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Low Oxalate Diet

Your doctor has prescribed a Low Oxalate Diet. It is meant to provide less than 50 mg of oxalate per day. Oxalate is formed after breakdown of some types of foods, mostly from plant sources. To reduce calcium oxalate stones from being formed, a diet adequate in calcium as well as an oxalate restriction is advised. When enough calcium from the diet is available, it binds with oxalate to make it less available for absorption. A rise of oxalate in the urine from increased absorption may promote the formation of stones.

FOOD GROUPS	LOW OR NO OXALATE (Less than 2 mg/serving)	MODERATE OXALATE (2-10 mg/serving)	HIGH OXALATE (Greater than 10 mg/serving)
Vegetables (1/2 cup cooked, 1 cup raw)	Avocado Brussels Sprouts Cauliflower Cabbage Mushrooms Onions Peas, green (fresh or frozen) Potatoes, white Radishes	Asparagus Broccoli Carrots Corn: sweet white or yellow Green peas, canned Lettuce Lima beans Parsnips Tomato, 1 small or 4 oz juice Turnips	Beans: green, wax, dried Kale Leeks Mustard greens Okra Parsley Peppers Potatoes, sweet Rutabagas Spinach Summer squash Swiss Chard Watercress
Fruit/Juices (1/2 cup canned or juice, 1 medium fruit)	Apple & apple juice Avocado Banana Cherries, bing Grapefruit, fruit & juice Grapes, green Mangoes Melons: cantaloupe, casaba, honeydew, watermelon Nectarines Pineapple juice Plums, green or yellow	Apricots Black currants Cherries, red sour Cranberry juice Grape juice Orange, fruit and juice Peaches Pears Pineapple Plums, purple Prunes	Berries (blueberries, dew berries, blackberries, raspberries, strawberries) Currants, red Fruit cocktail Grapes, purple Lemon peel Lime peel Orange peel Rhubarb Tangerine Juices made from above fruits
Bread/Starches 1/2 cup unless otherwise indicated	Bread (1 slice) Breakfast cereals Macaroni Noodles Rice	Cornbread (2" square) Sponge cake (1" slice) Spaghetti, canned in tomato sauce (1/2 cup)	Amaranth (1/2 cup) Fruit cake 1/8 cake Grits, white corn Soybean crackers Wheat germ and bran (1 cup)
Fats/Oils	Bacon 2 slices Mayonnaise 1 tbs Salad dressing 1 tbs Vegetable oils 1 tbs Butter, margarine 1 tbs		Nuts: peanuts, almonds, pecans, cashews, walnuts (1/3cup) Nut butters (6 Tbsp.) Sesame seeds (1 cup)

For more information call the American Dietetic Association Consumer Hot Line at: 1-800-366-1655

Low Oxalate Diet (cont.)

FOOD GROUPS	LOW OR NO OXALATE (Less than 2 mg/serving)	MODERATE OXALATE (2-10 mg/serving)	HIGH OXALATE (Greater than 10 mg/serving)
Miscellaneous	Coconut Jelly or preserves (made with allowed fruits) Soups with allowed ingredients Sugar	Chicken noodle soup, dehydrated	Carob (3/4 cup) Coconut, cocoa (3-4 oz) Vegetable soup (1/2 cup) Tomato soup (1/2 cup) Marmalade (5 Tbsp.)
Beverages	Beer, bottled light Carbonated cola (limit to 12oz/day) Distilled alcohol 1 oz Lemonade or limeade without added vitamin C Milk, (whole, low fat, or skim) Buttermilk Wine: red, rose', white (3-4 oz) Yogurt with allowed milk	Coffee (limit to 8 oz)	Beer, 4oz (dark, robust) Ovaltine and other beverage mixes Chocolate milk Cocoa
Meat & Meat Substitute 1 oz = 1 serving	Eggs 1 whole Cheese Beef, lamb, pork Poultry Seafood	Sardines	Baked beans canned in tomato sauce (1/3 cup) Peanut butter 1 tbs Tofu

References:

1. Lysen, L.K., Quick Reference to Clinical Dietetics, Aspen Publishers, Inc. 1997, pp.152-153,
2. Mayo Foundation from CM Pemberton, et al, Mayo Clinic Diet Manual, 7th ed, 1994 pp.346-347

LOW OXALATE DIET*

FOODS OF HIGH OXALIC ACID CONTENT (0.1% or over)

To be avoided—
 Beets
 Beet tops
 Black tea
 Chenopodium
 Chocolate
 Cocoa
 Dried figs
 Ground pepper
 Lambs quarters
 Lime peel
 Nuts
 Parsley
 Poke
 Poppy seeds
 Purslane
 Rhubarb
 Sorrel
 Spinach
 Swiss chard

FOODS OF MODERATE OXALIC ACID CONTENT (0.02% or over)

To be eaten sparingly—
 Beans (green and wax)
 Blackberries
 Blueberries
 Carrots
 Celery
 Coffee (roasted)
 Concord grapes
 Currants (red)
 Dandelion greens
 Endive
 Gooseberries
 Lemon peel
 Okra
 Onions (green)
 Oranges
 Orange peel
 Peppers (green)
 Raspberries (black)
 Strawberries
 Sweet potatoes

All other foods may be used as desired.

