Lactose Intolerance:
Can Dairy Be Part of the Solution?

Lactose intolerance—the inability to digest significant amounts of lactose—is the primary reason that people avoid dairy products. In fact, some physicians advise their patients to give up dairy products if they complain of any gastrointestinal symptoms. Often this is unnecessary, detrimental to health and, in fact, counter-productive to managing symptoms.

The National Institutes of Health (NIH) recently convened a Consensus Development Panel to reevaluate the research on lactose intolerance, assess the effect of dairy avoidance on nutritional health across the age spectrum and across racial and ethnic groups and develop strategies for individuals to manage symptoms. This monograph summarizes its findings.

Definitions and Diagnosis

- Lactose—the naturally occurring sugar found in all mammalian milk and in most products derived from it.
- Lactose maldigestion—the incomplete breakdown of lactose in the intestinal tract due to low levels of the enzyme lactase. Maldigestion may or may not result in symptoms of intolerance.
- Lactose intolerance—the occurrence of symptoms (diarrhea, abdominal pain, flatulence, bloating) in a person with lactose maldigestion, when the ingested dose is larger than the person can handle comfortably.
- Lactose nonpersistence—normal, age-related decline in lactase activity.
- Milk-protein allergy—a reaction to one or more of cow's milk proteins mediated by the body's immune system. Only about 1 percent to 3 percent of the pediatric population is affected by true milk allergies, and these are commonly outgrown by 3 years of age.[1]

Lactose maldigestion is generally diagnosed by giving the person a dose of 50 grams of lactose—equivalent to drinking a quart of milk on an empty stomach—and measuring breath hydrogen a few hours later. The amount of hydrogen excreted is a measure of how much lactose went undigested. Other tests are available, but breath hydrogen is deemed the most accurate for diagnostic purposes.[2]

Prevalence and Symptoms

It is quite common worldwide for levels of lactase—the intestinal enzyme that cleaves the lactose bond—to decrease after weaning. In many, this genetically programmed lactose nonpersistence results in no discernable change in one's ability to digest and absorb lactose;[3] in others, depending on dose, timing and other foods ingested simultaneously, it can lead to uncomfortable intestinal symptoms from the undigested lactose as it travels through the small and large intestines. These symptoms can include gas, bloating, diarrhea and abdominal pain.

Although the true prevalence of lactose intolerance is not known, new research shows that it has likely been previously over reported[4]—based on lactose-maldigestion studies. Many of those who have maldigestion never or rarely experience symptoms.[5] In addition, some individuals falsely assume that symptoms of other intestinal disorders—such as irritable bowel syndrome and ulcerative colitis, or even discomfort after consuming broccoli or legumes—are due to lactose intolerance and unnecessarily give up dairy products in an attempt to self-treat.[6] A recent study found that when patients complained of lactose-intolerance symptoms, these were often unrelated to true maldigestion … and that diagnosed maldigesters tended to over-report their symptoms.[7]

Similarly, studies on incidence of lactose intolerance—where individuals self-report symptoms—show rates are much lower than lactose maldigestion. Researchers estimate that only about one-third to one-fifth of individuals with diagnosed lactose maldigestion will actually have digestive symptoms.[8] There are some ethnic differences in rates of lactose intolerance, but the most recent findings show that only 8 percent of Europeans, 10 percent of Hispanics and 20 percent of African Americans report symptoms of lactose intolerance.[4]

"A lot of people who think they have lactose intolerance don't. They may have other conditions, or they may just need to consume smaller amounts of dairy products … it is important that they meet recommended intakes of calcium and other essential nutrients."—Dr. Frederick Suchy, Chief of Pediatric Hepatology at Mount Sinai School of Medicine and NIH conference chairperson[9]

There is very limited data on the incidence of lactose intolerance and maldigestion in our aging population. There is some evidence that the incidence of maldigestion is higher; however, this does not seem to correlate to a significant increase in symptoms (i.e., intolerance). Because the nutrients in dairy products are critically important to older individuals for prevention of colon cancer, hypertension and osteoporosis, the Consensus Panel highly advised that they continue to consume dairy products.[9]

Unintended Consequences of Eliminating Dairy From the Diet

Dairy foods provide nine essential nutrients, including protein, vitamins A, D and B12, riboflavin, niacin, calcium, potassium and phosphorus. Many of these are deemed under-consumed nutrients in the average American diet. Dairy avoidance increases risk of deficiencies in these nutrients, many of which play an important role in bone health as well as blood pressure regulation, colon cancer prevention and possibly weight management.[10] It is well established that bone density is compromised in both children and adults who follow dairy-restricted diets,[11] putting children at risk for low bone-mineral density and prepubertal bone fractures[12] and adults at risk for osteoporosis.[13]

Currently in the United States, only about 12 percent of girls and 32 percent of boys aged 12 – 19 years are consuming adequate calcium; in adults, this drops to 10 percent in women and 27 percent in men.[14] American's low calcium intake is recognized as a major public-health problem and one of the priority nutrition problems in the United States today. Consuming supplements and/or calcium-fortified foods are one solution to this crisis; however, these do not generally provide the "package of nutrients" found in dairy that works synergistically toward optimizing bone health and reducing other chronic-disease risk.

