

Digestion - Exercise 9 Introduction

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Chemical Digestion:

- **Occurs in 3 areas: mouth, stomach, small intestine**
 - **Mouth:** carbohydrate digestion begins
 - Enzyme: **amylase**, secreted from salivary glands
 - Big polymers (starch and glycogen) are broken down into disaccharides (maltose)
 - **Stomach:** protein digestion begins, *some* absorption of nutrients and water.
 - Enzyme: **pepsin**, derived from pepsinogen secreted from the gastric glands of the stomach.
 - Polypeptides (proteins) are broken down (hydrolyzed) into protein fragments (peptides).
 - **Small intestine:** digestion of carbohydrates (sugars), proteins (polypeptides) and lipids (fats)
 - Enzyme: **amylase**, derived from the pancreas; Site of reactions is the brush border (the microvilli).
 - Further digests carbohydrates (sugars)
 - ◆ Oligosaccharides (short-chain sugars) are degraded to monosaccharides (like glucose).
 - Enzyme: **trypsin and chymotrypsin**, derived from pancreas
 - Proteins continue to be broken down into protein fragments, and eventually, amino acids (individual building blocks).
 - Enzyme: **lipase**, derived from the pancreas
 - digests fats (lipids) into their building blocks (fatty acids and monoglycerides).
 - **Adsorption:** final breakdown products (monosaccharides, amino acids, dipeptides, fatty acids and monoglycerides) are absorbed through the mucosa.
 - Capillaries within submucosa carry these nutrients to the liver for further processing.