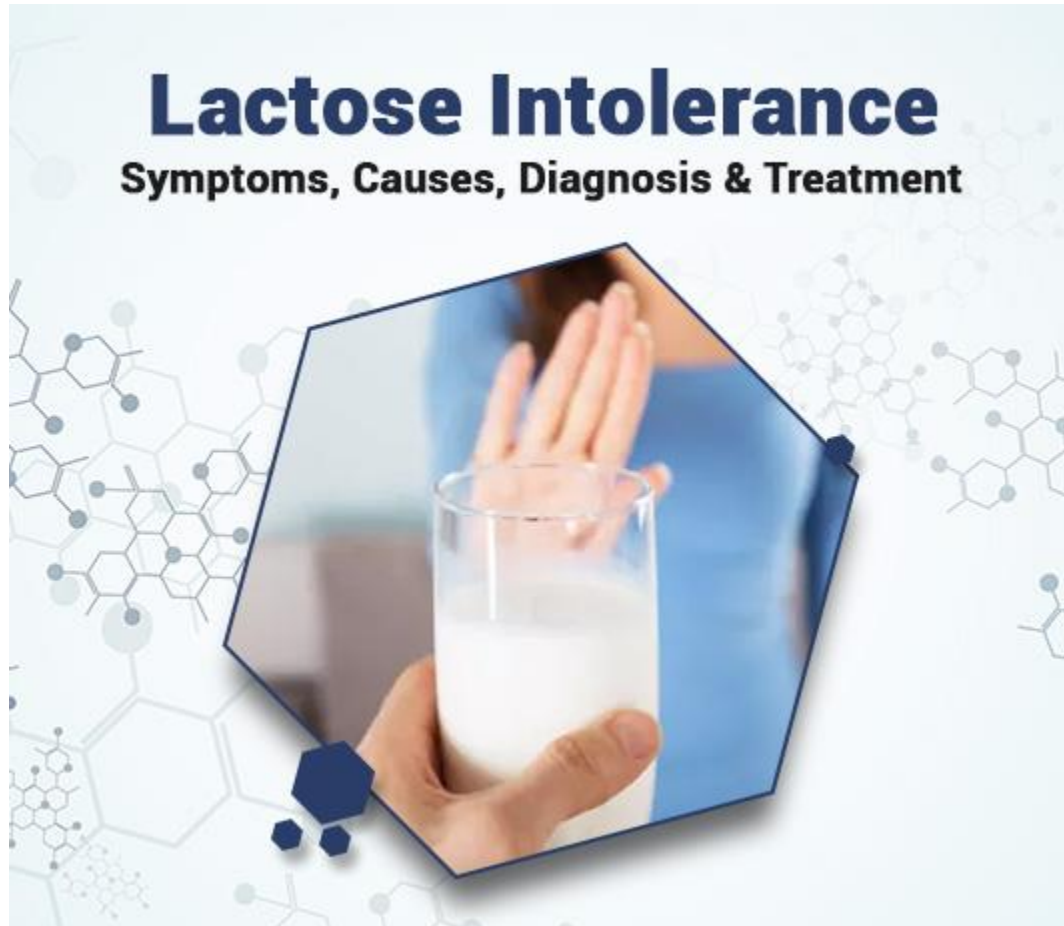


LACTOSE INTOLERANCE



Lactose intolerance is the inability to digest and absorb lactose (the sugar in milk) that results in gastrointestinal symptoms when milk or food products containing milk are consumed. It is due either to a genetically-programmed loss of lactase, the intestinal enzyme responsible for the digestion of lactose, or diseases affecting the small intestine that destroy lactase. Genetically programmed loss of lactase occurs between early childhood and age 21. The timing of this loss is determined primarily by ethnicity.

Because diseases of the intestine can occur at any age, lactose intolerance can begin at any age; however, that does not mean that an individual has become genetically lactase deficient.

Congenital causes of lactose intolerance

Lactase deficiency may occur because of a congenital absence (absent from birth) of lactase due to a mutation in the gene that is responsible for producing lactase. This is a very rare cause of lactase deficiency, and the symptoms of this type of lactase deficiency begin shortly after birth.

