A 14-year-old student often feels tired after meals and has recently been losing weight, despite eating regular amounts of food. The student also notices stomach discomfort and their stools are also pale and greasy. In this paper, I will discuss why the student is having these symptoms (Omer, 2024).

The digestion starts in the mouth and then goes to esophagus, stomach, small intestine, large intestine, rectum and anus. Some of the enzymes that are involved in digestion are amylase, protease, and lipase. Amylase (carbohydrates) is the first digestive enzyme that breaks down carbohydrates (starch) into simpler sugars like maltose and glucose. Amylase is produced in the mouth, pancreas and small intestine. Protease (pepsin) is the second digestive enzyme that breaks down proteins into peptides and amino acid. Protease is produced in stomach, pancreas and small intestine. Lipase (steapsin) is the third enzyme that breaks down fats (lipids) into fatty acids and glycerol. Lipase is produced in the pancreas and small intestine. These enzymes are absorbed through the intestinal walls into the bloodstream via diffusion or active transport (Borowitz, 2025).

There are many problems with enzymes, for example digestive enzyme deficiency and sensitivity to environment. Digestive enzyme deficiency in this the body fails to produce enough enzymes (amylase, protease, lipase, lactase) leading to malnutrition, abdominal pain, bloating, gas, oily stools, and weight loss. Examples include lactose intolerance and exocrine pancreatic insufficiency (EPI). In sensitivity to environment, enzymes are proteins that can be destroyed or deformed by high heat, improper pH levels, or diseases making them non-functional. In lactose intolerance our body does not have enough of the enzyme lactase to break down lactose (milk sugar), causing it to ferment in the colon. Exocrine pancreatic insufficiency means our pancreas is not working making enough digestive juices (enzymes) to break down food (Misselwitz, 2019).

Some of the problems with bile are bile duct obstruction, bile reflux and inflammation. Bile duct obstruction is a blockage in the tubes (duct) that carry bile from liver and gallbladder to the small intestine, causing to build up, often leading to jaundice, pain, and infection. Bile reflux is a digestive condition occurring when bile which is a fluid produced by the liver to digest fats backs up (refluxes) from the small intestine into the stomach and, frequently, up into the

esophagus. Inflammation occurs when the immune system attacks the gastrointestinal tract, causing swelling, damage, and pain (Tag, 2015).

Problems with absorption are caused by the intestinal mucosa and reduced bile secretion. Damage to the intestinal mucosa, in these conditions like celiac disease (gluten-induced), Crohn's disease, or infections can damage the villi in the small intestine, significantly reducing the surface area for nutrient absorption. In reduced bile secretion, liver and gallbladder diseases reduce bile production or release, which is necessary for the digestion and absorption of fats (Enacha, 2025).

The 14-year-old student loses weight if the body is not effectively absorbing the nutrients from that food, or that a significant portion of the meal is being expelled through diarrhea or vomiting. The student gets fatigue because the body diverts significant energy and blood flow towards the digestive system, releasing hormones like insulin or neurotransmitters like serotonin that induce sleepiness. The student also can have greasy stool if his or her body didn't break down and absorb the fat you ate, so the fat passed through your system and ended up in his or her stool (Montoro-Huguet, 2021).

Digestion is the process of breaking down food into small particles and nutrients that the body can absorb to get energy and for growth and repair cells. This journey involves both mechanical actions (chewing, churning) and chemical actions (enzymes, acids) (Soper, 1992).

Major problems of the body are constipation, diarrhea and gallstones. Constipation is defined as having fewer than three bowel movements per week, resulting in hard, dry, and difficult-to-pass stool. Diarrhea, in this the student will have frequent loose or watery stools, often caused by infections, food intolerances, or chronic conditions. Gallstones are hard deposits in the gallbladder that can cause severe pain in the upper right abdomen (Cho 2023).

The digestive system is a vital, complex network of organs that converts food into essential nutrients and energy through mechanical and chemical breakdown (Wilhemj, 1952). Above, I have discussed the possible reasons and symptoms the student may have.

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