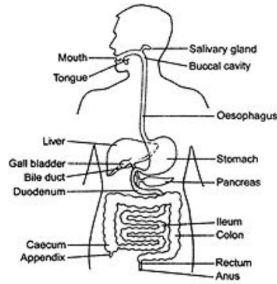


The Digestive System

The alimentary canal is a long, tube-like structure made up of the mouth, pharynx, esophagus, stomach, small intestine and large intestine.

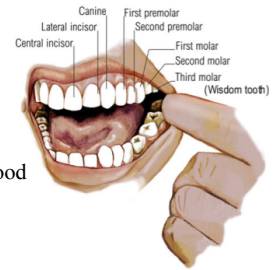


The mouth

In the mouth, the teeth cut, tear, grind and crush large pieces of food into smaller pieces.

Humans have 4 kinds of teeth:

- 1) incisors } cut and tear food
- 2) canines } cut and tear food
- 3) pre-molars } grind and crush food
- 4) molars } grind and crush food



Saliva

The tongue is used to move food around in the mouth, and also helps mix food with saliva.

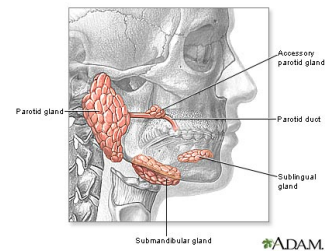
Saliva: softens and moistens food; begins chemical digestion.

Saliva contains the enzyme amylase that starts to break down starch into simpler forms.

ex: chew on a starchy food, like a cracker, long enough and it will start to taste sweet. This is a sign that the breakdown process has taken place.

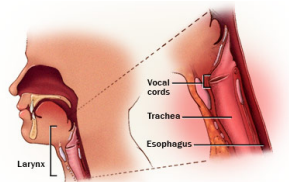
Saliva also contains the enzyme lysozyme which breaks down cells walls and helps prevent infection by digesting bacteria cells early on.

Saliva is made by three pairs of salivary glands and passed into the mouth through tiny tubes.



The pharynx and the esophagus

When food is swallowed, it enters the pharynx which is a passageway for both food and air.



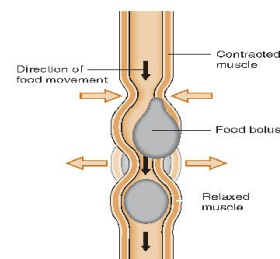
Food then passes into the esophagus; a long muscular tube that connects the mouth to the stomach.

The esophagus is lined with cells that secrete mucous.

Mucous helps food move easily through the esophagus.

A wave of muscular contractions known as peristalsis moves food through the esophagus to the stomach.

Gravity helps move food, but it is not necessary.



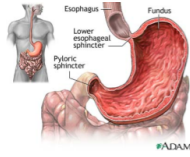
The stomach

Both mechanical and chemical digestion take place in the stomach.

Stomach walls have layers of muscle that contract in different directions, causing the stomach to twist and churn its contents.

Churning action mixes food with gastric juices.

Gastric Juice contains: 1) mucous
2) pepsin
3) hydrochloric acid



Food leaves the stomach as a thick liquid called chyme.

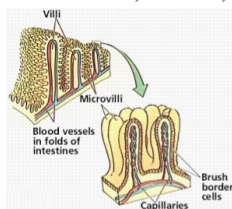
Absorption in the small intestine

The movement of fully digested nutrients to the blood stream takes place in the small intestine.

Once inside the blood, nutrients are carried to all body cells.

The inner lining of the small intestine is folded and have millions of finger-like projections called villi.

Villi increase the surface area and, therefore, the absorption of nutrients.

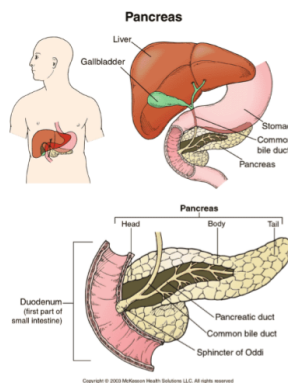


The pancreas

The pancreas is a small organ located below the stomach.

The pancreas releases digestive juices into the small intestine through a small tube.

This juice contains enzymes that break down starches, proteins and fats into simpler forms, and also helps neutralize the acidity of food coming from the stomach.

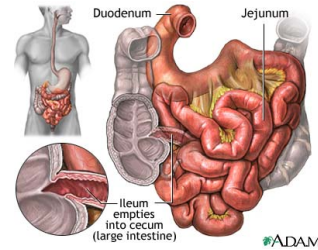


The small intestine

The small intestine is a narrow, coiled tube that is about 6.5 m long and 2.5 cm wide.

The walls are muscular and food moves through by contractions called peristalsis.

Most of the chemical digestion of food takes place here.



Digestion in the small intestine

Food entering the small intestine is mixed with digestive juices.

Chemicals produced by the pancreas, liver and the small intestine itself all help with the digestion of carbohydrates, proteins and fats.

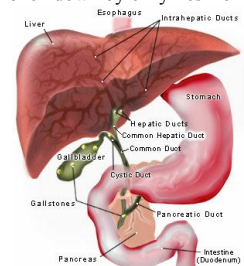
The liver

The liver is the largest organ inside the body.

The liver produces bile, which breaks down large pieces of fat into very small droplets.

The small droplets can then be further broken down by enzymes from the pancreas.

Bile is stored in the gallbladder, and then enters the small intestine.



The large intestine

A watery mixture of undigested food moves from the small intestine to the large intestine.

The large intestine tube is about 2 m long and 7 cm wide.

Water and minerals are absorbed by the blood.

The feces are the remaining solid waste material.

Feces are stored temporarily in the rectum, and then exit through the anus.

