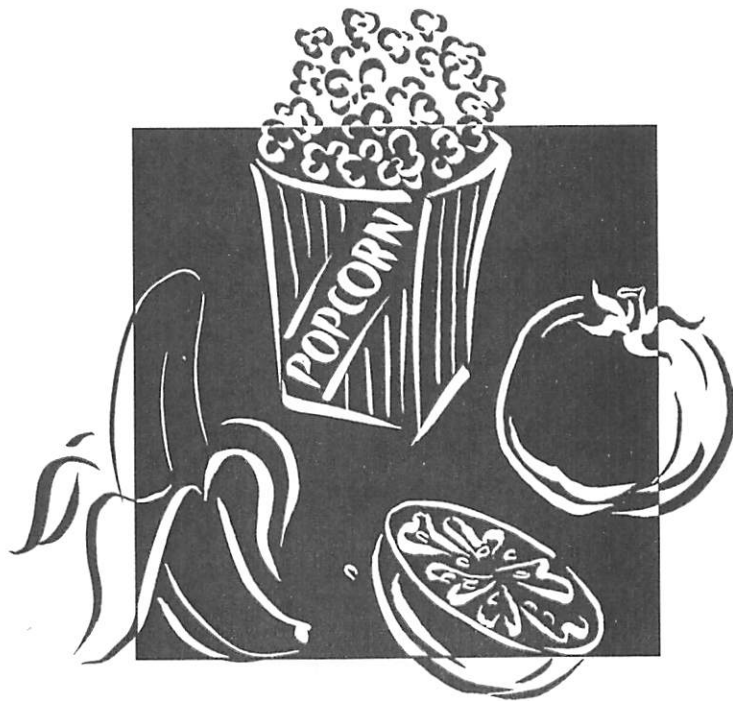

LACTOSE-FREE LOW-LACTOSE DIET



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PURPOSE

Lactose is the simple sugar found in milk and milk products. It can also be found in a variety of other foods and even as a filler in some pills and capsules. The enzyme **lactase**, present in the lining of the small intestine, splits lactose into two simple sugars. These simple sugars can then be absorbed by the body and used as nourishment.

In infants, milk is the main part of the diet, so it is natural and normal for lactase production to gradually decrease as the diet becomes more varied. This tends to occur in childhood and adolescence in African Americans, Native American Indians, Hispanics, Arabs, Jews, and Asians. Northern European white races seem to keep lactase production the longest.

When lactase is absent, lactose passes through the intestine to the colon (large bowel), carrying extra fluid with it. In the colon, bacteria break down lactose into lactic acid and certain gases. Lactic acid is an irritant and laxative. It can cause symptoms such as bloating, diarrhea, abdominal cramps, and gas or flatus.

Lactase activity is reduced in people with certain intestinal

conditions such as Crohn's disease and celiac disease (gluten enteropathy). Finally, patients with surgical removal of part of the stomach or a large portion of the small intestine may need to reduce lactose in the diet.

It is important to remember that while lactose intolerance can cause quite uncomfortable symptoms, it does not cause damage to the intestine. The purpose of this diet is to eliminate lactose or reduce it to tolerable levels.

NUTRITION FACTS

Dairy products are important sources of calcium, riboflavin, and vitamin D. Some lactose-intolerant people are able to tolerate certain dairy products in small amounts, and their diets may provide enough of these nutrients. However, the physician or registered dietitian may recommend certain vitamin supplements and/or a calcium supplement for some patients.

SPECIAL CONSIDERATIONS

1. Tolerance of lactose is variable. Some people can eat small amounts of lactose without

having symptoms while others need to avoid it completely.

Low-lactose diet: generally eliminates only milk and milk products. However, some can tolerate milk in small amounts (2 oz) throughout the day or as part of a meal. Some can tolerate small amounts of yogurt. These patients can experiment to find a level of lactose they can tolerate. It is generally better tolerated with a meal, than by itself. Some people can build up their level of tolerance by gradually introducing the lactose-containing foods.

Lactose-free diet: all lactose products must be eliminated, including foods that are prepared with milk, both at home and in commercially packaged foods. These people may be able to use 100% lactose free milk or soy milk. Labels should always be read carefully.

