

BIO 26 PAL Worksheet

Week 12 (#2): Diarrhea and flatulence case studies

Joe just turned 14 and has started to become sick after eating his favorite food in the morning, cereal with milk. He suffers from diarrhea, gas, and bloating. Can you offer a possible mechanism?

First, answer the questions below to help you think through your response. Use your whiteboard to list important points from your discussion.

- a) What is the primary sugar in mammary milk?
- b) Nutrient absorption from ingested and digested food, including complex sugars, occurs in which part of the digestive tract?
- c) What group of enzymes break down complex sugars? What may be a consequence of an enzyme deficiency?
- d) Can undigested complex sugars be absorbed? If not, where do they go?
- e) Who is responsible for chemical digestion in the large intestines?

Now that you have reviewed the concepts involved in this scenario, how would you answer the original question? Specifically address mechanisms explaining

- 1) the additional water in the bowel movements (diarrhea), and
- 2) the gas and bloating.

Bonus: Approximately 75% of the world's population loses the ability to digest the sugar you identified above, while others can digest it into adulthood (Mattar R, de Campos Mazo DF, Carrilho FJ. Lactose intolerance: diagnosis, genetic, and clinical factors. Clin Exp Gastroenterol. 2012;5:113-21. doi: 10.2147/CEG.S32368. Epub 2012 Jul 5. PMID: 22826639; PMCID: PMC3401057.)

1. Can you think of a reason why this often happens around the age of 5?
2. What could be a temporary solution to a lactase deficiency? What could be a permanent solution?