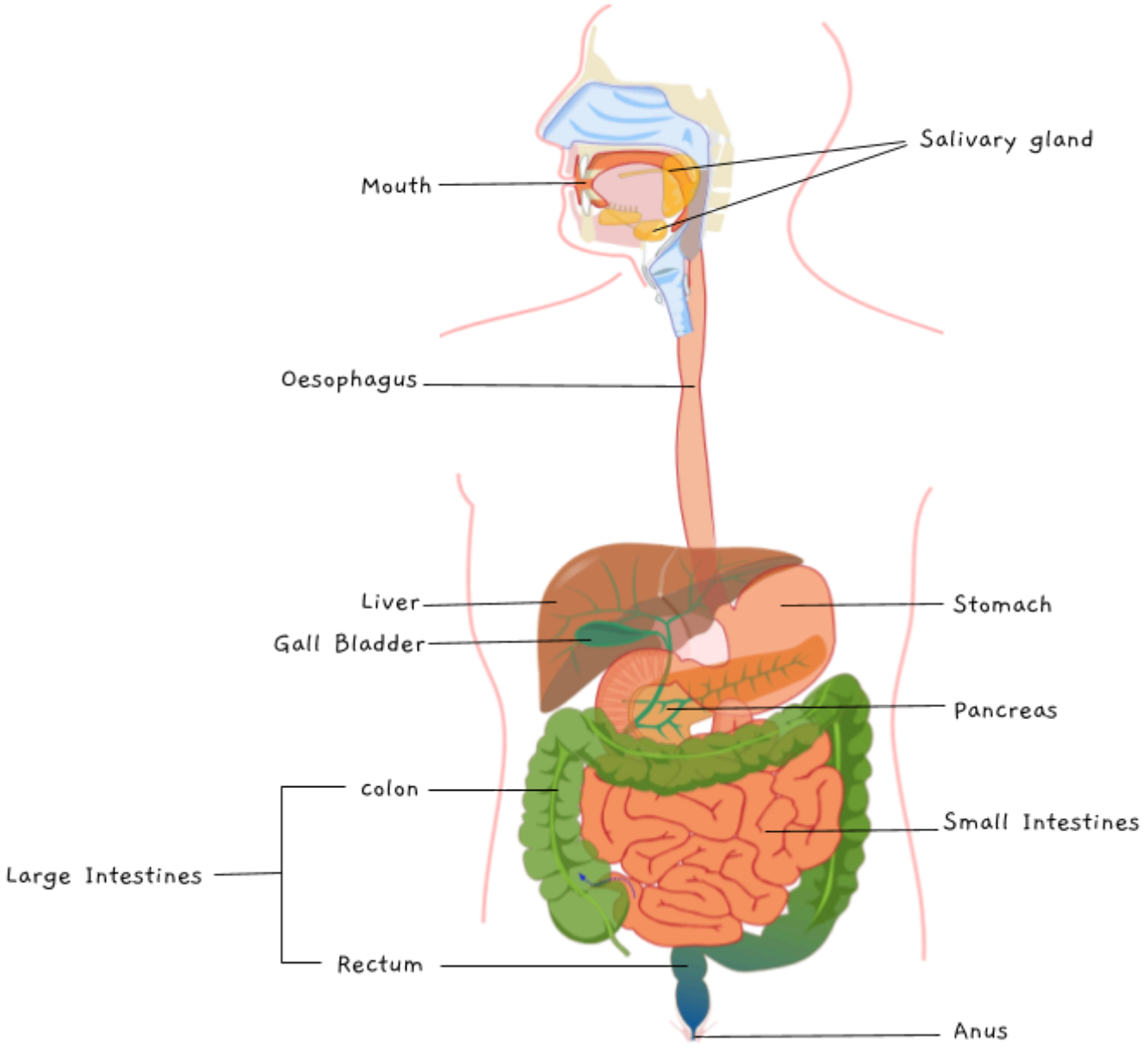
Digestive System 💩

Parts of the system and the enzymes

1.Parts of the Digestive System



Physical Digestion helps to break down food into smaller pieces by physical or mechanical means, which occurs in:

- The churning action of the stomach
- The chewing in the mouth

Chemical digestion by enzymes hydrolyses the food molecules into smaller, soluble molecules so that they can be absorbed into the bloodstream.
It begins in the mouth by the salivary glands,then in the stomach, and lastly, at the small intestines.

