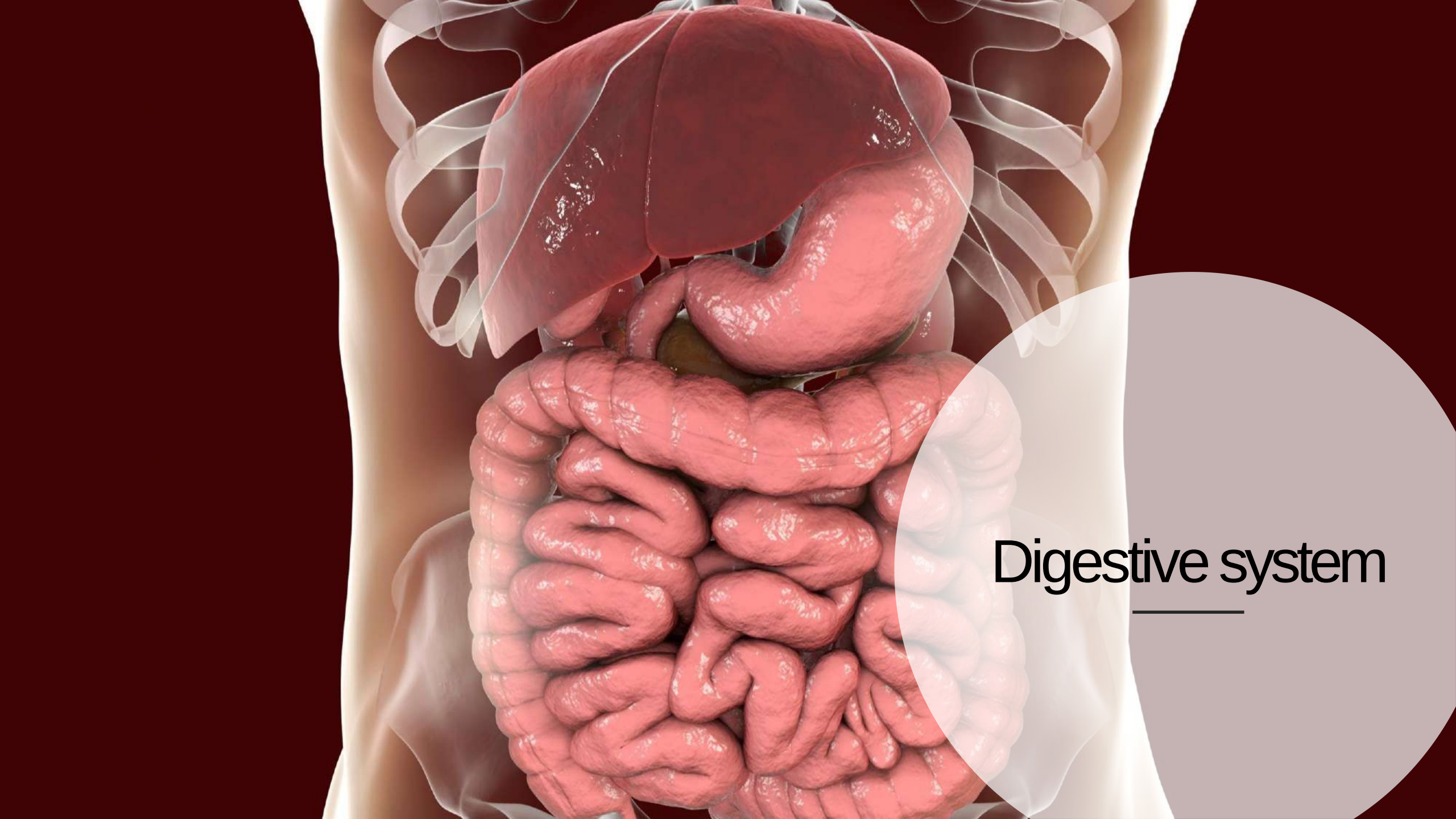


Digestive system

Learning objectives:

- The structure and the function of the digestive system
- The four stages of the digestive system
- The chemistry of the digestive system
- The function of enzymes
- Diseases and disorders of the digestive system