A WELL BALANCED DIET includes each day:

Meat, cheese, fish, or fowl	1 or more servings
Eggs	1
Milk	2 or more glassfuls
Vegetables	2 or more servings besides potato; 1 green or yellow; "greens" often
Fruits	2 or more servings; at least 1 raw; citrus fruit or tomato often
Cereal and bread	2 or more servings; whole grain value or enriched
Butter	2 or more tablespoonfuls

Other foods to satisfy appetite and to complete growth and activity needs.

OXALATE RESTRICTED DIET

Purpose:

The oxalate restricted diet is prescribed for patients with calcium oxalate renal stones and for enteric hyperoxaluria. Oxalate is present in about two-thirds of renal stones. Oxalate restricted diets have not proven to be very successful in preventing oxalate stones. However, since excretion of oxalate does increase after a diet high in foods containing oxalate, it is wise to avoid these foods when oxalate renal stones are present. The oxalate restricted diet is also prescribed for patients with ileac disease or intestinal resection or bypass, due to increased absorption of oxalates.

Diet Principles:

1. Foods high in oxalate are eliminated.
2. Ascorbic acid intake is limited to the Recommended Dietary Allowances, because oxalates can be formed from ascorbic acid during digestion.
3. Magnesium is increased because of its ability to increase solubility of oxalic acid in aqueous solutions.
4. A high calcium intake is encouraged because it binds with oxalate in the gut and makes oxalate unavailable for absorption.
5. Fluids are increased. A urinary volume of 2500 ml in 24 hours is desirable.
6. The exact value of oxalate in a food is difficult to determine because of the various growing areas and methods. The laboratory values also vary due to the analytic method used.
7. Vitamin C supplements or vitamin C tablets should not be used.
8. A diet low in fat may be necessary, because fat malabsorption is often associated with hyperabsorption of oxalate.

Adequacy:

The oxalate restricted diet will meet the Recommended Dietary Allowances, if a variety of foods are included in the diet. The diet as listed in the meal plan contains the approximate nutritive values:

Calories	2850
Protein	100 gm
Fat	115 gm
Carbohydrate	355 gm
Oxalate	50 mg

OXALATE RESTRICTED (continued)

Food	Allowed	Not Allowed
Beverages:	Milk, non cola carbonated beverages. Limit coffee to two 6 oz. servings daily. Flavored fruit drinks not fortified with vitamin C.	More than three 6 oz. servings of coffee daily. Chocolate, cocoa. Ovaltine, tea, cola beverages, vitamin C fortified drinks, draft beer.
Breads and Cereals:	All white breads, rolls, crackers, pancakes, biscuits, waffles; all cooked and ready-to-eat cereals.	Cereals fortified with vitamin C; wheat germ, soybeans, whole wheat.
Desserts:	Cakes, cookies, gelatins, pies, puddings, ice cream, sherbets, and allowed fruits.	Desserts with nuts, chocolate, coffee, or fruits not allowed.
Eggs:	All.	None.
Fats:	All, except those on not allowed list.	Nuts, peanut oil.
Fruits:	Fresh, frozen, dried, or canned apples, apple juice, applesauce, apricots, bananas, blueberries, cherries, black currants, fruit cocktail, peaches, pears, pineapple, pineapple juice, strawberries, grapefruit juice, and orange juice.	All others.
Meats, Fish, Poultry, and Cheese:	All prepared as desired, except cheese with nuts.	Cheese with nuts.
Potatoes and Substitutes:	Macaroni, noodles, white rice, spaghetti, potatoes.	Sweet potato.
Soups:	All made with allowed foods.	None.
Sweets:	Sugar, honey, syrup, jams, jellies, hard candies.	Orange and grapefruit marmalade, chocolate, chocolate candies, lemon peel, orange peel.
Vegetables:	Asparagus, carrots, celery, corn, cucumber, lettuce, green peas, radishes, squash, Brussels sprouts, turnips, broccoli, cabbage, onions.	All others.
Miscellaneous:	Salt, spices, herbs, and vinegar. Limit tomato base condiments—catsup, chili sauce—to 2 Tbsp. daily.	Chocolate, nuts, peanut butter, soybeans.

OXALATE RESTRICTED DIET (continued)

SUGGESTED MEAL PLAN

	Serving
Breakfast:	
Fruit or juice	1/4 C. to 1/2 C.
Cereal	1/2 C. to 3/4 C.
Breakfast entree	1
Bread/rolls	2
Margarine	2 tsp.
Jelly	1 Tbsp.
Milk, 2%	1 C.
Coffee	1
Sugar	1 Tbsp.
Salt	1 packet
Lunch:	
Soup/salad	1/2 C. to 1 C.
Lunch entree	1
Starch	1/2 C.
Dessert/fruit/gelatin/ice cream	1
Bread/rolls/crackers	2
Margarine	2 tsp.
Jelly	1 Tbsp.
Milk, 2%	1 C.
Sugar	2 tsp.
Salt	1 packet
Dinner:	
Soup/salad	1/2 C. to 1 C.
Dinner entree	1
Starch	1/2 C.
Vegetable	1/2 C.
Dessert/fruit/gelatin/ice cream	1
Bread/rolls/crackers	2
Margarine	1 tsp.
Jelly	1 Tbsp.
Milk, 2%	1 C.
Sugar	2 tsp.
Salt	1 packet