



# Lactose Intolerance

PATIENT EDUCATION SERIES

## What is Lactose Intolerance?

Lactose intolerance is the inability to digest significant amounts of lactose, the predominant sugar of milk. This inability results from a shortage of the enzyme lactase which is normally produced by cells that line the small intestine. Lactose intolerance is a common problem. It affects certain ethnic and racial populations more than others. In Europe and the United States it is found in 7-20 percent of Caucasian adults and as high as 80-95 percent among Native Americans, 65-75 percent among Africans and African Americans and 50 percent in Hispanics. The prevalence is more than 90 percent in some populations in Eastern Asia. In most populations, the deficiency of lactase develops naturally over time usually after the age of 5. Lactose intolerance can also result from certain digestive diseases (such as celiac or Crohns disease) or from mucosal injury of the digestive tract.

## What are the symptoms of Lactose Intolerance?

Symptoms of lactose intolerance usually begin about 30 minutes to two hours after ingesting lactose. They include abdominal pain, bloating, gassiness, diarrhea, and vomiting. The abdominal pain may be crampy in nature and is often localized to the periumbilical area or lower abdomen. Borborygmi (rumbling noises) are often audible. Stools may be bulky, frothy and watery. The severity of symptoms varies among patients with lactose intolerance. Some individuals are able to tolerate more lactose than others.

## How is Lactose Intolerance Diagnosed?

Often lactose intolerance is suspected if an individual has avoided lactose for a few days and then eats a meal high in lactose and develops typical symptoms.

One test that confirms lactose intolerance is the lactose breath hydrogen test. Normally very little hydrogen is detectable in the breath. However, undigested lactose in the colon is fermented by bacteria producing hydrogen gas. The hydrogen is absorbed from the intestines, carried through the bloodstream to the lungs and exhaled. In this test the patient drinks a lactose loaded beverage, and the breath is analyzed at regular intervals. An elevated level of hydrogen may be considered diagnostic for lactose intolerance.

Another test is the lactose test. The patient fasts for a period before the test is performed and is then given a lactose loaded beverage to drink. Several blood samples are taken over a two hour period to measure blood glucose levels. Normally blood glucose should rise indicating that lactose has been broken down into glucose. If blood glucose does not rise it may confirm lactose intolerance. False positive and false negative results do occur with both these tests.

## How is Lactose Intolerance Treated?

Lactose intolerance is relatively easy to treat. If the lactase deficiency is due to secondary causes such as disease or mucosal injury these issues need to be addressed.

More commonly, nothing can be done to improve the body's ability to produce lactase but symptoms can be controlled through diet. Individuals may learn by trial and error to restrict lactose to the level they are able to tolerate.

The highest concentration of lactose per serving is found in milk or ice cream. Cheeses generally contain much lower concentrations of lactose. One can substitute lactose free milk or soy milk for regular milk. Consuming dairy products with meals especially fat containing meals may help to dilute the lactose. Yogurt with active cultures may be tolerated or small amounts of lactose at each meal may be tolerable.

Commercial "lactase" enzyme supplement preparations such as Lactaid may be added to milk which hydrolyzes the lactose resulting in a sweeter taste. Lactase capsules can be sprinkled on or taken orally with lactose-containing food.

It is particularly important to be sure that adequate levels of calcium and vitamin D are present in the diet especially if one is limiting dairy products. Leafy green vegetables such as broccoli, calcium fortified juices, sardines, salmon, and calcium and vitamin D supplements may be helpful.

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