

# Nutrition Tips to Treat and Prevent Calcium Oxalate Kidney Stones

Dietary management of kidney stones is aimed at preventing existing stones from growing bigger and preventing new stones from forming. Kidney stones are often treated with medication as well as changes in eating habits. The guidelines below are organized in order of importance (those with most research-based evidence are listed first).

**1. Drink at least 8-12 cups (64-96 ounces) of fluid each day. Choose good sources of citric acid for over half of your daily fluid.**

Concentrated urine is the leading cause of kidney stones. Drink at least 8 – 12 cups of fluid daily to dilute the concentration of the urine. An easy guide is to aim for very light yellow or clear urine at all times.

Citric acid from lemons prevents crystal formation. Over half of your daily 8-10 cups of liquid should contain citric acid. There are many types of beverages with natural or added citric acid. Some examples of including this amount of citric acid drinks are:

- up to 4 ounces lemon juice per day (added to your total 8-12 cups of fluids) or,
- sugar-free lemonade such as Crystal Lite™ (4-5 cups per day out of your total) or,
- sugar-free Country Time™ lemonade (4-5 cups per day out of your total)

**2. Consume 3-4 servings of dairy foods every day.**

Recent research shows that including 3 – 4 servings of low-fat or non-fat milk/yogurt daily (must be distributed throughout the day with meals and snacks and not all at once) can actually protect against kidney stones. The calcium from dairy binds with oxalate from foods, so the body doesn't absorb the oxalate.

One serving dairy = 8 oz. milk or yogurt. (While cheese is also a good calcium source, it is high in sodium, which can actually increase the amount of calcium the kidneys allow into the urine, increasing your risk of having too much calcium in your urine.)

Most people should avoid large supplement doses of calcium (over 2000 mg daily), however, some people with kidney stones may actually benefit from very large doses of calcium supplements. Check with a specialist for more information about this, or follow specialist's orders if supplements are prescribed.

If you take calcium supplements to reach total calcium of up to 1500 mg/day from food and supplements combined, you do not need to stop. Always take calcium supplements with meals, since taking them in-between meals may actually increase the risk of stone formation. (While calcium carbonate and calcium citrate supplements are both useful for binding oxalate in the gastrointestinal tract, calcium citrate supplements are recommended as they seem to help kidneys excrete urinary citrate and decrease your risk for calcium stones.)

**3. Consume less than 3000 mg sodium each day.**

Do not use added salt in cooking or at the table. Read labels and avoid high sodium in foods.

Even without using a salt shaker, it's possible to eat or drink too much sodium. Too much sodium causes the kidneys to over-excrete calcium into the urine, and works against some of the medicines prescribed for kidney stone treatment (such as hydrochlorothiazide or clorthiadone).

**4. Don't overeat meat, fish, seafood, and poultry.**

Foods high in animal protein (except dairy foods) may increase calcium and uric acid in urine of certain individuals (promote stone formation).

Choose to eat about two 3-ounce servings of meat, fish or poultry a day (3 ounces is about the size of a deck of cards). Also, be sure to consume the recommended 3 –4 servings of dairy products every day.

**5. Limit excessive intake of vitamin-C rich supplements**

Avoid supplementation that provides more than 500 mg vitamin C (ascorbic acid) per day. You do not need to avoid foods rich in vitamin C, however.

**6. Limit foods high in oxalate.**

This was previously suggested for every person with kidney stones, but is not as effective as once thought. Listed below are foods highest in oxalates (from analysis of foods done by Ross Holmes et al at Wake Forest University). Be moderate with these high oxalate foods, and always eat them with a source of calcium at the same time.

Nuts	Beets
Tea, black	Chocolate, cocoa, ovaltine
Spinach	Swiss chard
Rhubarb	Tofu and other soy foods

**7. Weight Loss/ Healthy Body Weight**

Some evidence shows that being overweight increases risk of recurring kidney stones.

**8. Alcohol**

Current evidence suggests wine, beer or liquor would not contribute to stone formation.