

ALPHA AMYLASE

Alpha-amylase is an enzyme produced by the salivary glands and pancreas that catalyses the hydrolysis of alpha-1,4 glycosidic bonds within starch molecules, breaking them down into smaller polysaccharides such as maltose, malt triose, and dextrin's.

This enzyme plays a crucial role in the digestion of carbohydrates, initiating the process in the mouth during chewing and continuing its action in the small intestine after swallowing. Alpha-amylase is essential for the body to access the energy stored in complex carbohydrates from food and is integral to the digestive process.

Low levels of Alpha-Amylase:

Pancreatitis: Acute pancreatitis, chronic pancreatitis, or damage to the pancreas can lead to reduced production of alpha-amylase.

Pancreatic insufficiency: Conditions such as cystic fibrosis or pancreatic cancer can cause insufficient production of digestive enzymes, including alpha-amylase.

Malnutrition: Inadequate intake of nutrients, particularly protein, can affect enzyme production, including alpha-amylase.

Liver disease: Liver conditions such as cirrhosis can impact the production of enzymes, including alpha-amylase.

Celiac disease: In some cases, celiac disease can affect enzyme levels, although the mechanism is not entirely understood.

Genetic factors: Rare genetic conditions can affect the production or function of alpha-amylase.

High levels of Alpha-Amylase:

Pancreatitis: In pancreatitis, damaged pancreatic cells release increased amounts of alpha-amylase into the bloodstream.

Pancreatic cancer: Tumours in the pancreas can cause an increase in alpha-amylase levels, although this is less common compared to pancreatitis.

Pancreatic pseudocyst: This is a fluid-filled sac that can develop in the pancreas following pancreatitis, and it may lead to elevated alpha-amylase levels.

Kidney disease: Some kidney disorders, particularly those affecting the glomeruli (the filtering units of the kidney), can lead to increased alpha-amylase levels.

Salivary gland disorders: Conditions affecting the salivary glands, such as salivary gland inflammation or obstruction, can sometimes result in elevated alpha-amylase levels.

Macro amyl aemia: This is a rare condition in which alpha-amylase becomes bound to a protein in the blood, leading to increased levels of this enzyme.