

Dietary Modification - Calcium Oxalate



Increase fluid intake - increasing fluid intake, high fluid intake to produce at least 2 liters of urine per day.

Type of fluid - the risk of stone formation might be affected by the type of beverage consumed.

- Grapefruit juice may be associated with an increased risk of stones, avoidance of grapefruit and grapefruit juice may be reasonable in patients with calcium oxalate stones.
- Coffee, tea, and alcohol have been reported to be associated with a lower risk of stones. Thus, there is no evidence that these beverages should be avoided to prevent stone formation.
- Cranberry juice, advocated as prophylaxis against recurrent urinary tract infections, increased the urinary saturation of calcium oxalate when ingested in large amounts (one liter per day).
- Ingestion of moderate amounts is unlikely to be harmful, and there is no evidence that this beverage is beneficial for stone prevention.
- Reducing soft drink consumption may reduce the risk of stone recurrence. We suggest avoiding calorie-containing beverages, such as sweetened soda, to avoid weight gain with the general increase in fluid intake.

Reduce animal protein intake - adverse changes in urinary calcium and citrate excretion can be induced by a high protein diet since the metabolism of sulfur-containing amino acids increases the daily acid load by generating sulfuric acid. Animal protein is much more likely to induce this effect than vegetable protein since it has higher sulfur content and therefore generates more acid.

Increase fruit and vegetable intake - foods that are rich in potassium, particularly fruits and vegetables, may be beneficial. Increasing intake of fruits and vegetables may reduce the risk of calcium oxalate stone formation.

Limit dietary oxalate intake - some foods contain very large amounts of oxalate and those should be avoided (ie. spinach, rhubarb). In addition, some nuts and legumes are also high in oxalate and the intake should be limited (ie. peanuts, cashews, and almonds).

Limit sodium intake - a low sodium diet (to 80 to 100 meq/day)

Limit sucrose and fructose intake - sucrose intake increases urine calcium independent of calcium intake and has been associated with an increased risk of stones. Fructose intake is also associated with an increased risk of stone formation.

Calcium intake - higher urine calcium is a common finding in stone formers, but restricting dietary calcium intake is not recommended unless it is excessive (more than 2000 mg/d).

Other factors - high dose vitamin C appears to increase urine oxalate excretion in certain individuals and the risk of stone formation. Thus, high dose supplements should be avoided. Although not simply a matter of dietary intake, higher body mass index increases the risk of stone formation, particularly in women. Therefore, weight control may be helpful in preventing stone recurrence.