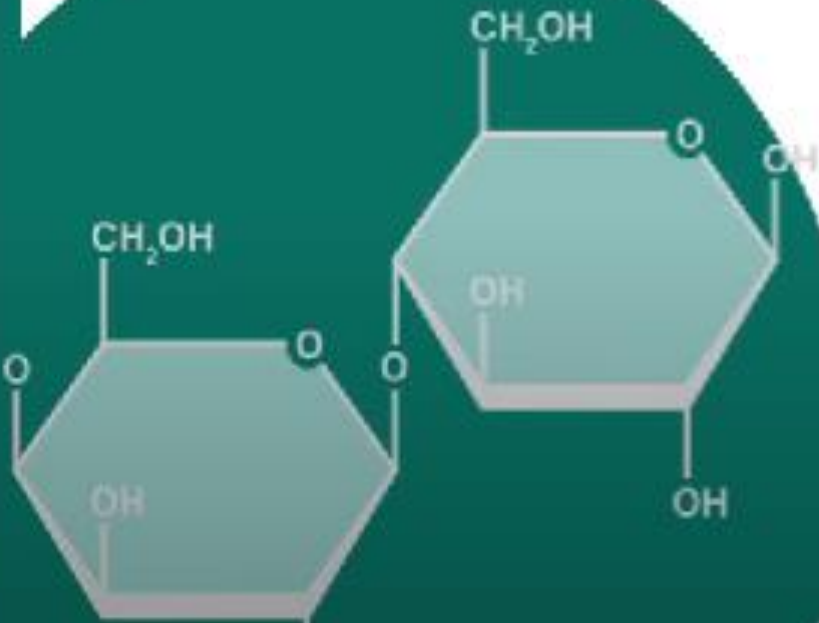


# lactose intolerance



PRESENTED BY :

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- **Objectives:**

- **Define Lactose Intolerance**
- **Outline the Biochemical defect in this condition**
- **Correlate clinically**

## **Definition of Lactose Intolerance:**

**People with lactose intolerance are unable to fully digest the sugar (lactose) in milk. As a result, they have diarrhea, gas and bloating after eating or drinking dairy products. The condition, which is also called lactose malabsorption, is usually harmless, but its symptoms can be uncomfortable.**



**Too little of an enzyme produced in your small intestine (lactase) is usually responsible for lactose intolerance. You can have low levels of lactase and still be able to digest milk products. But if your levels are too low you become lactose intolerant, leading to symptoms after you eat or drink dairy.**



**Most people with lactose intolerance can manage the condition without having to give up all dairy foods.**

**Other names for Lactose Intolerance are:  
Lactose deficiency, lactose malabsorption,  
lactose maldigestion and hypolactasia.**

