

Lactose Intolerance

Lactose is milk sugar. It is present in whole and skim milk and in all other dairy products. Like most sugars, lactose is broken down by enzymes in the intestinal track so it can be absorbed as an energy source. The enzyme that breaks down lactose is called lactase. When the intestine does not contain lactase, then lactose intolerance can develop. It is a troublesome and annoying problem, but it is never a serious one.

Who Has Lactose Intolerance?

As would be expected, infants and small children have the enzyme lactase so they can digest mothers' milk. However, during childhood, lactase begins to disappear in many people. By adolescence, it is gone in about 75% of African-Americans, Jews, Native Americans, Mexicans, and in 90% of Asians. So the condition is very common.

What Are the Symptoms?

When undigested lactose reaches the colon (large intestine), it is broken apart by bacteria. Lactic acid and other acidic chemicals result. It is these products that create the symptoms of lactose intolerance. These symptoms include nausea, abdominal cramps and

rumbling, bloating, rectal gas (flatus), and diarrhea. They usually occur 30 minutes to two hours after ingesting lactose-containing foods. The severity of symptoms usually depends on the amount of lactose ingested and how much of the enzyme, lactase, remains in the intestinal tract.

The Diagnosis

First, the physician reviews the patient's medical history. Sometimes that is enough to determine the problem. However, to make a definitive diagnosis, one of several tests may be needed:

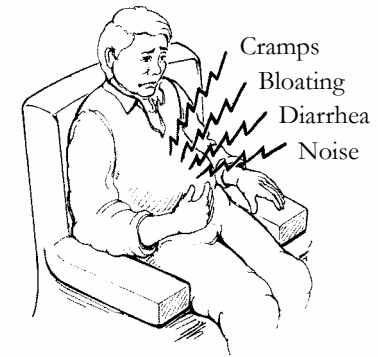
- **Lactose Tolerance Test** - A test dose of lactose is ingested and blood sugar determinations are made over several hours. If lactase is present to break down the lactose load, then the blood sugar rises. If no lactase is present, the sugar level does not change.
- **Hydrogen Breath Test** - When lactose is broken down by the colon's bacteria, hydrogen is released, which then passes out through the lungs. The amount of hydrogen released after a lactose meal can indicate a problem.
- **Stool Acidity Test** - When lactose breaks down to lactic and other acids in the colon, the resulting acidity can be detected by a simple measurement of stool acidity.
- **The Home Do-It-Yourself Test** - Since lactose intolerance is not a serious disorder, some people may want to test themselves at home. First, avoid milk and lactose-containing foods for several days. Then on a free morning, such as a Saturday, drink two large glasses of skim or low-fat milk (14-16 oz).

Finally, wait. If symptoms develop within four hours, the diagnosis of lactose intolerance is fairly certain.

Treatment

Therapy depends on how many symptoms the patient can or will tolerate. If the condition is mild, then avoiding milk and large amounts of milk products may be enough. For those who are sensitive to small amounts of lactose, there are two options. First, all foods should be carefully checked for lactose. Grocery items such as bread, baked

Lactose Intolerance



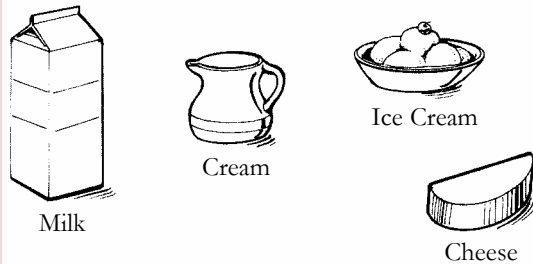
goods, cereals, instant potatoes, soups, margarine, lunchmeat, salad dressings, pancakes, biscuits, cookies, and candy can contain hidden lactose. Even prescription and over-the-counter drugs may contain lactose. The patient must become a label reader looking for avoiding "milk" and "lactose".

The second option is buying milk to which lactase, the enzyme has been added or adding lactase drops or tablets to milk. A pharmacist or food store manager can provide advice and there are over-the-counter lactase tablets that can be taken with meals to replace the enzyme the body no longer has. Finally, there are now a variety of lactose-free products available in the specialty section of food stores.

Calcium and Lactose

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, except for pregnant and nursing females (1200 mg per day) and post-menopausal females (1500 mg per day). The following list from the National Institutes of Health provides some information on the calcium and lactose contents of food.

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



Lactose in many prepared foods



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
Turnip greens (cooked), 1 cup	.194-249 mg	.0
Dairy Products		
Ice cream/ice milk, 8 oz	.176 mg	.6-7 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	.4-5 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.

Summary

Lactose intolerance is a very common problem, but it is almost never a threat to good health. The diagnosis can readily be made through certain medical or do-it-yourself tests.

There are treatments available for those who enjoy and want to use milk and dairy products. People who are very sensitive to lactose may have trouble getting enough calcium into the body. The physician can review all of these questions and make the best recommendations.

SPECIAL INSTRUCTIONS:

ENDOSCOPIC MICROSURGERY ASSOC., P.A.

MARK D. NOAR, M.D. & ASSOCIATES

Therapeutic Endoscopy, Gastroenterology & Hepatology

7402 York Road, Suite 100 (410) 494-1846
Towson, MD 21204

9110 Philadelphia Road., Suite 108 (410) 574-2566
Baltimore, MD 21237

620 W. McPhail Road., Suite 104 (410) 569-4444
Bel Air, MD 21014

Hunt Valley Medical Center (410) 494-1846
10 Warren Road, Suite 110, Cockeysville, MD 21030

This material does not cover all information and is not intended as a substitute for professional medical care.

LACTOSE INTOLERANCE



Endoscopic Microsurgery Associates