



Nutrition Nuggets



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Reduce Your Risk for Kidney Stones

Passing a kidney stone is known to be one of the most excruciating pains commonly experienced. This disorder of the urinary tract has been on the rise in industrialized nations since World War II and is associated with increasing intake of animal protein, sugar and salt. The dramatic rise in stone disease in Western nations has been termed a "stone boom."

Currently, 50 percent of individuals treated for a stone have a recurrence within five to seven years. Although genetics has much to do with it, there are many preventive choices you can make in diet and lifestyle.

HOW DO STONES DEVELOP?

Your kidneys remove excess mineral salts and other wastes from the bloodstream. Stones form when urine becomes overly saturated with substances that do not dissolve completely (e.g., calcium, oxalate, uric acid). In concentrated urine, mineral deposits tend to form crystals that clump together, and these can slowly grow into stones.

Kidney stones range in size from a grain of sand to a golf ball! Approximately 90 percent will leave the body through urine within two to three weeks, but larger ones can get stuck in the urinary tract or adhere to the lining of the kidney.

WHAT CAUSES THEM?

Experts believe a propensity for kidney stones can be caused by many risk factors, but genetics and diet are considered leading influences. Most stones begin in the kidney and are three times more common in men than women, most frequently occurring in middle age. Additionally, a history of urinary tract infections and insufficient fluid intake are major risk factors.

Stones have also been linked to taking mega doses of vitamins C and D, so moderation is recommended with supplements. Vitamin C is ascorbic acid and a certain amount of that is converted into oxalic acid by the body, which can then contribute to calcium oxalate stones. Diuretics (water pills) and alcohol consumption are additional substances associated with the development of kidney stones.

SYMPTOMS

The most common symptom is extreme pain in your back or side, below the ribs that often spreads to the lower abdomen and groin. A lodged stone can block the flow of urine, causing pressure to build in the affected ureter and kidney. Increased pressure results in stretching and spasm, causing intense pain.

These symptoms are frequently accompanied by:

- Urine that is off-color, cloudy, or foul smelling
- Persistent urge to urinate and/or burning upon urination
- Fever or chills, indicating infection
- Nausea and vomiting

Your best option when trying to pass a stone is to help flush it out by drinking two to three quarts of water each day. If it doesn't come forth in a few days, surgery may be necessary.

THE MOST COMMON STONE

At least 80 percent of kidney stones consist of calcium oxalate, which is calcium attached to oxalic acid. In those who are prone, avoiding calcium-based antacids and limiting certain foods that contain oxalates is helpful.

However, the oxalic acid content of plant foods can vary widely depending on original growth environment, the way they are prepared, and who did the analysis. Comparing information from various databases reveals wide variances between oxalate content of plant materials.

Pooling data from the primary analytical laboratories, it's apparent that there are only a few foods consistently showing high oxalate content. Some are wild plants – lambsquarters (extremely high) and purslane, a salad green. Amaranth, chives, parsley and spinach also rank high. Be careful about consuming large helpings of Popeye's favorite.

Some beverages are also of concern. Dark beer, in addition to black and green teas, contain oxalic acid. Some sources recommend limiting these to no more than one cup daily.

KIDNEY STONE PREVENTION

1. Stay Well Hydrated

Concentrated urine is the largest single factor in stone formation. Therefore, the most important way to prevent kidney stones is drinking plenty of fluids. Stone formers in particular are wise to follow the oft heard advice, "Drink at least 8 glasses of water every day," to keep their urine flowing clear.

A good guideline is to drink a glass of water every hour during the day as well as one glass in the night (if awakened) to avoid the most concentrated morning urine. In warmer climates and for those who are physically active, even higher fluid intake is recommended.

People in the southeastern United States have the highest incidence of kidney stones in our nation. This is thought to be mainly due to insufficient fluids and stones are most prevalent during the hot summer months.

2. Maintain Healthy Weight

Overweight people are more likely to get kidney stones as they excrete more calcium and oxalate in their urine. With obesity, risk rises.

3. Get Plenty of Calcium

Contrary to what many believe, restricting dietary calcium does not reduce stones, even though the mineral is a major part of calcium oxalate stones. On the contrary, adequate calcium from food helps prevent stone formation as it binds to oxalate and keeps it from entering the blood and being transported to the kidneys.

