

## UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

**LACTOSE INTOLERANCE****WHAT IS IT?**

Lactose intolerance is due to 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 enzyme, lactase. Decreased levels of this enzyme results in varying degrees of lactose intolerance. Lactose intolerance is not the same as a milk allergy, which is an immune response to milk proteins.

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

Almost all humans are born with the ability to digest milk. After infancy, humans become less reliant on milk as the primary source of nutrition, and lactase production by the small intestine naturally decreases. Lactase levels after infancy are genetically determined. African Americans, Native Americans, and Asian Americans have a much higher incidence of lactase deficiency.

**❖ SECONDARY LACTOSE INTOLERANCE**

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

**WHAT ARE THE SYMPTOMS?**

Symptoms may include abdominal discomfort, bloating, cramping, gassiness, diarrhea, and nausea. 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.
- ❖ The presence of other ingredients in the milk product or in the meal.
- ❖ The sensitivity of the intestines to undigested lactose.

**HOW IS IT DIAGNOSED?**

Individuals suspected of being lactose intolerant are typically advised to eliminate all milk and dairy products from their diet for 2 weeks. If their symptoms resolve during this time but return when dairy is reintroduced into their diet, they 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 cure for lactose intolerance. Symptoms are controlled by avoiding dairy products that cause problems and by 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 has shown that most people with lactose intolerance can tolerate 7 grams of lactose without a problem. Refer to the chart at the end of this fact sheet for a list of foods 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.
- ❖ **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 may lessen the symptoms of lactase deficiency.
  - Yogurt is also rich in lactose but may be 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. Fairlife milk is a lactose-free brand that tastes very similar to regular milk. Non-dairy alternatives include soy or nut-based milks.
- ❖ **Check the ingredients on food labels.** Lactose is found in many “non-dairy” food products:
  - Examples include processed foods, salad dressings, non-dairy creamers and whipped toppings, and protein powders or bars.
  - Products with any of the following in their list of ingredients contain lactose: milk, lactose, whey, curds, milk by-products, dry milk solids, and non-fat dry milk powder.
- ❖ **Try lactase enzyme products.**
  - People who still experience symptoms after dietary changes can take over-the-counter lactase enzyme pills or drops (e.g. Lactaid, Dairy Ease) before consuming lactose products.
  - Brands of modified milk that contain the lactase enzyme are also available.
- ❖ **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.

### **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, a condition in which bones become weak and more likely to fracture. Refer to our “Calcium and Bone Health Fact Sheet” for more information.

- ❖ Young adults should consume **~1200 mg/day of calcium** and at least **600 IU (15 mcg)/day of vitamin D.**
- ❖ **Eat non-dairy foods high in calcium.** 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 in your diet, add a calcium supplement, like calcium carbonate (found in Tums and other products). Calcium carbonate is best absorbed when taken with a meal AND in doses no greater than 500mg at one time.
- ❖ **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 sources of dietary vitamin D are fatty fish (eg. trout, tuna, salmon, mackerel), cod liver oil, and fortified milks and cereals. Supplements are available if needed. Most multivitamins contain 400 IU (10 mcg) per dose.

<b>LACTOSE CONTENT OF DAIRY PRODUCTS</b>		
<b>PRODUCT</b>		<b>LACTOSE CONTENT (GRAMS)</b>
<b>Milk (1 cup)</b>	Whole, 2%, 1%, skim	9-14
	Buttermilk	9-12
	Evaporated milk	24-28
	Sweetened condensed milk	31-50
	Lactaid milk (lactose-reduced)	3
<b>Cheese (1 ounce)</b>	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
<b>Cream (1 tablespoon)</b>	Light, whipping, sour	0.4-0.6
<b>Butter (1 pat)</b>		0.04-0.5
<b>Yogurt, low fat (1 cup)</b>		4-17
<b>Ice cream (1/2 cup)</b>		2-6
<b>Sherbet (1/2 cup)</b>		0.6-2

### **References**

- Hammer, HF. (2025, May). *Lactose Intolerance and Malabsorption: Clinical Manifestations, Diagnosis, and Management*. UpToDate. [www.uptodate.com](http://www.uptodate.com)
- National Institutes of Health. (n.d.) *Vitamin D. Fact Sheet for Health Professionals*. [ods.od.nih.gov/factsheets/VitaminD-HealthProfessional](https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional)
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