

a Cellmark Litholink Patient Resource Guide™

Your Guide to a Low Oxalate Diet



Litholink[®]Stone

Kidney Stone Prevention Program™

In this brochure you will find common questions asked about oxalate and kidney stone prevention, and the answers to each of them.

1 “What is oxalate?”

Most oxalate is a waste product made by the body and has no function in humans. The most common type of kidney stone (80%) is made of calcium and oxalate. Other sources of oxalate include:

- *Eating foods high in oxalate*
- *Intestinal over absorption (patients who have had intestinal resections due to inflammatory bowel disease or gastric bypass surgery)*
- *Excess amounts of vitamin C (2,000 mg or more per day; the excess converts to oxalate)*
- *Abnormalities of metabolism*

2 “My urologist told me to cut back on oxalate. My cardiologist told me to eat plenty of vegetables and cut back on fats. What am I supposed to do?”

It can be challenging when you have doctors telling you different things. One doctor is worried about your heart (diabetes, hypertension, etc), the other about your kidney stones. You must remember that as with any lifestyle change you should cut back in moderation.

It is not reasonable to cut out fruits and vegetables from your diet, as they provide so many important nutrients. Many fruits and vegetables have low oxalate content and can be regularly included in your diet (see list included in this brochure).

If you are going to have a high oxalate food, such as a spinach salad, just limit the amount of spinach you are having. Also, remember to flush out the extra oxalate you are eating with a glass of water before and after your meal.

3 “When I go on the internet to look up oxalate content of certain foods, I find different sites list different numbers for the same food. Why is this?”

Oxalate content of a single food group varies based on the time of year, the type of soil it is grown in and a host of other factors specific to the growing conditions of the plant which are seldom accounted for in this type of research.

4 “What effect does bowel disease and/or intestinal surgeries with malabsorption have on my oxalate levels?”

There is a definite correlation between patients who suffer from bowel disease and malabsorption problems and the formation of kidney stones. Their urine is more acidic, citrate levels are lower, and oxalate levels are much higher. If you have had an ileal resection you may experience an increase in your oxalate levels due to malabsorption problems.

In bowel disease, fatty acids and bile that are normally absorbed by the small intestine reach the colon. When fatty acids and bile reach the colon, they can damage the colon lining allowing oxalate to pass through the damaged lining into the blood, and then into the urine via the kidneys. When calcium and oxalate are together in the kidney, they can bind together to form crystals. These crystals can join together to form calcium oxalate kidney stones.

5 “My doctor said that limiting my fat intake will also help lower my oxalate level. How is this?”

For patients who suffer from small bowel disease or malabsorption, it is recommended that dietary fat intake be controlled. Excess fat will bind with calcium in food, thus leaving oxalate by itself to be reabsorbed by the colon and back into the blood stream. If too much oxalate is absorbed, it will combine with calcium in the kidney and can lead to calcium oxalate stones.

Your doctor may also prescribe a drug called Cholestyramine. This is a drug taken at each meal that binds fatty acids, bile and oxalate so all three can leave the body.

6 “My doctor said I am making calcium oxalate stones. Should I cut back on dairy products too?”

Unless told otherwise by your doctor, your diet should have between 800 and 1,200 mg of calcium per day. Eating a diet low in calcium is not advised. In fact, studies have shown that eating low calcium diets will increase calcium oxalate stone risk.

Oxalate and calcium bind together in your intestine and leave the body together. If you eat a low calcium diet then oxalate has no partner to leave the body with. Oxalate will then be absorbed back into your system leading to higher oxalate levels in your body.

7 “I am lactose intolerant. What can I do to increase my dietary calcium?”

Being lactose intolerant is a common problem. You can get calcium from other sources other than dairy products.

Cereals and orange juice are now fortified with calcium (see below list). Your doctor may also tell you to take calcium supplements with each meal to help bind with oxalate so it cannot be reabsorbed back into your bloodstream.

Non-dairy calcium rich foods

Foods containing 50 mg of calcium:

Bread	2 slices
Broccoli	3/4 cup
Kidney beans, lima beans, lentils	1 cup
Orange	medium
Tahini	2 tbsp

Foods containing 75 mg of calcium:

Bok choy or kale, cooked	1/2 cup
Chickpeas	1 cup
Almonds	1/4 cup

Foods containing 250 mg of calcium:

Salmon, canned with bones	1/2 can
Sardines, canned with bones	1/2 can

8 “Because I am lactose intolerant I eat a lot of soy products. I heard that soy is high in oxalate.”

