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ISSN: 2161-1009
Biochemistry &
Analytical Biochemistry

Opinion Article

Lactose Intolerance: An Observational Study on its Symptoms

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DESCRIPTION

Due to genetically low levels of the enzyme lactase, people with lactose intolerance are unable to digest large amounts of lactose. Following the consumption of lactose-containing foods, common symptoms include bloating and stomach pain, increased flatulence, and watery stools. Up to 15% of those with a Northern European (NE) ancestry, up to 80% of Latinos and black people, and up to 100% of American Indians and Asians are lactase deficient. Even while many individuals mistakenly believe they have impaired lactose digestion, they actually do not, and some people with lactase deficiency can tolerate small amounts of consumed lactose.

Lactose intolerance may typically be diagnosed with a thorough medical history backed up by dietary changes. Using a lactose tolerance test or a breath hydrogen test, the diagnosis can be verified if necessary. The mainstay of treatment is avoiding foods that contain lactose. Supplemental lactase enzymes could be useful. Patients with lactose intolerance have a wide range of lactose malabsorption. Constipation, gas, bloating, loose, watery stools, and severe flatulence are all signs of dietary lactose malabsorption in the small intestine. Typically a lifelong hereditary trait, lactose intolerance can occasionally be brought on by an infection or other injury to the jejunal mucosa. It's crucial to be aware of this common ailment because it can be readily treated with minor dietary changes.

Correct lactose intolerance diagnosis can considerably reduce patient anxiety and prevent unnecessary testing and treatments. The lactase enzyme is found in the small intestine enterocyte's brush edge (microvilli). In order to be transported across the cell membrane, the enzyme separates and hydrolyzes dietary lactose into glucose and galactose. For appropriate absorption, lactose's enzyme activity and rate of passage through the jejunum mucosa are crucial. Unabsorbed carbohydrates osmotically draw fluid into the gut lumen if lactase enzymes are absent or weak (hypolactasia). Due to the intestine's inability to sustain a large electrochemical gradient between the contents and blood, the volume of fluid entering the colon is roughly three times greater than would be expected based just on the osmolality of the sugar content.

Unabsorbed lactose entering the colon is impacted by bacteria, which also increases the volume and fluidity of the digestive system's contents. In addition to creating gas, fermentation causes lactose to separate into mono saccharides. Because the colonic mucosa cannot absorb these mono saccharides, osmotic pressure rises and more fluid is drawn into the stool. However, the overall effect of consuming lactose is a significant increase in fluid. In lactase-deficient people, some of the carbohydrates reaching the colon can be converted by bacteria into short-chain fatty acids and absorbed. Due to hypolactasia, up to 75% of dietary lactose passes through the small intestine unmodified and into the colon, where colonic bacteria quickly digest it and produce an excessive amount of fluid.

However, depending on the amount of lactose consumed and the patient's capacity to digest lactose, different patients will suffer different symptoms. The amount of ingested lactose needed to cause symptoms in people with common adult-type hypolactasia varies, but is often reported to be between 12 and 18 g, or 8 and 12 oz of milk. The patient's age and ethnicity are two characteristics that influence how severe the symptoms are after consuming lactose; older people are more vulnerable. Bloating, cramps, and gas are frequently experienced after ingesting modest to moderate amounts of lactose, but not typically diarrhoea. More severe symptoms are caused by increased lactose intake, quicker stomach emptying, and quicker intestinal transit.

On the other hand, symptoms are lessened by increased lactase activity in the small intestine. Patients may experience increased symptoms as a result of consuming different meals and having the right bacteria in their gut. About two hours after ingesting lactose, symptoms start to appear. These symptoms are directly related to the osmotic pressure of substrate in the colon. Patients frequently have a significant family history of related issues and have learned to avoid milk products.

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Received: 16-Aug-2022, Manuscript No. BABCR-22-18019; **Editor assigned:** 19-Aug-2022, Pre QC No. BABCR-22-18019 (PQ); **Reviewed:** 06-Sep-2022, QC No. BABCR-22-18019; **Revised:** 12-Sep-2022, Manuscript No. BABCR-22-18019 (R); **Published:** 20-Sep-2022, DOI: 10.35248/2161-1009.22.11.447.

Citation: Tailor S (2022) Lactose Intolerance: An Observational Study on its Symptoms. Biochem Anal Biochem.11:447.