Secondary causes of lactose intolerance

Another cause of lactase deficiency is secondary lactase deficiency. This type of deficiency is due to diseases that destroy the lining of the small intestine along with the lactase. An example of such a disease is [celiac disease](#) (sprue).

Genetically programmed causes of lactose intolerance

The most common cause of lactase deficiency is a decrease in the amount of lactase that occurs after childhood and persists into adulthood, referred to as adult-type hypolactasia. This decrease in lactase is genetically programmed. Lactase deficiency (and lactose intolerance) is most common among Asians, affecting more than 90% of adults in some communities. People with ancestry from Northern Europe, on the other hand, have a 5% rate of lactase deficiency. In addition to variability in the prevalence of lactase deficiency among

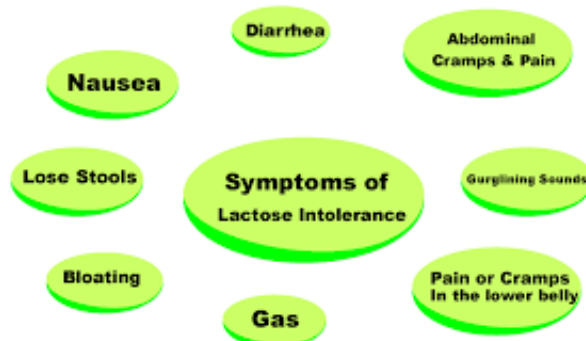
ethnic groups, there also is variability in the age at which symptoms of lactase deficiency (and lactose intolerance) appear.

As people age they may develop lactose intolerance; however, the extent of the intolerance appears to be mild and not associated with clinical symptoms. Therefore, the development of lactose intolerance in the elderly should not be made lightly.

Symptoms

The signs and symptoms of lactose intolerance usually begin from 30 minutes to two hours after eating or drinking foods that contain lactose. Common signs and symptoms include:

- Diarrhea
- Nausea, and sometimes, vomiting
- Stomach cramps

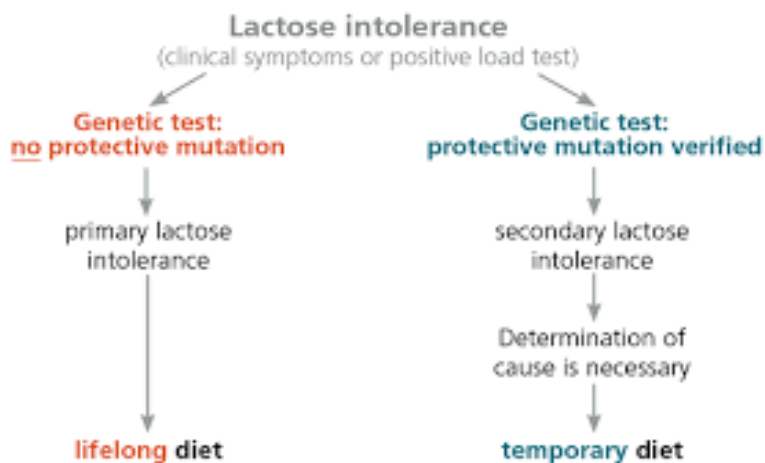


- Bloating
- Gas

Risk factors

Factors that can make you or your child more prone to lactose intolerance include:

- Increasing age. Lactose intolerance usually appears in adulthood. The condition is uncommon in babies and young children.
- Ethnicity. Lactose intolerance is most common in people of African, Asian, Hispanic and American Indian descent.
- Premature birth. Infants born prematurely might have reduced levels of lactase because the small intestine doesn't develop lactase-producing cells until late in the third trimester.
- Diseases affecting the small intestine. Small intestine problems that can cause lactose intolerance include bacterial overgrowth, celiac disease and Crohn's disease.



How is lactose intolerance treated?

Lactose intolerance is easily treated. The goal of treatment is to control symptoms through dietary changes.

People with lactose intolerance can usually find a level of lactose-containing foods that will not produce symptoms.