Functions

Ingestion

- Take food and liquids into the mouth

Mechanical processing

- Chewing and swallowing food

Digestion

- Chemical breakdown of food into nutrient form

Secretion

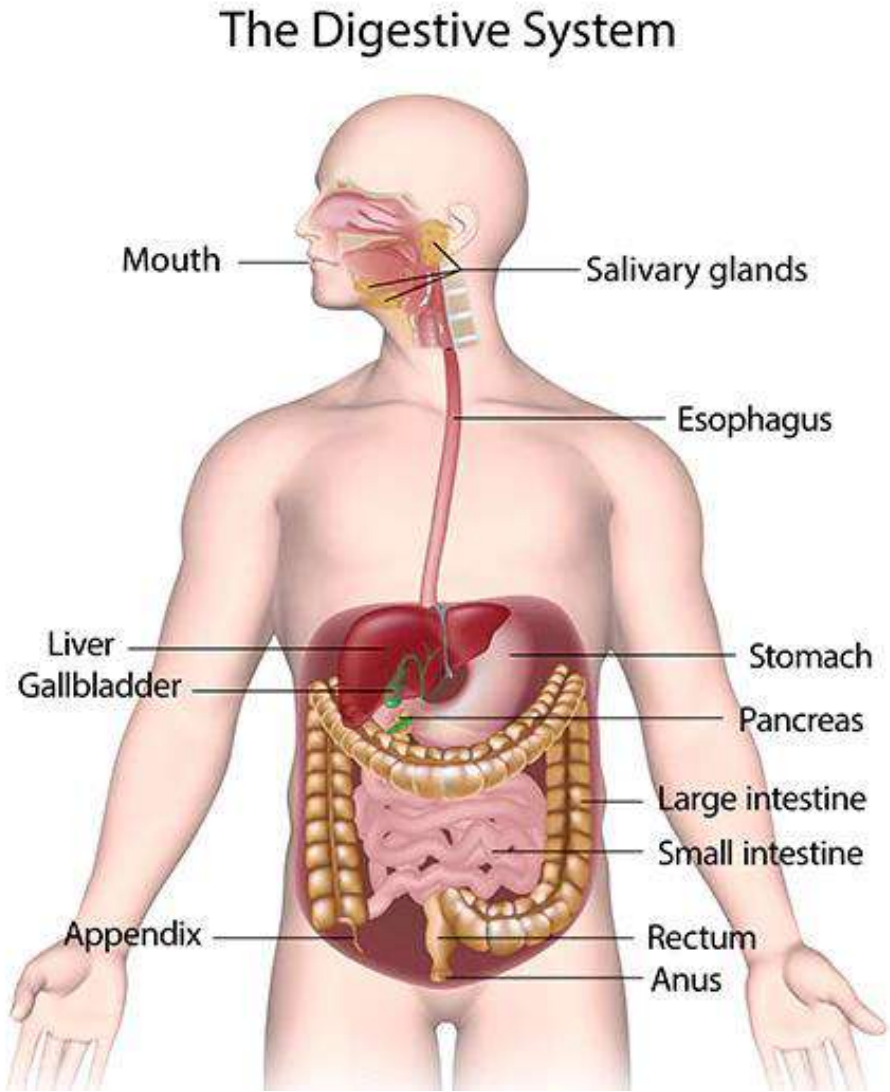
- Secretion of products by the lining of the digestive tract
- Secretion of products by the accessory organs of digestion

