

## Digestive systém

**Mechanical Digestion** Food is chopped and ground into small pieces in the mouth.

**Chemical Digestion** Food is broken down into simple nutrients by the chemical action of enzymes.

### Nutrients:

1. Carbohydrates are broken down into simple sugars (glucose) which is used by the cells for energy.
2. Proteins are broken down into amino acids (the building blocks of cells) which are used to repair old cells and build new cells (skin, blood, muscle, bone and nerve).
3. Fats are stored for future use. They contain vitamins.

### The Mouth

Food is cooled or warmed to body temperature. Teeth chop and grind food and the tongue mashes the food. Saliva moistens the food and begins breaking down carbohydrates. The Salivary Glands produce saliva. There is an enzyme (chemical) that begins the breakdown of starches. The tongue moves the food to the back of the mouth to be swallowed.

### The Throat

The Epiglottis closes off the wind pipe (trachea). Muscles push food into the esofagus.

### Your Teeth

are specialized. An adult has 32 teeth including 4 wisdom teeth. The Incisors are shaped like knives for cutting and slicing. The Canines have points for piercing and tearing. The Premolars and Molars have broad, bumpy surfaces for grinding. 3rd Molar is called a wisdom tooth.

### Tooth Anatomy

Enamel is the hardest part of tooth. Made mostly of mineral. Dentin is softer than enamel. Contains some living cells. Pulp is also called the “nerve” of the cell.

### The Esophagus

Connects the pharynx (throat) to the stomach. About 10 inches long. Flat when empty but changes shape to allow food to travel to the stomach. Made of several layers of muscle that push food through to the stomach (peristalsis). Peristalsis is the name given for the wavelike muscle contractions found in the esophagus, small intestines and large intestines. It is sort of like squeezing toothpaste through a tube.

### The Stomach

Food enters the stomach from the esophagus. Hydrochloric Acid is produced in the stomach to digest proteins and kill off bacteria. Pepsin (a digestive enzyme) is produced to help digest

proteins. Mucus is produced by glands of the stomach to protect the stomach from its own acid. Sphincter muscles control both ends of the stomach to allow food to enter and exit. The stomach is made of 3 strong layers of muscle which mixes and mashes the food with digestive enzymes. Stomach ulcer forms when the stomach's protection breaks down its own acid begin to eat through the stomach.

### **Small Intestine**

The longest part of the alimentary canal (digestive tract). Divided into 3 parts: Duodenum – first segment Jejunum – middle segment Ileum – last segment Digestive enzymes from the pancreas and bile from the liver help to break down food further. Nutrients are absorbed into the body through the villi. These Villi are tiny fingerlike projections through which the nutrients are absorbed into the bloodstream.

### **The Liver**

produces the bile. Bile breaks down fats. Bile is stored in the gallbladder and enters the duodenum (1st part of small intestine) when needed. The Liver: Stores vitamins. Stores glycogen for energy. Breaks down old red blood cells. Removes poisons from the body.

### **The Pancreas**

produces  $\frac{1}{2}$  to 1 liter of enzymes (chemicals) daily. These enzymes are used to break down carbohydrates as well as fats and proteins.

### **Large Intestine**

In the Large Intestine: Indigestible parts of food move from the small intestine to the large intestine. Water and vitamins are absorbed back in the blood to be reused. The remaining waste passes to the RECTUM where peristalsis forces it through the ANUS and out of the body. The Large Intestine is made of 3 parts: Ascending colon, Transverse colon, Descending colon. The Appendix serves no useful purpose. Perhaps it had a role in digesting rough foods many, many years ago.

Upravený text.

[http://www.myscience8.com/human\\_biology/digestive\\_system\\_lab\\_2007.pdf](http://www.myscience8.com/human_biology/digestive_system_lab_2007.pdf)