However, calcium supplements do not appear to have the same protective effect. Studies indicate that these supplements increase the risk of calcium oxalate stones when not taken with meals or when taken in excess of requirements.

Additionally, eating more calcium-rich foods doesn't reduce risk in those who consume the high sodium diet that's typical of most Americans. This is because the more salt we eat, the more calcium is released into the urine. Consequently, a sodium restricted diet is recommended for calcium oxalate stone formers.

4. Limit Phosphoric Acid

The largest contributor of phosphoric acid in the American diet is soft drinks. Additionally, grapefruit juice contains a significant amount. Studies show that phosphoric acid promotes stone formation.

Grapefruit juice and colas, in particular, have been found to aggravate development of calcium oxalate stones. Sodas should be replaced with water because refined sugar and phosphoric acid have both been found to increase our risk for kidney stones.

5. Restrict Animal Protein

Excessive consumption of meat, dairy products and eggs is known to promote development of stones. Most Americans consume roughly twice the recommended daily amount of protein. Nowadays, the average adult consumes a half-pound of meat daily.

Limiting dietary protein to the recommended requirement of .8 grams/kilogram (2.2 lbs) body weight per day is highly beneficial for reducing stone risk. Calculating for a 160 lb man, $160/2.2=72$ kg body weight, $72 \times .8=57.6$ gm protein. This is approximately half the protein intake of most men in America.

6. Eat Whole Plant Foods

People who suffer kidney stones typically eat few fruits and vegetables and have a diet with too much animal protein and excessive salt (mostly from processed foods). Potassium is plentiful in produce and is helpful for

not only reducing risk for stones, but also in keeping blood pressure within normal limits.

Inadequate dietary fiber can also increase stone formation, especially of the calcium oxalate variety. The fiber in whole grains combines with calcium in the intestines so that it is excreted with stool instead of through urine.

7. Limit Salt Consumption

As mentioned in prevention strategy #3, a high salt intake promotes calcium excretion into urine, where it then combines with oxalate and phosphorus to form stones. Kidney stone risk rises with increased sodium consumption.

It is recommended that daily sodium not exceed 2,400 mg, but most Americans consume much more, averaging 3,300 mg. Foods high in salt include canned soups, mixes, bread and bakery goods, frozen entrees, cereals, deli and lunch meats, most restaurant meals, crackers, pizza (or anything with high cheese content) and most junk food.

8. A Protective Diet

The Dietary Approaches to Stop Hypertension (DASH) diet has recently provided strong evidence of its value to reduce risk for not only high blood pressure, but also kidney stones. Three major studies of U.S. health professionals, following nearly 242,000 adults for 14 to 18 years, revealed that those on the DASH diet excreted more urine than those who consumed a normal diet despite taking in equal amounts of fluids, possibly in part because of the higher water content of whole plant foods.

Urine normally contains chemicals—citrate, magnesium, phosphate—that help prevent the formation of crystals and stones, citrate being the most important. The urine of the DASH eaters contained higher concentrations of all three. They also excreted less uric acid and calcium oxalate, both stone promoters.

Study participants who followed the diet most closely were found to be 40 - 45 percent less likely to develop kidney stones, as opposed to those who followed it least. Leading researcher Dr. Eric Taylor of Harvard Medical School said, "We think a DASH-style diet holds great promise as a way to reduce the risk of recurrence in individuals with a history of kidney stones."

The DASH diet is rich in unrefined plant foods, poultry, fish and low-fat dairy, while low in sweets, processed foods and red meat. In fact, it shares many similarities with the Mediterranean diet, whose health benefits are well-established.

CHOOSE WISELY

U.S. Dietary Guidelines recommends 8-10 servings of fruits and vegetables daily for average adults. If these healthy recommendations are followed and animal protein is reduced in favor of greater consumption of natural plant foods (fruits, vegetables, grains, beans, seeds and nuts), we will undoubtedly see much less chronic disease in general, including far fewer kidney stones.

For most people, changing to a way of eating that requires frequent planning and preparation entails some lifestyle changes. However, adopting healthful habits is something that can bring a multitude of benefits while preventing some serious regrets.

If you are wondering how you can change your diet, need recipe ideas, or have any nutrition-related questions, contact Haven Registered Dietitian Verna Groger at vlgroger@havenhospice.org. She will be more than happy to provide dietary and wellness information to help you make informed choices for a healthy future.

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