

Low Oxalate Diet

“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 (ounces)	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.

See the back panel of this brochure for a list of items containing 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.

Cereals and Cereal Products	mg of Oxalate /100g	Vegetables	mg of Oxalate /100g
Bran Flakes _____	141	Dandelion greens _____	24.6
Cake, fruit _____	11.8	Eggplant _____	18
Cake, sponge _____	7.4	Escarole _____	31
Crackers, soybean _____	207	Kale _____	13
Fiber One _____	142	Leek _____	89
Grits _____	41	Mustard greens _____	7.7
Wheat Germ _____	269	Okra _____	146
White bread _____	14.3	Parsley, raw _____	100
Meats		Parsnips _____	10
Liver _____	7.1	Pepper, green _____	16
Fruits		Potatoes, sweet _____	6
Berries, black _____	18	Rutabagas _____	19
Berries, blue _____	15	Spinach _____	600
Berries, Green Goose _____	88	Squash, summer _____	22
Berries, raspberries black _____	53	Watercress _____	10
Berries, raspberries red _____	15	Nuts	
Berries, strawberries, can _____	15	Peanuts, roasted _____	187
Berries, strawberries raw _____	10	Peanut butter _____	95.8
Currants, red _____	19	Pecans _____	22
Fruit salad, can _____	12	Confections	
Grapes, concord _____	25	Chocolate _____	117
Lemon peel _____	83	Butterfinger (candy bar) _____	53.5
Lime peel _____	110	Marmalade _____	10.8
Peaches, Albert _____	5	Beverages	
Plums, Damson _____	10	Tea, Indian; 2 min infusion _____	55
Preserves, strawberry jam _____	9.4	Tea, Indian; 4 min infusion _____	72
Prunes, Italian _____	5.8	Tea, Indian; 6 min infusion _____	78
Rhubarb, can _____	600	Juices	
Rhubarb, stewed, no sugar _____	800	Cranberry juice _____	6.6
Vegetables		Grape juice _____	5.8
Asparagus _____	5.2	Tomato juice _____	5.5
Beans, green boiled _____	15	Miscellaneous	
Beetroot, boiled _____	675	Cocoa, dry powder _____	623
Celery _____	20	Coffee instant (Nescafe) _____	33
Chard, swiss _____	645	Ovaltine, powder can _____	35
Collards _____	74	Pepper, black _____	419
Corn, yellow _____	5.2	Vegetable soup _____	5

Our hours of operation are Monday – Friday, 7:30am – 6:00pm CST. You may also visit our website at www.litholink.com and send any e-mail inquiries to LitholinkInquiry@labcorp.com.

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Your Guide to a Low Oxalate Diet

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

“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

“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.

“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.

“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.

“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.

“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.

“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