

Lactose Intolerance: Topic of the Month

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What is lactose and lactose intolerance?

Lactose is the sugar found in the milk of animals. Lactose intolerance is the reduced ability to digest the lactose in milk and milk products. The condition, which is also called *lactose malabsorption*, is usually harmless and does not cause damage to the gastrointestinal tract. (1)

What are the symptoms of lactose intolerance?

Symptoms are caused by bacterial fermentation of the undigested lactose in the colon. Common signs and symptoms of lactose intolerance include diarrhea, nausea, abdominal cramps, bloating and gas. These symptoms usually begin 30 minutes to two hours after eating or drinking foods that contain lactose. (2) Because of the uncomfortable symptoms, it is a main reason adults might avoid dairy products.

What's the difference between a milk allergy and lactose intolerance?

Cow's **milk allergy** is an immune system reaction to the protein in milk. The reaction may involve the gastro-intestinal tract, skin, respiratory tract, or in some cases, systemic anaphylaxis. Its *prevalence is low*-- between 1 to 3% of the general population. It is most common in infants and lowest in adults. Most infants will outgrow a milk allergy. If someone has been diagnosed with a milk allergy, they will need to *avoid all milk products*, including foods that contain milk products. Often people will refer to lactose intolerance as an "allergy to milk", so it's important to probe for more information about their symptoms and what their medical provider has told them.

Who is most likely to be affected by lactose intolerance?

Lactose intolerance in adulthood is most prevalent in people of East Asian, West African, and Arab descent. Native Americans and Hispanics also have high incidence of lactose intolerance. (2)

It is very rare for infants to be lactose intolerant, and children are not widely affected either. (2) Parents and caretakers may commonly misdiagnose children as lactose intolerant because the digestive symptoms of lactose intolerance can be caused by many other reasons. Antibiotics may cause temporary lactose intolerance or diarrhea due to the change in the bacterial flora of the gut. These symptoms are usually temporary, and after the illness and/or antibiotic treatment, children should be encouraged to resume drinking milk.

What dietary changes should someone with lactose intolerance make?

Most people with lactose intolerance can tolerate some amount of lactose in their diet and do not need to avoid milk or milk products completely. The amount of lactose tolerated will vary between individuals. Research suggests that most adults with lactose intolerance can eat or drink at least 12

LACTOSE INTOLERANCE: TOPIC OF THE MONTH

grams of lactose in one sitting without symptoms or with only minor symptoms. (2) This is the amount of lactose in 1 cup of milk.

Dietary tips for managing lactose intolerance while still consuming some dairy products include:

- **Drink small servings of milk.** Limit servings to 4 ounces at a time. The smaller the serving, the less likely it is to cause gastrointestinal problems.
- **Eat dairy products with other foods.** This slows the digestive process and may lessen symptoms of lactose intolerance.
- **Choose hard, aged cheeses.** Not all dairy products have the same amount of lactose. For example, hard cheeses, such as Swiss or cheddar, have smaller amounts of lactose than soft cheeses, such as mozzarella or American cheese.
- **Try cultured milk products such as yogurt.** The bacteria used in the culturing process naturally produce an enzyme that partially breaks down lactose, so these products may be better tolerated.
- **Try lactose-free milk.** WIC offers several brands of 100% lactose-free milk. CPAs must *specifically select* the lactose-free milk option in HuBERT to provide this. Participants who can tolerate a small amount of regular milk may wish to receive a mix of regular and lactose-free milk.
- **Read the food/ingredients label.** Milk products are often added to prepared foods that you would not expect. Check to see if any of the following ingredients are listed on the food label:
 - milk
 - lactose
 - whey curds
 - milk by-products
 - dry milk solids
 - nonfat dry milk power
 - Kosher foods labeled as “parve” or “parev” *do not* contain dairy products.
- Some people can reduce their intolerance to lactose to some degree by starting with small amounts of lactose-containing foods, and gradually increasing the amount over time.

What about lactose-reduced foods or over-the-counter lactase tablets?

Lactose-reduced dairy products are treated with an enzyme called lactase. This reduces the lactose content of foods by about 70%, so they are usually well tolerated. (1) Over-the-counter tablets or drops containing the lactase enzyme (e.g., DairyEase, Lactaid, and others) might also be helpful in digesting dairy products. These tablets are taken just before a meal or snack that contains dairy products, or the drops can be added to milk. Because not all the lactose is broken down by the addition of lactase, not everyone with lactose intolerance is helped by these products.

What dietary concerns are there with lactose intolerance?

The main dietary concern with lactose intolerance is whether the nutrients that would be obtained by consuming dairy products are being obtained in adequate quantities from other foods in the diet. Milk is a good source of calcium, potassium, phosphorus, protein, vitamins A, D and B12, riboflavin, and niacin. Focusing on nutrient dense foods high in these key nutrients is important.

