

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

LACTOSE INTOLERANCE**WHAT IS IT?**

Lactose intolerance is an inability or decreased ability to digest lactose, a natural sugar found in milk and milk products. Lactose cannot be absorbed by the small intestine until it is broken down into smaller sugars by the lactase enzyme. Decreased levels of this enzyme results in varying degrees of lactose intolerance. This condition affects up to 70% of the world's population and most commonly occurs in the first or second decade of life.

Lactose intolerance is not the same as a milk allergy, which is more commonly seen in infants.

WHAT CAUSES IT?**■ PRIMARY LACTOSE INTOLERANCE**

Almost all humans are born with the ability to digest milk. As your body ages and you become less reliant on milk as the primary source of nutrition, lactase production by the small intestine naturally decreases. The amount of lactase levels maintained after infancy is genetically determined.

- ❖ People of northern and western European descent have a low incidence of lactase deficiency.
- ❖ African Americans, Native Americans, Hispanic Americans, and Asian Americans have a much higher incidence.

■ SECONDARY LACTOSE INTOLERANCE

Lactose intolerance can also occur after an illness or injury that decreases lactase production by the small intestine. Examples include gastroenteritis (like food poisoning or the "stomach flu"), celiac disease (gluten intolerance), Crohn's disease, and intestinal surgery. Treatment of the underlying condition can improve lactase levels gradually.

WHAT ARE THE SYMPTOMS?

Symptoms may include abdominal bloating, cramping, gassiness, diarrhea, nausea, and/or vomiting. Symptoms usually occur 30-90 minutes after consuming lactose and resolve within 2-6 hours.

WHAT DETERMINES THE SEVERITY OF SYMPTOMS?

There is a great deal of variation in the degree of lactose intolerance from person to person. For instance, some people can tolerate one, but not two, glasses of milk. The severity of symptoms depends on several factors:

- ❖ The amount of lactase (the enzyme) produced by the small intestine.
 - ❖ The amount of lactose (the sugar) consumed in the diet.
 - ❖ The presence of other ingredients in the milk product or in the meal.
 - ❖ The sensitivity of the intestines to undigested lactose.
- Interestingly, 40% of patients with irritable bowel syndrome are lactose intolerant.

HOW IS IT DIAGNOSED?

If you think you may be lactose intolerant, eliminate all milk and dairy products from your diet for 2 weeks. If your symptoms resolve, start eating dairy again. If symptoms return, you are most likely lactose intolerant.

Blood, breath, and stool tests are available to provide further information if the diagnosis remains unclear.

WHAT IS THE TREATMENT?

There is no specific treatment or cure for lactose intolerance. Symptoms are controlled by avoiding dairy products that cause problems and taking lactase enzyme supplements if needed.

■ Choose foods that contain less lactose than regular milk. One cup of milk contains 9-14 grams of lactose. Research shows that most people with lactose intolerance can tolerate 7 grams of lactose without a problem. Refer to the chart on the next page for a list of milk products and their lactose content.

- ❖ Milk and ice cream contain the highest concentrations of lactose per serving.
- ❖ Cheeses contain less lactose than milk. Hard cheeses like swiss and cheddar have very low lactose levels and generally don't cause problems.
- ❖ Butter, cream, cream cheese, and sour cream also contain low concentrations of lactose.

■ Gradually introduce small amounts of milk or milk products. There is some research to indicate that gradually increasing lactose in the diet can alter the amount and type of bacteria in the intestines, making it easier for you to process dairy products.

- **Take milk or milk products with other foods.** Additional food (especially cold foods and foods containing fat, sugar, or chocolate) slows the transit of substances through the digestive tract. This allows bacteria normally found in the intestines to better handle the lactose load.
 - ❖ Even though ice cream has a high lactose content, its high sugar and fat content lessen the symptoms of lactase deficiency.
 - ❖ Yogurt is also rich in lactose but is well-tolerated because the bacteria used in the culturing process helps to digest some of the lactose.
- **Try lactose-free and lactose-reduced milk and milk products.** Lactose-free milk may have a slightly sweeter taste than regular milk. Soy milk is another good alternative.
- **Check the ingredients on food labels.** Lactose is found in many nondairy food products:
 - ❖ Examples include processed foods, salad dressings, nondairy creamers and whipped toppings, and protein powders and bars.
 - ❖ Products with any of following in their list of ingredients contain lactose: milk, lactose, whey, curds, milk by-products, dry milk solids, and non-fat dry milk powder.
- **Tell your pharmacist if you are lactose intolerant.** Some medications contain small amounts of lactose and may cause symptoms in people with severe lactose intolerance. Examples include certain birth control pills and over-the-counter medicines used to treat stomach acid and gas.
- **Try lactase enzyme products.**
 - ❖ People who still experience symptoms after dietary changes can take over-the-counter lactase enzyme pills or drops (eg. Lactaid, Dairy Ease) before consuming lactose products.
 - ❖ Brands of modified milk that contain the lactase enzyme are also available.

WHAT ABOUT CALCIUM AND VITAMIN D?

Calcium and vitamin D found in milk and other dairy products are needed to maintain strong healthy bones. A lack of these nutrients can lead to osteoporosis, which increases the risk of fractures. Refer to our “Calcium and Bone Health” Fact Sheet for more information.

- Young adults should take in **1200-1500mg/day of calcium** and at least **800IU/day of vitamin D**.
- **Eat non-dairy foods high in calcium content.** If you can tolerate only limited amounts of dairy products, you can still get plenty of calcium by consuming fish with soft bones, dark green vegetables (broccoli, spinach, rhubarb), oranges, pinto beans, calcium-fortified drinks and breads, etc.
- **Take calcium supplements.** If you are not getting enough calcium through their diet, add a calcium supplement, like calcium carbonate (found in Tums and other products). Calcium carbonate is best absorbed when taken in doses no greater than 500mg at a time and with meals (ie. take a 500mg tablet with breakfast, lunch, and/or dinner, depending on the amount of supplementation needed).
- **Get your Vitamin D.** Vitamin D is made naturally by the skin after exposure to sunlight, but this production decreases with age and in darker skinned individuals. The best source of dietary vitamin D is fortified cow’s milk. Other sources include egg yolks, saltwater fish, and fortified cereals and dairy products. Supplements are available if needed. Most multivitamins contain 400 IU per dose.

RECOMMENDED WEBSITES: www.gastro.org, digestive.niddk.nih.gov, www.mayoclinic.org

LACTOSE CONTENT OF DAIRY PRODUCTS		
PRODUCT		LACTOSE CONTENT (GRAMS)
Milk (1 cup)	Whole, 2%, 1%, skim	9-14
	Buttermilk	9-12
	Evaporated milk	24-28
	Sweetened condensed milk	31-50
	Lactaid milk (lactose-reduced)	3
Cheese (1 ounce)	Mozzarella (part skim, low moisture)	0.08-0.9
	Cream cheese	0.1-0.8
	Ricotta (1/2 cup)	0.3-6
	Cheddar (sharp)	0.4-0.6
	American (pasteurized, processed)	0.5-4
	Cottage cheese (1/2 cup)	0.7-4
Cream (1 tablespoon)	Light, whipping, sour	0.4-0.6
Butter (1 pat)		0.04-0.5
Yogurt, low fat (1 cup)		4-17
Ice cream (1/2 cup)		2-6
Sherbet (1/2 cup)		0.6-2