Digestion Process In the Digestive System

Parts of digestive system	Physical Digestion	Chemical Digestion	Enzymes Present	Digestion Process
Mouth	✅	✅	amylase	Carbohydrates(starch)→ Maltose
Oesophagus	❌	✅	amylase	Carbohydrates(Starch) → maltose
stomach	✅	✅	Protease	Proteins→ Polypeptides
small Intestines	❌	✅	Amylase, Maltase	Carbohydrates→ Maltose→**Glucose**
			Protease,protease	Proteins→ Polypeptides→**amino acids**
			Lipase	Fat→**Fatty Acids+Glycerol**
Large Intestines	❌	❌	–	–
Anus	❌	❌	–	–

Summary Of The Digestion Process

Digestion of carbohydrates:

Amylase maltase
Carbohydrate → maltose → Glucose

Digestion Of Proteins:

Protease Protease
Protein → polypeptides→Amino acids

Digestion Of Fats:

Physical digestion of large fat globules into tiny fat droplets by bile

Lipase
Fat → fatty Acids + Glycerol

2.Flow Of Food In the Digestive System

1. Mouth

- teeth cut and crush food to break it into smaller pieces
    - To increase surface area to digest faster
    - Easier to swallow
- Salivary glands secrete saliva containing amylase
    - Saliva softens and lubricates food for easier swallowing
- No proteins or fats digested in the mouth

2. Oesophagus

- Muscular tube that contracts and relaxes **rhythmically** to push the food down towards the stomach
- Starch in food continues to be digested by salivary amylase here

3. Stomach

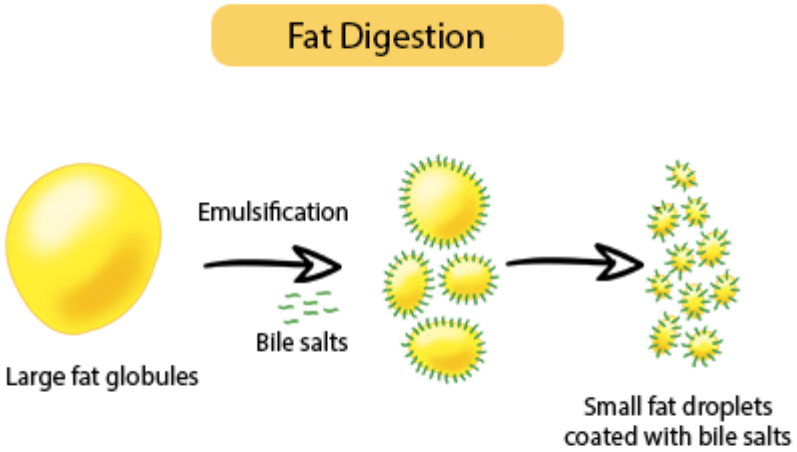
- Churns to break food into smaller pieces and mixes it with gastric juice
    - Contains hydrochloric acid(kills bacteria and provides right condition for proteases to act) and protease
- Has a thick layer or **mucus** to **protect its tissues from damage** caused by **hydrochloric acid and protease** in gastric juice
- Muscles at both ends control the food entering and leaving it

4.Pancreas (enrichment)

- Produce pancreatic juice
    - Contains amylase,protease and lipase to digest carbohydrates,proteins and fats respectively

5.Gall Bladder (enrichment)

