

FUNCTIONAL NUTRITION

WHERE NUTRITION AND DIGESTIVE PHYSIOLOGY MEET

ENZYMES



	DIGESTIVE ENZYME	ORIGINATING ORGAN	RELEASED IN/BY	ACTION	FINAL PRODUCT
MOUTH	Amylase	Mouth/salivary glands	Saliva	Begins the breakdown of carbohydrates, prepares food - making smaller and lubricating - for swallowing	Glucose
	Lingual lipase			Begins fat digestion	
STOMACH	HCL	Stomach	Parietal cells in the stomach	Creates an acidic environment to 1) destroy unwanted germs 2) aid pepsin to break down protein	Amino acids
	Pepsin	Pancreas	Chief cells in the stomach	Breaks down protein into amino acids	Amino acids
	Hormone: Gastrin	Stomach	G cells in stomach	Stimulates HCL to be secreted and muscles to contract for digestion	
SMALL INTESTINE: DUODENUM	Pancreatic amylase	Pancreas		Further breakdown carbohydrates	Glucose
*Proteases are the group of enzymes that aid in protein breakdown	Trypsin	Pancreas	Converts into the active form, trypsinogen, in the small intestine	Further breakdown the amino acids from protein breakdown	Amino acids
	Chymotrypsin	Pancreas	Converts into the active form, chymotrypsinogen, in the small intestine	Further breakdown the amino acids from protein breakdown	Amino acids
	Lipase	Pancreas	Small intestine	Breakdown lipids/fats	Fatty acids
	Bile salts	Gallbladder	Small intestine	Helps emulsify fats for easier absorption	Fatty acids

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	Bile	Synthesized in the liver and stored in gallbladder.*	Gallbladder	Breakdown of fats	Fatty acids
SMALL INTESTINE: JEJUNUM			Gallbladder	Where most food is absorbed through the villi and carried to the liver to determine where it will go in the body to nourish, grow, reproduce, repair.	
SMALL INTESTINE: ILIUM				B12 absorption	
LARGE INTESTINE: COLON				Reabsorbs water and electrolytes	

*If not enough of stomach acid - HCL - the hormone, Cholecystikin (CCK) is not triggered for release = gallbladder issues (stones) with not enough release of bile