# **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**



# SYMPTOMS OF Lactose Intolerance



**NAUSEA**



**BLOATING &  
EXCESSIVE GAS**



**DIARRRHEA**



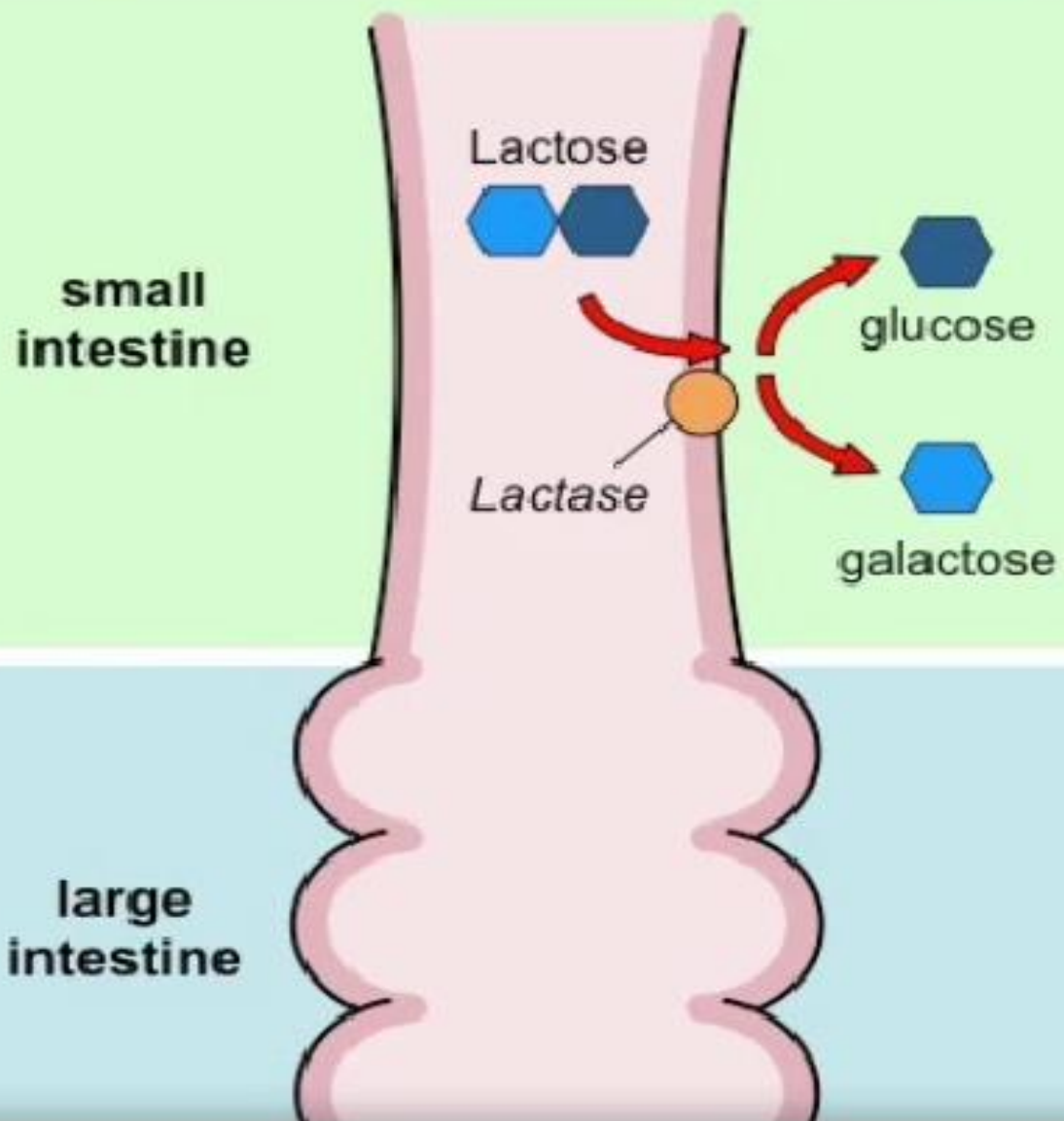
**ABDOMINAL  
CRAMPS**

## **CAUSES:**

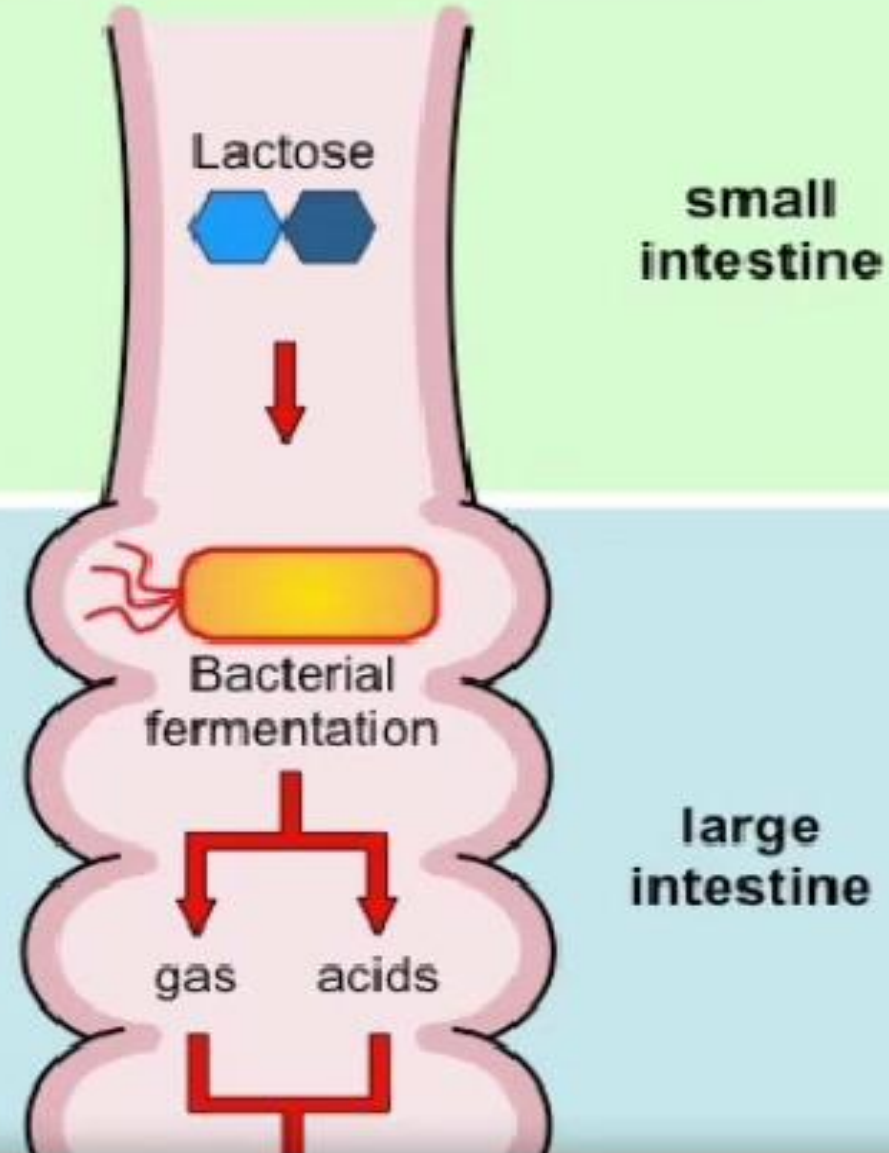
- **Lactose intolerance occurs when your small intestine doesn't produce enough of an enzyme (lactase) to digest milk sugar (lactose).**
- **Normally, lactase turns milk sugar into two simple sugars — glucose and galactose — which are absorbed into the bloodstream through the intestinal lining.**
- **If you're lactase deficient, lactose in your food moves into the colon instead of being processed and absorbed. In the colon, normal bacteria interact with undigested lactose, causing the signs and symptoms of lactose intolerance.**