Assessment of Lactose Intolerance

When a patient or client complains of symptoms of lactose intolerance, it is important to confirm the diagnosis and assess the severity of symptoms in order to develop an individualized diet plan that incorporates needed amounts of important food groups. Important questions to ask include:

- Have you been tested for lactose maldigestion? If so, what test was used?
- What are the symptoms you generally experience?
- What foods, and how much of these foods, cause your symptoms?
- If you consume these foods in smaller amounts, do you experience symptoms?
- If you consume these foods with a meal, do you still experience symptoms?
- Do dairy foods like cheese and yogurt give you trouble, or just milk? What about broccoli, other cruciferous vegetables and legumes?
- Do you know which foods in your diet supply calcium and vitamin D?
- Do you like dairy foods and want to keep them in your diet?
- Do other members of your family have similar symptoms when they consume these foods?

In assessing a client's sensitivity and developing a diet plan, it is important ***not*** to presume that the only solution is to avoid all dairy products. In fact, it is possible—and desirable—to increase tolerance to lactose with a slow increase in the lactose load. Two separate studies found that patients with lactose intolerance were able to better digest lactose through a program of gradual introduction.[15,16] If a lactose maldigester consumes lactose on a regular basis, there are positive changes in the gut that can result in increasing tolerance to lactose.

Consumer research shows that people seek confirmation of their concerns and information on how to deal with the digestive symptoms. They often do not want to give up dairy products, but are told that they have to. In a 2004 study, 85 percent of African Americans who reported themselves as being lactose intolerant said they would add more milk and dairy products to their diet if they could avoid the symptoms.[17]

Management of Symptoms

Managing symptoms of lactose intolerance will improve quality of life as well as one's nutritional profile. There are a number of ways to alleviate symptoms, which will depend on the individual's sensitivity to lactose. Most lactose maldigesters can, in fact, comfortably tolerate 12 to 15 grams of lactose—the amount in approximately 1 cup of milk or yogurt.[18] Other research suggests that certain types of probiotics (for example, Lactobacillus reuteri) can improve gastrointestinal symptoms associated with lactose intolerance,[19] possibly by helping cleave the lactose bond during digestion.

If symptoms persist, research shows that individuals with lactose intolerance can benefit from the following strategies to increase their tolerance to lactose-containing foods:

- Start with 2 to 4 ounces of milk per day, increasing to a goal of 8 ounces two to three times a day.
- Consume smaller amounts of milk with meals, not on an empty stomach.
- Consume dairy consistently and on a daily basis to build tolerance.
- Consume aged cheese (which has very little lactose) and fermented products like yogurt and acidophilus milk.
- Use lactose-reduced milk (which has the same nutrient content as regular milk) or lactase enzymes to help digest dairy products.
- Consume yogurt with live cultures—probiotics—to help digest the lactose in the gut and reduce symptoms.
- For some individuals with lactose intolerance, higher-fat and/or flavored milk (such as chocolate) may be better tolerated. Encourage clients to experiment with different foods, and different amounts of foods, to see what works for them.
- Round out the diet with other good food sources of calcium like broccoli, kale, almonds and fortified foods to help meet calcium requirements. Calcium-fortified soy, rice and almond beverages can be other good alternatives to dairy products, but their nutrient content can vary significantly from dairy milk. Check labels to ensure that these are appropriate substitutions.

Some individuals who are highly sensitive to lactose may, in fact, have to limit consumption of dairy products altogether due to the severity of their symptoms. In such cases, consuming calcium from other food sources, fortified foods and supplements will be a nutritional goal.

Call to Action

You as a health professional are in the perfect position to re-educate your clients and colleagues on the facts and fallacies of lactose intolerance. Affected individuals can, in many cases, be counseled to integrate milk and milk products back into their diets in strategic ways, whereas others who are severely intolerant will need to meet nutrient needs from other sources. Health professionals can help clients develop individualized diet plans that minimize uncomfortable symptoms, yet incorporate needed nutrients and food groups to optimize their current and future health. These diets must be palatable, realistic, culturally appropriate and economically feasible. Considering that taste is the number-one factor in making food choices, it is critical to integrate the pleasure and comfort of eating into any diet plan.

References

1 Hill DJ, Hosking CS. Eur J Clin Nutr 49(S1):1, 1995.
2 Hovde O, Farup PG. BMC Gastroenterol 2009 Oct 31;9:82.
3 Cabras, PA, Obinu D, Cavalli SL. Eur Ann Allergy Clin Immunol 2009; 41(1):3-16.
4 Nicklas, Theresa A. et al. Nutrition Today 2009; 44(5):222-227.
5 Perino A, et al. Eur Ann All Clin Immmun 2009;41(1):3-16.
6 National Medical Association. J Nat'l Med Assoc 2009;101(10):1S-24S.
7 Casellas F, et al. Clin Gastroenterol Hepatol 2010 Apr 9.
8 Saviano D. Nutr Rev 2003;161:221-23.
9 National Institutes of Health Consensus Development Conference Statement: Lactose Intolerance and Health Feb 22-24, 2010.
10 Hoolihan L. Nutrition Today 2004;39(2): 69-77.
11 Greer FR, Krebs NF, Committee on Nutrition. Pediatrics 2006;117;578-585.
12 Goulding A, et al. J Am Diet Assoc. 2004;104:250-253.
13 Heaney RP. J Amer Coll Nutr 2009;28(1):82S-90S.
14 Huth P, Miller G. Dairy Foods, June 2004; 54-55.
15 Pribila BA, et al. J Amer Diet Assoc 2000;100(5):524-28.
16 Zhong Y, et al. Wei Sheng Yang Jiu. 2006;35(5):587-91.
17 Wooten W, et al. J Natl Med Assoc 2004;96(12):205-245.
18 Shaukat A, et al. Ann Intern Med 2010 April 19.
19 Ojetti V, et al. Eur Rev Med Pharmacol Sci 2010 14(3): 163-70.

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