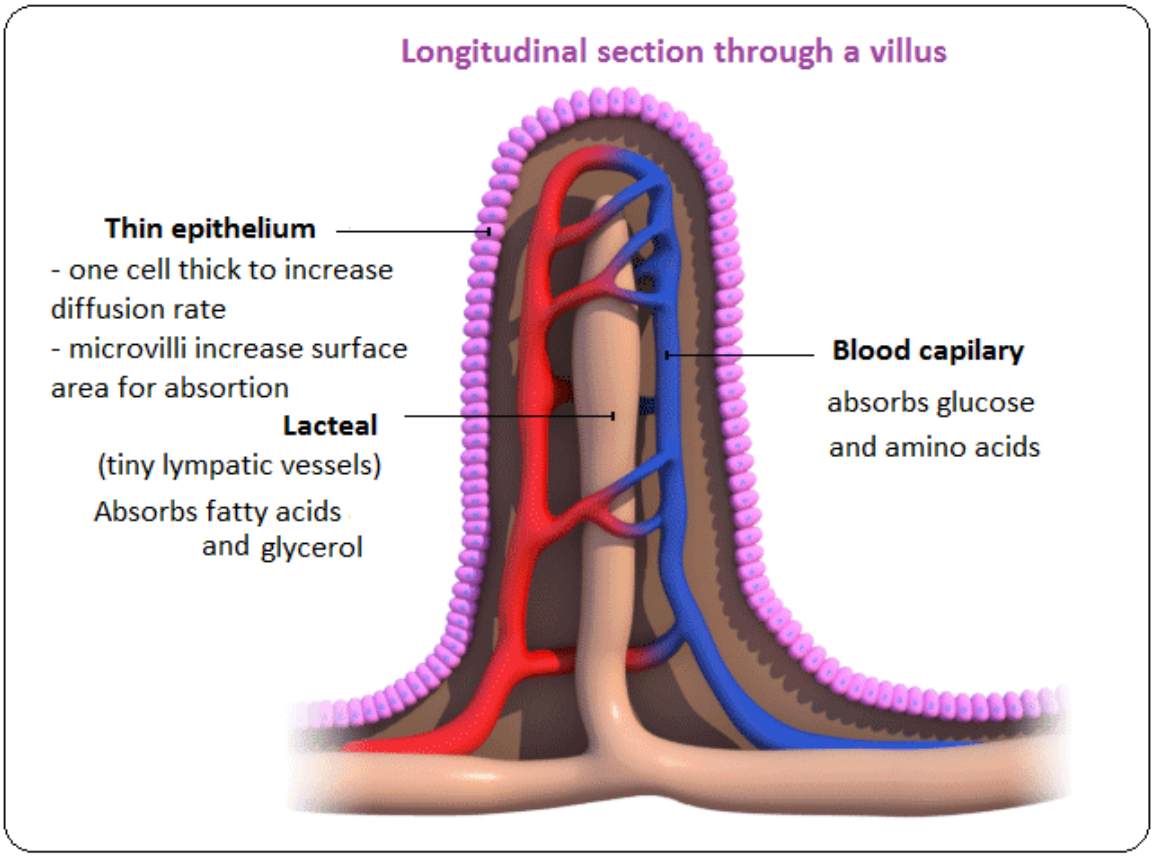
- Bile produce in liver is stored in gall bladder before released into the small intestine
    - Breaks up large fat globules into tiny water droplets(emulsification)
    - Diagram of how fat is digested(for visual)



6.Small Intestines

- Main site for chemical digestion → numerous enzymes released

- Digested nutrients and most of the water and mineral salts are absorbed into the bloodstream
- Villi(small finger-like thing to help absorb digested food) increases surface area in small intestine to help speed up absorption of the digested food
    - Diagram of villi (for visual)



7. Large Intestines

- Only food that cannot be digested enters the large intestines
- Colon absorbs remaining water and mineral salts
- Indigestible food and waste form faeces
- Rectum stores faeces temporarily before it leaves the body

8. Anus

- Faeces is expelled from the body through the anus

3. End Product Of Digestion And Its Uses

End Product Of Digestion	How they are used by the body
Glucose (simple sugar)	- Used in cells during cellular respiration to release energy - energy allows cell to carry out functions and enable body to grow
Amino Acids	- Used by cells to make proteins, used for growth of new cells and repair of damaged tissues
Fatty Acids and Glycerol	- Both combine again to form fats which are stored - help to keep body warm and can also be oxidised(broken down) to release energy

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