## Lactose Tolerant (has *lactase*)



## Lactose Intolerant (no *lactase*)



# **TYPES OF LACTOSE INTOLERANCE:**

**Different factors cause the lactase deficiency underlying each type:**

- 1. Primary lactose intolerance**
- 2. Secondary lactose intolerance**
- 3. Congenital lactase deficiency**

# **1- Primary lactose intolerance**

**People who develop primary lactose intolerance — the most common type — start life producing enough lactase. Infants, who get all their nutrition from milk, need lactase.**

**As children replace milk with other foods, the amount of lactase they produce normally drops, but usually remains high enough to digest the amount of dairy in a typical adult diet. In primary lactose intolerance, lactase production falls off sharply by adulthood, making milk products difficult to digest.**

## **2- Secondary lactose intolerance**

**This form of lactose intolerance occurs when your small intestine decreases lactase production after an illness, injury or surgery involving your small intestine. Diseases associated with secondary lactose intolerance include intestinal infection, celiac disease, bacterial overgrowth and Crohn's disease.**

**Treatment of the underlying disorder might restore lactase levels and improve signs and symptoms, though it can take time.**

### **3- Congenital lactase deficiency**


**is a severe autosomal recessive genetic disorder that affects the functional capacity of the intestinal lactase-. This disorder is diagnosed already during the first few days of the newborn's life due to the inability to digest lactose, which the main carbohydrate in mother milk. congenital lactase deficiency is suspected in neonates of a few days of age with the onset of watery diarrhea after the start of breastfeeding, usually in the absence of vomiting, with adequate intake and no food refusal. If the diagnosis is delayed, dehydration and metabolic acidosis can become severe and life-threatening.**

## 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.



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- **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.
  - **Certain cancer treatments.** If you've had radiation therapy for cancer in your stomach or you have intestinal complications from chemotherapy, your risk of developing lactose intolerance increases.

## **The difference between lactose intolerance and milk allergy:**

**Lactose intolerance is distinct from milk allergy, an immune response to cow's milk proteins. They may be distinguished in diagnosis by giving lactose-free milk, producing no symptoms in the case of lactose intolerance, but the same reaction as to normal milk in the presence of a milk allergy. A person can have both conditions.**

## Lactose intolerance:

- ❖ The inability to digest the milk sugar lactose
- ❖ Does not involve the immune system
- ❖ Symptoms are only gastrointestinal, such as diarrhea, no skin and respiratory symptoms are involved.
- ❖ A small amount of lactose can often be tolerated. Cow's milk protein doesn't cause and allergic reactions.

## Cow's milk allergy:

- ❖ An allergic to proteins in cow's milk (casein).
- ❖ Involve the immune system.
- ❖ Gastrointestinal, skin and respiratory symptoms may be involved.
- ❖ A small amount of cow's milk protein could cause an allergic reaction.

There are three kinds of tests that can be used to check lactose intolerance.

### Hydrogen breath test

This test is the most common. During this test, your doctor will instruct you to drink a liquid solution containing lactose.

You'll then breathe into a balloon-like instrument at set intervals to determine how much hydrogen there is in your breath.

The more hydrogen you exhale, the more likely it is that your body is unable to process lactose.



## Lactose tolerance test

Like the hydrogen breath test, this test requires you to drink a liquid with lactose. After 2 hours, your doctor will take a blood sample to measure how much glucose is in your blood. If your blood glucose level doesn't rise, this means that your body isn't digesting or absorbing lactose.

## Stool acidity test

This test is usually performed on infants or small children, as they're not eligible for other tests. A physician will take a stool sample to see if lactose is breaking down properly in the system. Fermenting lactose in the intestines (a sign of lactose intolerance) creates lactic acid, which can be detected in stool.



**THANK  
YOU**

The image features the words "THANK YOU" rendered in a bold, three-dimensional, red sans-serif font. The letters are thick and blocky, with a slight perspective. The text is arranged in two lines: "THANK" on top and "YOU" below it. The letters are set against a plain white background. A soft, semi-transparent reflection of the text is visible on the surface below, creating a sense of depth and realism. The lighting is even, highlighting the edges of the 3D letters.