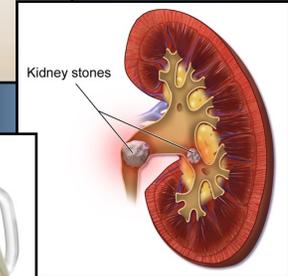
Studies have shown the DASH diet (Dietary Approaches to Stop Hypertension) can reduce the risk of kidney stones. The DASH diet is high in fruits and vegetables, moderate in low-fat dairy products, and low in animal protein. More information about the DASH diet can be found at www.nhlbi.nih.gov/health/health-topics/topics/dash

More questions? Please contact the National Nutrition Centre or the Community Nutrition Officer at your nearest polyclinic

The foods listed below are High in oxalate and should be avoided. If you do wish to eat any of these foods, you should include high calcium foods at the same meal.

	FOOD
Staples	Bran cereals, Cassava, Shredded Wheat cereal, sweet potato, Weetabix cereal, wheat germ
Legumes	Nuts (all kinds), nut butters, pine nuts, sesame seeds, soy nuts
Vegetables	Beets, okra, spinach
Fruits	Dried fruits, kiwifruit, oranges, red and black raspberries, rhubarb, star fruit
Beverages	Black or green tea (more than 2 cups), cocoa, dark beer, hot chocolate, Milo, Ovaltine, soy beverages
Miscellaneous	Chocolate, marmalade, Oreo cookies, soy sauce

Nutrition Series



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