



Personalized management strategies can support the enjoyment of dairy

Overview

Lactose intolerance (LI) may lead some individuals to avoid or decrease dairy food consumption, which can decrease essential nutrient consumption and may be associated with chronic disease risk. Objective diagnosis and individualized management strategies can help many Americans who experience LI to include dairy foods in their eating patterns. Dairy foods such as milk, cheese and yogurt are an integral part of eating patterns in the U.S., providing the under consumed “nutrients of concern” calcium, potassium and vitamin D, as well as other essential nutrients. The Dietary Guidelines for Americans (DGA) and health professional organizations recommend consuming three daily servings of low-fat or fat-free milk and milk products for those 9 years and older. 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

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 study from Canada 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, namely calcium, vitamin D and potassium (4, 7). Milk is the number one food source of these three nutrients in U.S. diets (8, 9).

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

Lactose intolerance is associated with higher risk for some chronic diseases

In 2010, the National Institutes of Health (NIH) issued a consensus statement on LI and health and provided recommendations and guidance on the syndrome (1). An important finding was that individuals with LI may avoid dairy foods and, as a result, consume lower amounts of 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). Consumption of milk and milk products is associated with better bone

health in children and adolescents, and with reduced risk for cardiovascular disease and type 2 diabetes, and lower blood pressure in adults (7).

Lactose intolerance: the importance of proper diagnosis

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, 10). 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 (11, 12).

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 (1). The results of some studies suggested LI rates might differ by ethnicity (1, 14, 15). More recently, however, research indicates LI rates, based on individuals who experience the symptoms of LI, are much lower than previous estimates (13). Within the U.S., a 2009 study found that the average self-reported LI prevalence rates were about 12% among a national sample of European American, African American and Hispanic American adults (13), 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

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 (16-18). 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 (16). Some preliminary studies are finding other options that may show promise to help reduce symptoms, such as probiotic intake (16). Research indicates there is no benefit of raw milk consumption for reducing LI symptoms compared to pasteurized milk (19); because drinking raw milk is associated with foodborne illness, drinking pasteurized milk is recommended (21).

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

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

The 2010 DGA recommends consuming three servings of low-fat or fat-free dairy foods daily for all Americans ages 9 years and older (7). 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 (7). The NIH found that those with lactose malabsorption can consume 12 g 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 (10). 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 (10), 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 (20). 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.

References

1. Suchy FJ, Brannon PM, Carpenter TO, et al. NIH Consensus Development Conference Statement: lactose intolerance and health. *NIH Consens State Sci Statements* 2010;27:1-127.
2. Di Rienzo T, D'Angelo G, D'Aversa F, Campanale MC, Cesario V, Montalto M, Gasbarrini A, Ojetti V. Lactose intolerance: from diagnosis to correct management. *Eur Rev Med Pharmacol Sci* 2013;17 Suppl 2:18-25.
3. Fulgoni VL 3rd, Keast DR, Auestad N, Quann EE. Nutrients from dairy foods are difficult to replace in diets of Americans: food pattern modeling and an analyses of the National Health and Nutrition Examination Survey 2003-2006. *Nutr Res* 2011;31:759-65.
4. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *The Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2015*. Available at: <http://www.health.gov/dietaryguidelines/2015-scientific-report/> Accessed on August 21, 2015.
5. Nicklas TA, Qu H, Hughes SO, He M, Wagner SE, Foushee HR, Shewchuk RM. Self-perceived lactose intolerance results in lower intakes of calcium and dairy foods and is associated with hypertension and diabetes in adults. *Am J Clin Nutr* 2011;94:191-198.
6. Barr SI. Perceived lactose intolerance in adult Canadians: a national survey. *Appl Physiol Nutr Metab* 2013;38:830-5.
7. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2010*. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.
8. O'Neil CE, Keast DR, Fulgoni VL, Nicklas TA. Food sources of energy and nutrients among adults in the United States: National Health and Nutrition Examination Survey 2003-2006. *Nutrients* 2013;4:2097-120.
9. Keast DR, Fulgoni VI 3^d, Nicklas TA, O'Neil CE. Food sources of energy and nutrients among children in the United States: National Health and Nutrition Examination Survey 2003-2006. *Nutrients* 2013;5:283-301. Supplemental tables available at: <http://www.mdpi.com/2072-6643/5/1/283>
10. Bailey RK, Fileti CP, Keith J, et al. Lactose intolerance and health disparities among African Americans and Hispanic Americans: an updated consensus statement. *J Natl Med Assoc* 2013;105:112-27.
11. Matlik L, Savaiano D, McCabe G, VanLoan M, Blue CL, Boushey CJ. Perceived milk intolerance is related to bone mineral content in 10- to 13-year-old female adolescents. *Pediatrics* 2007;120:e669-e677.
12. Suarez FL, Savaiano D, Arbisi P, Levitt MD. Tolerance to the daily ingestion of two cups of milk by individuals claiming lactose intolerance. *Am J Clin Nutr* 1997;65:1502-6.
13. Nicklas TA, Qu H, Hughes SO. Prevalence of self-reported lactose intolerance in a multi-ethnic sample of adults. *Nutr Today* 2009;44:186-187.
14. Jarvis JK, Miller GD. Overcoming the barrier of lactose intolerance to reduce health disparities. *J Natl Med Assoc* 2002;94:55-56.
15. Sahi T. Hypolactasia and lactase persistence; historical review and terminology. *Scand J Gastroenterol* 1994;202(Suppl):1-6.
16. Staudacher H. Probiotics for lactose intolerance and irritable bowel syndrome. *Br J Community Nurs*. 2015;20 Suppl 6a:S12-4.
17. Pei R, Martin DA, DiMarco DM, Bolling BW. Evidence for the effects of yogurt on gut health and obesity. *Crit Rev Food Sci Nutr* Apr 15:0 [epub ahead of print].
18. Savaiano DA. Lactose digestion from yogurt: mechanism and relevance. *Am J Clin Nutr*. 2014;99(5 Suppl):1251S-5S.
19. Mummah S, Oelrich B, Hope J, Vu Q, Gardner CD. Effect of raw milk on lactose intolerance: a randomized controlled pilot study. *Ann Fam Med* 2014;12:134-41.
20. Heyman MB and the Committee on Nutrition. American Academy of Pediatrics. Lactose intolerance in infants, children, and adolescents. *Pediatrics* 2006;118:1279-1286.
21. Food and Drug Administration. Raw Milk May Pose Health Risk. <http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm232980.htm> Accessed December 1, 2015.