Calcium

Calcium is a critical nutrient for bone health and other functions. The amount of calcium contained naturally in non-dairy foods is quite low and is not well absorbed, but can still contribute to one's overall calcium intake. The chart below lists common calcium-containing foods, and the amount that must be consumed to be equivalent to the calcium in 1 cup of milk (300 mg). Although it's possible to get adequate calcium without consuming dairy products, it requires careful planning and may not be practical, especially for children with small appetites. Therefore, encouraging the consumption of some dairy products, as tolerated, is warranted.

How much food to eat for 300 mg Calcium

Food	Food Quantity (for 300 mg Calcium)
Milk	1 cup
Spinach, raw	8 cups
Broccoli	1 ½ cups
Red beans, cooked	5 cups
Sardines	3 oz.
Turnip greens, cooked	1 ½ cups
Orange Juice, calcium fortified	1 cup (varies by brand)
Soy Beverage, calcium fortified	1 cup (varies by brand)
Cottage cheese	1 ¾ cups

Calcium content of foods reference: [USDA National Nutrient Database for Standard Reference, Legacy Release](#)

Vitamin D

Vitamin D is another nutrient of concern for those who do not drink milk, since milk, and some yogurts, are fortified with vitamin D. Eggs and fatty fish are moderate sources of vitamin D. Because Vitamin D fortification varies widely in dairy products, encourage participants to check labels if appropriate.

Vitamin D can be produced by the body when exposed to sunlight, but the use of sunscreen and the latitudinal location of Minnesota make it unlikely that adequate vitamin D will be produced naturally by the body. (3)

Encourage anyone who is not consistently consuming dairy products (or a nutritionally equivalent fortified soy beverage, such as the WIC-allowed options) to discuss with their healthcare provider whether a calcium and Vitamin D supplement might be needed. As a reminder, the AAP recommends a daily Vitamin D supplement of 400 IUs for children who drink the recommended amount of milk (2 cups milk/day).

Vitamin D content of selected foods

Note: the RDA for persons 1-69 years is 600 IUs/day.

Food	Amount of Vitamin D (IUs)
Salmon, pink, 3 oz. canned	480
Milk, 1 cup	100
Yogurt, 6 oz. fortified	80
Egg, 1 whole	40
Liver, beef, 1 slice	40
Tuna, light, 3 oz. canned	36
Yogurt, 6 oz. <i>not fortified</i>	0

Vitamin D content of foods reference: [USDA National Nutrient Database for Standard Reference, Legacy Release](#)

What questions might be helpful in the nutritional assessment of someone with lactose intolerance?

- What are their symptoms? How long have they had the symptoms? Have they been sick and/or on antibiotics recently? What has their health care provider said about their symptoms? These questions will help you evaluate whether it might be a temporary lactose intolerance brought on by illness or antibiotics, or if they consistently experience symptoms of lactose intolerance.
- What foods do they avoid? What foods can they tolerate? How much milk/dairy do they eat at one time? If they can tolerate some dairy products, ask permission to share some of the dietary tips listed above. If they cannot tolerate any dairy products, then:
- **What dairy alternatives do they consume** daily that contain calcium and vitamin D? Have they discussed Calcium and Vitamin D supplements with their healthcare provider?

Staff Tools:

[Dairy Products for Lactose Intolerance](#)

[Lactose Intolerance Facts](#)

Resources:

- (1) [Lactose Intolerance](#) (Mayo Clinic)
- (2) Suchy FJ, Brannon PM, Carpenter TO, et al. [National Institutes of Health Consensus Development Conference: Lactose Intolerance and Health](#). Annals of Internal Medicine. 2010;152(12):792–796.
- (3) Golden NH, Abrams, SA. [Optimizing Bone Health in Children and Adolescents](#). Pediatrics. 2014;134(4):1229-1243.

Reference – Complete Listing of Hyperlinks

[USDA National Nutrient Database for Standard Reference, Legacy Release](https://data.nal.usda.gov/dataset/usda-national-nutrient-database-standard-reference-legacy-release)
(<https://data.nal.usda.gov/dataset/usda-national-nutrient-database-standard-reference-legacy-release>)

[Dairy Products for Lactose Intolerance](https://www.usdairy.com/dairy-nutrition/products/lactose-free) (<https://www.usdairy.com/dairy-nutrition/products/lactose-free>)

[Lactose Intolerance Facts](https://www.usdairy.com/news-articles/lactose-intolerance-facts) (<https://www.usdairy.com/news-articles/lactose-intolerance-facts>)

Minnesota Department of Health - WIC Program, 85 E 7th Place, PO BOX 64882, ST PAUL MN 55164-0882; 1-800-657-3942, health.wic@state.mn.us, www.health.state.mn.us; to obtain this information in a different format, call: 1-800-657-3942.