



## Overview

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Dairy foods such as milk, cheese and yogurt are an integral part of eating patterns in the U.S., providing the underconsumed “nutrients of concern” calcium, potassium and vitamin D, as well as other essential nutrients. The Dietary Guidelines for Americans (DGA) recommend three daily servings of low-fat or fat-free dairy foods for those 9 years and older in the Healthy U.S.-Style Eating Pattern. Lactose intolerance (LI) may lead some individuals to avoid or decrease dairy food consumption; low intakes of calcium and vitamin D have been linked to low bone mineral density and other adverse health outcomes. Objective diagnosis and individualized management strategies can help many Americans who experience LI to include dairy foods in their eating patterns. While lactose intolerance is an individualized condition, there are dairy solutions to help meet the needs of most people with lactose intolerance

## Lactose intolerance doesn't have to be a barrier to consuming dairy foods

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LI is characterized by a group of symptoms that may include abdominal pain, bloating, flatulence and/or diarrhea. These symptoms may occur in some people after they consume dairy foods, and if symptoms occur due to the inability to break down the milk sugar, lactose, they are said to have LI. The inability to break down lactose is known as lactose malabsorption, and is due to deficient levels of the enzyme, lactase, that digests lactose (1). Not all people with lactose malabsorption, however, experience the symptoms of LI (1). LI is a highly individualized condition, meaning the types and severity of symptoms, and the amount of lactose that triggers symptoms, varies among and within individuals (2). People who experience LI symptoms and want to enjoy dairy foods in their eating plans may benefit from a personalized approach to managing their condition (1, 2).

While management strategies vary, reducing milk and dairy food consumption is common among those who experience LI, which can lead to reduced consumption of key nutrients (1, 3-5). Research indicates that in the U.S., people who report they have LI have lower dairy and total calcium intakes compared to those who report they do not have LI (5). A Canadian study also found that milk product and total calcium intake was lower in people who reported having LI (6). Reduced dairy food consumption is of concern because Americans are not meeting recommendations for dairy foods and some of the “shortfall” nutrients they provide, including calcium, vitamin D and potassium (4). Milk is the number one food source of these three nutrients in U.S. diets (7, 8).

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***Individuals with lactose intolerance may avoid dairy foods and, as a result, consume lower amounts of calcium and vitamin D (1).***

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## Lactose intolerance is associated with higher risk for some chronic diseases

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In 2010, the National Institutes of Health (NIH) issued a consensus statement on LI and health and provided guidance on the syndrome (1). An important finding was that individuals with LI may avoid dairy foods and, as a result, consume less calcium and vitamin D, which can contribute to low bone mineral density and other adverse health outcomes (1). Research indicates that Americans who report LI symptoms also report having significantly higher incidence of doctor-diagnosed diabetes and hypertension compared to Americans who report they do not have LI (5). The 2015 DGA recommends low-fat or fat-free dairy foods, such as milk, cheese and yogurt, as part of healthy eating

patterns that have been linked to health benefits, such as reduced risk of CVD and type 2 diabetes, and dairy food consumption has been linked to improved bone health, especially in children and adolescents (4).

## Lactose intolerance: the importance of proper diagnosis

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Proper diagnosis is an important step when it comes to managing LI. Instead of removing dairy foods from the diet to determine whether symptoms disappear, the NIH and health professionals recommend objective testing (e.g., the breath hydrogen test) to help ensure proper diagnosis (1, 9). Many of the symptoms of LI may be confused with those of other conditions (e.g., irritable bowel syndrome) (1). Research indicates that some individuals who avoid milk or dairy foods do so because they believe they have LI, even though objective testing indicates they are able to digest lactose (10, 11).

Self-diagnosis and/or improper diagnosis may have contributed to misinformation about LI prevalence rates within the U.S. and globally. In addition, previous studies have varied in their interpretation of what constitutes lactose intolerance and its link to lactose malabsorption rates (1). The results of some studies indicated LI rates might differ by ethnicity (1, 13, 14). More recently, however, research conducted among individuals who experience LI symptoms indicates LI rates are much lower than previous estimates (12). Within the U.S., average self-reported LI prevalence rates are about 12% in a national sample of European American, African American and Hispanic American adults (12), further indicating that not all individuals who may have lactose malabsorption will have the symptoms of LI.

## A personalized approach is best for managing lactose intolerance

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Many people with LI may want to enjoy the taste, convenience and variety that dairy foods offer, but may find it challenging to include dairy foods in their diets. Personalized management strategies can help, such as consuming small amounts of dairy foods at a time, consuming milk with meals, opting for lactose-free or -reduced cow's milk and milk products, or choosing natural cheeses (1). Research also shows the lactose in yogurt may be easier for some people with LI to digest (15-17). This may be because the gut-friendly bacteria in yogurt provide some of the lactase needed to help the body break down lactose, or the bacteria may also help make a more favorable gut environment that helps reduce LI symptoms (15). Some preliminary studies are finding other options that may show promise to help reduce symptoms, such as probiotic intake (15). Research indicates there is no benefit of raw milk consumption for reducing LI symptoms compared to pasteurized milk (18); because drinking raw milk is associated with foodborne illness, drinking pasteurized milk is recommended (20).

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***Consuming smaller amounts of dairy foods at a time, or choosing lactose-reduced dairy products can help meet dairy recommendations (1).***

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## Dairy-based solutions can help meet health and wellness recommendations for dairy foods

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The DGA recommends three daily servings of low-fat or fat-free dairy foods for those 9 years and older, 2½ servings for children 4-8 years, and two for children 2-3 years, as part of the Healthy U.S.-Style Eating Pattern (4). For those who experience LI, the DGA offers management strategies to help keep dairy foods in the diet, recognizing the essential nutrients the Dairy group provides (4). The NIH found that those with lactose malabsorption can consume 12 gram of lactose (the amount in about a cup of milk) at one time with no or minor symptoms and consuming smaller amounts of dairy foods or lactose-reduced dairy products can help meet dairy recommendations (1). In their 2013 joint consensus statement on LI, the National Medical Association (NMA) and the National Hispanic Medical Association (NHMA) encourage African Americans and Hispanic Americans to consume three servings of low-fat or fat-free dairy foods daily (9). According to the NMA and NHMA, minority groups consume fewer dairy foods than the general population and are at a higher risk for developing certain disease conditions, such as hypertension and diabetes (9), which are associated with low calcium intake from dairy foods (5). The American Academy of Pediatrics encourages children with LI to keep dairy foods in the diet to help meet nutrient needs (19). Taken together, experts agree that nutrient-rich dairy foods are an important part of eating patterns, and there are dairy-based solutions to help most people with LI consume them.

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