



Diet & Kidney Stone prevention – Low Oxalate diet

Your kidneys are two bean-shaped organs, each about the size of your fist. They're located in back of your abdomen on each side of your spine, and their main function is to remove excess fluid, unneeded electrolytes and waste from your blood in the form of urine. The ureters carry urine from your kidneys to your bladder, where it's stored until you eliminate it from your body.

The crystals that lead to kidney stones are likely to form when your urine contains a high concentration of certain substances — especially calcium, oxalate, uric acid and rarely, cystine — or low levels of substances that help prevent crystal formation, such as citrate and magnesium. Crystals also may form if your urine becomes too concentrated or is too acidic or too alkaline.

A number of factors can cause changes in your urine, including the effects of heredity, diet, drugs, climate, lifestyle factors and certain medical conditions. Each of the four main types of kidney stones has a different cause:

- **Calcium stones.** Roughly four out of five kidney stones are calcium stones. These stones are usually a combination of calcium and oxalate. Oxalate is a compound that occurs naturally in some fruits and vegetables. A number of factors can cause high concentrations of these substances in urine. Excess calcium, for instance, may result from ingesting large amounts of vitamin D, from treatment with thyroid hormones or certain diuretics, and from some cancers and kidney conditions. You may also have high levels of calcium if your parathyroid glands, which regulate calcium metabolism, are overactive (hyperparathyroidism). On the other hand, certain genetic factors, intestinal bypass surgery and a diet high in oxalic acid may cause excess amounts of oxalate in your body.

Prevention

In many cases, you can prevent kidney stones by making a few lifestyle changes. If these measures aren't effective and blood and urine tests reveal a correctable chemical imbalance or that the stones you have are getting bigger, your doctor may prescribe certain medications.

Lifestyle changes

For people with a history of kidney stones, doctors usually recommend passing at least 2.5 quarts of urine a day. To do this, you'll need to drink about 3.5 quarts (14 cups) of fluids every day — and even more if you live in a hot, dry climate. Although most liquids count, water is best.

In addition, if you tend to form calcium stones — a combination of calcium and oxalate — your doctor may recommend restricting foods rich in oxalates. These include:

Beverages: draft beer, chocolate beverage mixes, cocoa, instant tea and coffee

Breads & Cereals: Grits(white corn) wheat bran/germ and whole-wheat flour

Desserts: Fruitcake, deserts containing fruits listed below

Fats: nuts, Nut butters (including Peanut butter)

Fruits: berries, Concord grapes, red currants, damson plums, rhubarb, lemon, lime and orange peels, tangerines, star fruit.

Meats & meat subs: Baked beans with tomato sauce, tofu

Vegetables: Beans (wax or legume) beets, beets & beet greens, collards, okra, refried beans, greens (spinach, endive, escarole, parsley, swiss chard), eggplant, summer squash, sweet potatoes, sesame seeds, almonds and soy products.

Misc: Chocolate, cocoa, carob powder, Vitamin c intake in excess of RDA

What's more, studies show that an overall diet low in salt and very low in animal protein can greatly reduce your chance of developing kidney stones.

As a general rule, restricting your intake of calcium doesn't seem to lower your risk. In fact, researchers have found that women with the highest calcium intake are less likely to develop kidney stones than are women who consume less calcium. Why? Dietary calcium binds with oxalates in the gastrointestinal tract so that oxalates can't be absorbed from the intestine and excreted by the kidney to form stones.

An exception to this rule occurs when an individual absorbs too much dietary calcium from the intestine. In such a circumstance, restricting calcium intake is useful.

Calcium supplements seem to have the same protective effect as dietary calcium, but only if they're taken with meals. When taken on an empty stomach, the calcium can't bind with the oxalates in food.

Medications

Medications can control the level of acidity or alkalinity in your urine and may be helpful in people who form certain kinds of stones. The type of medication your doctor prescribes will depend on the kind of kidney stones you have:

- **Calcium stones.** To help prevent calcium stones from forming, your doctor may prescribe a thiazide diuretic or a phosphate-containing preparation. If you have calcium stones because of a condition known as renal tubular acidosis, your doctor may suggest taking sodium bicarbonate or potassium bicarbonate.

Original Article:<http://www.mayoclinic.com/health/kidney-stones/DS00282>

Additional resource: American Dietetic Association Manual of Clinical Dietetics 6th Edition