2. Lactase Digestive Aids and Products: Many people can drink milk in which the lactase has been partially or completely broken down. The following products may be available at a pharmacy or grocery store.

READING LABELS

Read labels to identify lactose-containing foods. The chart below lists the range of lactose in various dairy foods.

	Lactose (grams)
Yogurt - 1 cup	10 to 18
Milk (whole, low-fat skim, buttermilk, sweet acidophilus) - 1 cup	10 to 12
Ice cream - 1 cup	9 to 10
Cottage cheese, creamed - 1/2 cup	3 to 6
Hard cheeses (most) - 1 oz	0 to 3

The following ingredients are not sources of lactose:

lactate	calcium
lactalbumin	caseinate
lactylate	

If you are not sure about a product, ask a registered dietitian to look at the label, or call the consumer information number listed on the product label.

LACTAID and DAIRY EASE enzyme products - check with a pharmacist, registered dietitian, or a physician for individual guidance on the use of these products.

- Drops: These are added to milk. Five, 10, or 15 drops per quart of milk will generally reduce lactose content by 70%, 90%, or 99% respectively over a 24-hour period
- Caplets/Capsules: A person chews or swallows 1 to 6 of these when starting to eat foods containing lactose

LACTAID Milk

- Non-fat calcium-fortified is 70% lactose reduced and 500 mg of calcium per cup has been added

- Non-fat or 1% low-fat is 70% lactose reduced
- Non-fat LACTAID 100 is completely lactose free

DAIRY EASE Milk

- Available in non-fat, 1%, or 2% low-fat - all are 70% lactose reduced

SOY Milk

- Calcium-fortified soy milk has no lactose, is low in fat and is a good source of Vitamin D.

For more information about these products, call the consumer information number listed on the food label. The physician, pharmacist, or registered dietitian may also have information about these products or any newer products now available.



FOOD GROUPS

<u>Group</u>	<u>Lactose-Free</u>	<u>Lactose-Containing</u>
Milk & milk products	100% lactose-free milk, soy milk	milk: whole, skim, 1%, 2%; buttermilk; sweet acidophilus milk; lactose-reduced milk; evaporated milk; powdered dry milk; sweetened condensed milk; instant hot chocolate and cocoa mixes; cheese
Vegetables	fresh, frozen, and canned vegetables without added milk or milk products; tomato paste and purée; tomato and spaghetti sauces without cheese	creamed or breaded vegetables, packaged dried potato mixes, tomato and spaghetti sauce with cheese
Fruits	fresh, frozen, canned, and dried fruits	none
Breads & grains	water-based breads (Italian, French, Jewish rye), rice and popcorn cakes, graham crackers, rusks, Pareve Jewish bakery products, cooked and dry cereals without added milk solids, pasta, rice, oats, barley, cornmeal, bulgar, and other plain grains	the following made with milk or milk products, breads, rolls, biscuits, muffins, pancakes, sweet rolls, waffles, crackers, instant and dry cereals with added milk products, some packaged grain mixes, packaged macaroni mixes

FOOD GROUPS

<u>Group</u>	<u>Lactose-Free</u>	<u>Lactose-Containing</u>
Meat & meat substitutes	plain beef; lamb; veal; pork; wild game; poultry; fish; shellfish; eggs; kosher prepared meat products; peanut butter; peas, beans, or lentils (dried, canned or frozen); all nuts and seeds; tofu	eggs, fish, meat, or poultry (breaded or creamed); luncheon meats; sausage; frankfurters; some brands of egg substitutes and powdered eggs
Fats & oils	bacon, butter, margarine without milk derivatives (whey), salad dressing without cheese or milk, vegetable oils, olives, most non-dairy creamers, mayonnaise, gravy made without milk or milk products	cream, half & half, sour cream, cream cheese, chip dips, some types of margarine, salad dressing with cheese or milk, whipped toppings
Sweets & desserts	angel food cake, gelatin, fruit ice, fruit popsicles, fruit roll ups, hard candy, gum drops, jelly beans, licorice, fruit pie fillings	ice cream, ice milk, some brands of sherbet, soufflé, mousse, pudding, custard, packaged desert mixes, milk chocolate, toffee, caramel, butterscotch