Absorption

- Nutrients pass through the digestive system into the blood

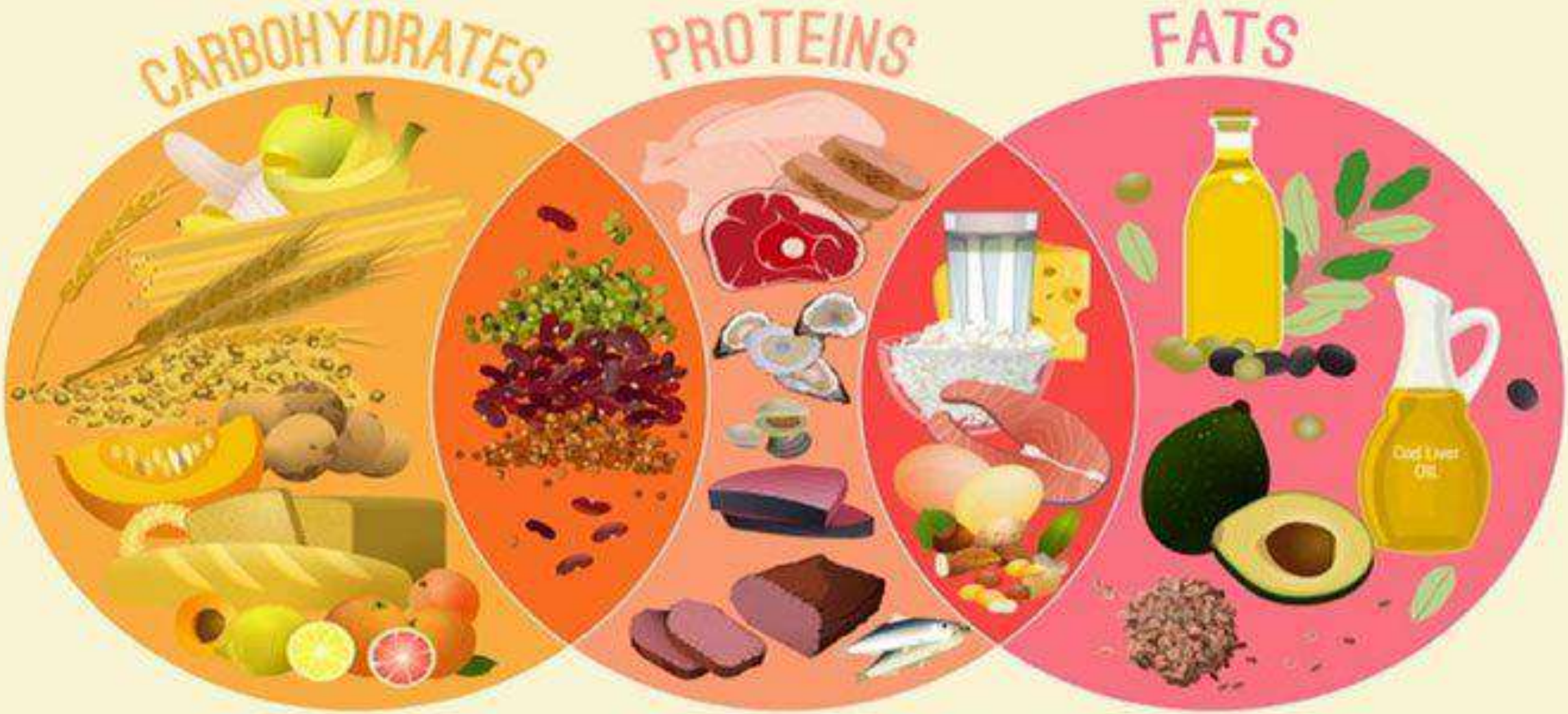
Defecation

- Elimination of waste from the body



MACRONUTRIENTS

A SIMPLE GUIDE TO MACROS



Protein

- Found in meat, fish, eggs, milk and cheese
- Building blocks for the body – giant molecules broken into peptides, polypeptides, amino acids
- Broken down in several ways:
  - Stomach – by an enzyme called pepsin
  - SI – by enzymes from the pancreas including trypsin

- Functions:
  - ➢ Create enzymes, antibodies, hormones, collagen / structural support for cells

Classification of 20 amino acids	
Essential amino acid	Non essential non essential amino acid
Body cannot produce them (9 total) Must come from food	Body can produce them (11 total) Where are they produced in the body?

Carbohydrates

- Carbohydrates are sugars, starches and fibres
- Primary source of energy

Classification of carbohydrates		
Monosaccharide Single molecule (fructose) Easy to absorb	Disaccharide 2 monosaccharide molecules (sucrose)	Polysaccahride Many monosaccharides molecule Takes longer time to digest
Fruit 	Table sugar 	Whole-grain pasta 

Fats

Fat is an essential part of the healthy diet. It is a source of essential fatty acids, which the body cannot produce itself.

Functions:

- Insulation
- Protection
- Source of energy
- Vitamin absorption

Classification of fats		
Saturated fat	**Monounsaturated fat**	**Polyunsaturated fat**
Solid at high temparature High melting point	Liquid at room temperature Lower melting point	Liquid at room temperature
Pork, fatty beef, whole milk, eggs, coconut 	Olive oil, peanut oil 	Corn oil, fatty fish 

Digestion

Enzyme:

- Made of protein
- catalyst to help speed up the digestion, break down long molecules to short molecules
- It stays intact (can be used over and over again)

(Tip: Ending of the enzyme: -ase. e.g. sugar: lact-ose / Lactase can break lactose down into smaller parts, called galactose)

Gastric juice:

- Unique combination of hydrochlorid, lipase, pepsin and renin formed in the stomach
  - Hydrochlorid acid: kills bacteria and turn pepsinogen to pepsin (digestive enzyme)
  - Renin: break down milk protein (only in infant)