



## Clinical and Neurological Symptoms of Fructose and Lactose Malabsorption

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### DESCRIPTION

The dietary intake of fructose relies the consumption of food in malabsorption which includes impaired duodenal fructose and lack of mucosal lactase, respectively. As a result, the non-absorbed monosaccharides reaches the colon, where the bacteria transforms them into short-chain fatty acids, carbon dioxide, and hydrogen gas. Carbohydrate malabsorption is a major clinical problem in children because, if addressed, it can lead to malnutrition and failure to thrive. Simple management of malabsorption by eliminating the carbohydrate in body diet. Knowing the particular mechanisms involved in the physiology of carbohydrate absorption and digestion will help the doctor treat the clinical condition of malabsorption more effectively [1].

Bacterial breakdown occurs in the colon for both these indigestible carbohydrate polymers and indigestible oligosaccharides such as stachyose, raffinose, and lactulose. It results in bloating, cramps, osmotic diarrhoea, and other IBS symptoms, which are present in roughly 50% of carbohydrate malabsorbers [2]. We have previously demonstrated that symptoms of mental depression were linked to both fructose and lactose malabsorption. Investigating potential connections between fructose and lactose malabsorption and their impact on the emergence of depressive symptoms was therefore of interest.

Short bowel syndrome patients can experience the serious consequence which is known as D-lactic acidosis. Due to significant absorption in the small intestine, relatively little glucose and starch in healthy people actually make it to the colon. This process is caused by an overgrowth of Gram-positive anaerobic rods, such as *Lactobacillus*. D-lactate is neurotoxic, and as a result, episodes of encephalopathy with neurological symptoms such as altered mental state, disorientation, slurred speech, ataxia, hallucinations, and amnesia characterize the clinical presentation. Delivery of these substrates to the colon is greatly boosted in people with small bowel syndrome [3]. Glucose and starch are converted in the colon to D-lactic acid, which is then taken into the systemic circulation, causing metabolic acidosis.

Fructose and lactose malabsorption are characterized by impaired duodenal fructose transport or a lack of mucosal lactase, respectively. As a result, the non-absorbed saccharides travel to the colon, where bacteria transform them into short fatty acids, CO<sub>2</sub>, and H<sub>2</sub>. Irritable bowel syndrome symptoms such as bloating, cramping, and osmotic diarrhoea are present in about 50% of persons with carbohydrate malabsorption. The connection between mental depression symptoms and fructose and lactose leads to different malabsorption syndromes [4].

The explore of any type of linkages between fructose and lactose malabsorption can affect the development of depressive symptoms. The breath H<sub>2</sub> concentrations of 111 otherwise healthy participants (81 females and 30 males) with gastrointestinal problems were measured following oral doses of 50 g lactose and 50 g fructose given one week apart. They were divided into three categories: normal, isolated fructose malabsorbers, isolated lactose malabsorbers, and combination fructose/lactose malabsorbers [5]. A questionnaire from the Beck's depression inventory was completed by each patient. Twenty-five people (22.5%) had neither fructose nor lactose malabsorption, whereas 69 (62.2%) only had fructose malabsorption, four (3.6%) only had lactose malabsorption, and 13 (11.7%) had both. Isolated fructose malabsorption and combined fructose/lactose malabsorption was significantly associated with a higher Beck's depression score.

### CONCLUSION

The combination of sugar malabsorption patterns is common in functional bowel disorders and it may contribute to symptomatology in most of the patients. The restriction for intake of malabsorbed sugars are implemented in bowel disease patients before the drug therapy. It confirms that the fructose malabsorption plays an important role in the development of mental depression in females and additional lactose malabsorption seems to further increase the risk for development of mental depression. This analysis shows that the association was strong in females (P<0.01), but there was no

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such association between carbohydrate malabsorption and early signs of depression in males.

## REFERENCES

1. Lam CY, Palsson OS, Whitehead WE, Sperber AD, Tornblom H, Simren M, et al. Rome IV functional gastrointestinal disorders and health impairment in subjects with hypermobility spectrum disorders or hypermobile Ehlers-Danlos syndrome. *Clin Gastroenterol Hepatol*. 2021;19(2):277-287.
2. Lacy BE, Patel NK. Rome criteria and a diagnostic approach to irritable bowel syndrome. *J Clin Med*. 2017;6(11):99.
3. Erdogan A, Rao SS, Gulley D, Jacobs C, Lee YY, Badger C. Small intestinal bacterial overgrowth: duodenal aspiration vs glucose breathe test. *Neurogastroenterol Motil*. 2015;27(4):481-489.
4. Rezaie A, Buresi M, Lembo A, Lin H, McCallum R, Rao S, et al. Hydrogen and methane-based breath testing in gastrointestinal disorders: the North American Consensus. *Am J Gastroenterol*. 2017;112(5):775.
5. Yu D, Cheeseman F, Vanner S. Combined oro-caecal scintigraphy and lactulose hydrogen breath testing demonstrate that breath testing detects oro-caecal transit, not small intestinal bacterial overgrowth in patients with IBS. *Gut*. 2011;60(3):334-340.