FOOD GROUPS

<u>Group</u>	<u>Lactose-Free</u>	<u>Lactose-Containing</u>
Beverages	Postum, lactose-free nutritional supplements (Sustacal, Ensure, Nutren), vegetable juice, fruit juices and drinks, tea, carbonated beverages, beer, wine, distilled spirits (gin, rum, etc.), cocoa powder, most coffee	instant iced tea, instant coffee, Ovaltine, chocolate drink mixes, cordials, liqueurs, milk-based nutritional supplements (Carnation Instant Breakfast)
Soups	bouillon, broth, meat, or vegetable stock soups; bisques and chowders made with water, soy milk, or 100% lactose-free milk	cream soup, canned and dehydrated soup mixes containing milk products
Miscellaneous	popcorn, plain pretzels, plain potato and corn tortilla chips, salsa, mustard, ketchup, pickles, uncreamed horseradish, relish, sauces made without milk or milk products, sugar, honey, jams and jellies, maple and corn syrup, molasses, herbs, spices, salt, pepper	cream or cheese sauces, ranch-style or cheese-flavored snack pretzels or chips, cheese curls, sugar substitutes with lactose added, medications and vitamin/mineral supplements with lactose added

SAMPLE MENU-LACTOSE FREE

Breakfast

orange juice, calcium
fortified 1/2 cup
oatmeal 1 cup
Italian bread 2 slices
Jelly 2 tsp
margarine 2 tsp
coffee 1 cup
sugar 1 tsp
nondairy creamer

Lunch

turkey 2 oz
Italian bread 2 slices
mayonnaise 1/2 Tbsp
tossed green salad
1 cup
oil & vinegar 2 tsp
tomato 2 slices
carrot 1
celery 1 stalk
banana 1
lactose-free milk
1 cup

Dinner

roast beef 4 oz
noodles 1/2 cup
broccoli 1 cup
Italian bread
1 slice
margarine 2 tsp
pear 1
tea 1 cup
lemon 1 slice
sugar 1 tsp

THIS SAMPLE DIET PROVIDES THE FOLLOWING

Calories.....	1800	Fat	48 gm
Protein.....	93 gm	Sodium.....	1700 mg
Carbohydrates	261 gm	Potassium	3533 mg

SPECIAL INSTRUCTIONS

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How to Get Enough Calcium

Milk is a major source of calcium, and calcium is necessary for good health and strong bones. Most people need 1000 mg of calcium a day, but pregnant and nursing females (1200 mg per day) and post-menopausal females (1500 mg per day) need more. The following list from the National Institutes of Health provides some information on the calcium and lactose contents of food.

For lactose-intolerant individuals, ingesting enough calcium may be difficult. Calcium supplements, such as calcium carbonate, are often recommended.

The decision to take calcium supplements should be discussed with the physician.

Calcium and Lactose in Common Foods

Vegetables	Calcium Content*	Lactose Content**
Broccoli (cooked), 1 cup	94-177 mg	0
Chinese cabbage (bok choy, cooked), 1 cup	158 mg	0
Collard greens (cooked), 1 cup	148-357 mg	0
Kale (cooked), 1 cup	94-179 mg	0
Spinach (cooked), 1 cup	240 mg	0
Turnip greens (cooked), 1 cup	194-249 mg	0
Dairy Products		
Ice cream/ice milk, 8 oz.	176 mg	12-14 g
Milk (whole, low-fat, skim, buttermilk), 8 oz.	291-316 mg	12-13 g
Processed cheese, 1 oz.	159-219 mg	2-3 g
Sour cream, 4 oz.	134 mg	1-5 g
Yogurt (plain), 8 oz.	274-415 mg	12-13 g
Fish/Seafood		
Oysters (raw), 1 cup	226 mg	0
Salmon with bones (canned), 3 oz.	167 mg	0
Sardines, 3 oz.	371 mg	0
Shrimp (canned), 3 oz.	98 mg	0
Other		
Molasses, 2 tbsp	274 mg	0
Tofu (processed with calcium salts), 3 oz.	225 mg	0

* Nutritive Value of Foods. Values vary with methods of processing and preparation.

**Derived from Lactose Intolerance: A Resource Including Recipes, Food Sensitivity Series, American Dietetic Association, 1985.