Recent research has concluded that the soy products listed below do have high levels of oxalate and should be eaten in moderation.

	Serving Size (ounce)	Oxalate Content (mg/serving)
Textured vegetable protein	3	496
Soy nuts	1	392
Soy beverage	8.5	336
Tofu with calcium	3	235
Soy yogurt	8.5	113
Tofu with magnesium	3	94
Soy burger	2.5	58
Tempeh	3	23
Soy cheese	1	16

Source: “Oxalate Content of Soybean Seeds, Soy foods, and other Edible Legumes”, LK Massey, Palmer RG, Horner, HT. Journal of Agricultural and Food Chemistry, September 2001.

Facts

- Oxalate is made in plants, animals and humans; highest amounts appear in certain plant foods.
- The function of oxalate is to help plants dispose of excess calcium.
- Our bodies have no use for oxalate and it is excreted in the urine.
- Our bodies always have some varying degree of oxalate.
- About 40-50% of oxalate is from outside sources (foods you eat) and can be much higher on a high oxalate diet.

Items listed below contain high levels of oxalate. Items are reported by the milligram of oxalate/100 gm (100 grams is approximately 3.5 ounces). Foods that have less than 50 mg of oxalate per serving should be limited to 4 oz per day. Foods higher than 50 mg of oxalate per serving should be strictly limited. If you do eat something that has a very high oxalate content, make sure you drink a glass of water before and after the product to help flush out the extra oxalate.

	mg of Oxalate /100g
Cereals and Cereal Products	
Bran Flakes.....	141.0
Cake, fruit.....	11.8
Cake, sponge.....	7.4
Crackers, soybean	207.0
Fiber One	142.0
Grits	41.0
Wheat Germ	269.0
White bread.....	14.3

Meats

Liver	7.1
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Fruits

Berries, black	18.0
Berries, blue	15.0
Berries, Green Goose.....	88.0
Berries, raspberries black.....	53.0
Berries, raspberries red.....	15.0
Berries, strawberries, can	15.0
Berries, strawberries raw	10.0
Currants, red.....	19.0
Fruit salad, can.....	12.0
Grapes, concord.....	25.0
Lemon peel	83.0
Lime peel.....	110.00
Peaches, Albert	5.0
Plums, Damson	10.0
Preserves, strawberry jam	9.4
Prunes, Italian	5.8
Rhubarb, can.....	600.00
Rhubarb, stewed, no sugar	800.00

Vegetables

Asparagus	5.2
Beans, green boiled	15.0
Beetroot, boiled.....	675.0
Celery	20.0
Chard, swiss.....	645.0
Collards	74.0
Corn, yellow.....	5.2
Dandelion greens	24.6
Eggplant	18.0
Escarole	31.0
Kale	13.0
Leek.....	89.0
Mustard greens	7.7
Okra	146.0
Parsley, raw	100.0
Parsnips	10.0
Pepper, green.....	16.0
Potatoes, sweet.....	56.0
Rutabagas	19.0
Spinach.....	600.0
Squash, summer.....	22.0
Watercress.....	10.0

Nuts

Peanuts, roasted	187.0
Peanut butter	95.8
Pecans	22.0

Confections

Chocolate	117.0
Butterfinger (candy bar).....	53.5
Marmalade.....	10.8

Beverages

Tea, Indian; 2 min infusion	55.0
Tea, Indian; 4 min infusion	72.0
Tea, Indian; 6 min infusion	78.0

Juices

Cranberry juice	6.6
Grape juice.....	5.8
Tomato juice	5.5

Miscellaneous

Cocoa, dry powder	623.0
Coffee instant (Nescafe)	33.0
Ovaltine, powder can	35.0
Pepper, black.....	419.0
Vegetable soup	5.0

If you have any questions, please call us on **0800 043 1040**. Our customer service team is here to help on Mondays from **8:30am – 7:00pm** and on Tuesdays - Fridays from **8:30am – 6:00pm**. You may also visit our website, www.cellmark.co.uk/litholink/ or contact us by email at litholink@cellmark.co.uk

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