ألتغذيه
والتغذيه العلاجيه
أو
ألتغذيه
و العلاج الغذائي

What is the digestive system?

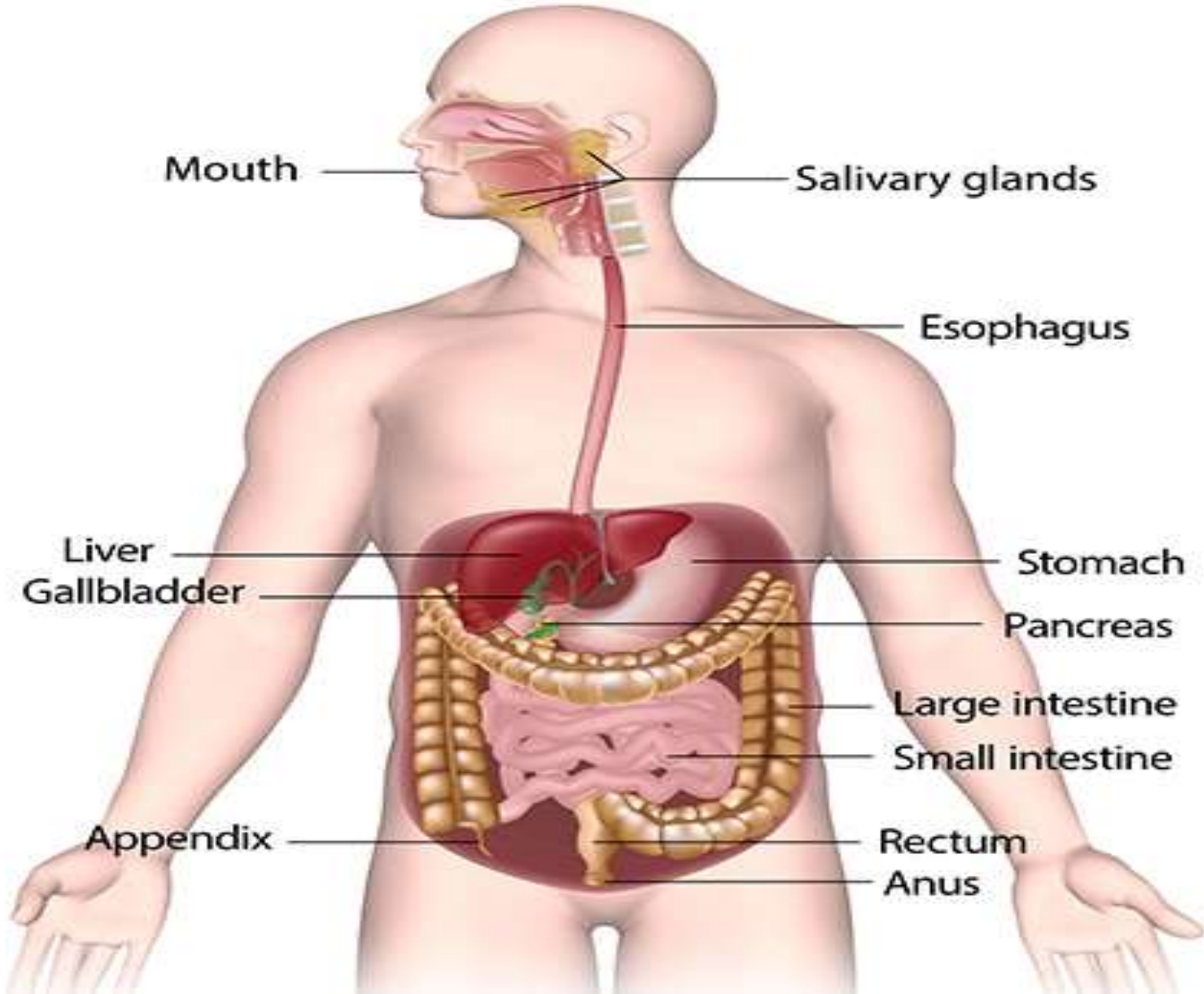
The digestive system is made up of the gastrointestinal tract and the liver, pancreas, and gallbladder.

The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus. The hollow organs that make up the GI tract are the mouth, esophagus, stomach, small intestine, large intestine, the rectum and anus.
The liver, pancreas, and gallbladder are the solid organs of the digestive system.
The small intestine has three parts. The first part is called the duodenum. The jejunum is in the middle and the ileum is at the end.

The large intestine includes the appendix, cecum, colon, and rectum.
The appendix is a finger-shaped pouch attached to the cecum.
The cecum is the first part of the large intestine.
The colon is next and it is divided to: ascending, transvers, and descending colon.
. The rectum is the end of the large intestine.

Bactria in your GI tract, also called gut flora or microbiome, help with digestion. Parts of your nervous and circulatory systems also help. Working together, nerves, hormones, bacteria, blood, and the organs of your digestive system digest the foods and liquids you eat or drink each day.

The Digestive System



Why is digestion important?

- Digestion is important because your body needs nutrients from food and drink to work properly and stay healthy. Proteins, fats, carbohydrates, vitamins , minerals, and water are nutrients.

- Your digestive system breaks nutrients into parts small enough for your body to absorb and use for energy, growth, and cell repair.
  - Proteins break into amino acids
  - Fats break into fatty acids and glycerol
  - Carbohydrates break into simple sugars
- the **main difference** between digestion and metabolism is that:-
- digestion **is a type of catabolism event responsible for the breaking down of large molecules into small molecules**
- metabolism **comprises of both catabolism and anabolism, breaking down large molecules and making large molecules from the small molecules**.
- Furthermore, digestion involves both mechanical and biochemical processes while metabolism only involves in biochemical processes.
- Digestion and metabolism are two processes that occur in animals bodies to produce energy and to maintain other cellular processes.

What is Digestion

Digestion is one of the four processes responsible for obtaining nutrients by higher animals. The other three are the ingestion, absorption of nutrients, and the elimination of waste.
Here, the absorption of nutrients follows the digestion of food. Generally, digestion occurs in the alimentary canal of higher animals. But, in single-celled animals, it occurs inside vacuoles in the cytoplasm.
The main importance of digestion is the breaking down of large food particles into small molecules, which can be readily absorbed by the digestive tract.
Furthermore, digestion occurs by means of both mechanical and chemical digestion.

Mechanical Digestion

Mechanical digestion is responsible for the breaking down of large food particles into small particles, facilitating the chemical digestion. Moreover, the three events of mechanical digestion are chewing in the mouth, churning in the stomach, and segmentation in the small intestine.

Chewing occurs by the action of teeth in the mouth while churning is the squeezing and mixing up of food with the gastric juice by the action of the muscles of the stomach. Furthermore, segmentation is the process responsible for the propulsion and the mechanical digestion of food through the small intestine.

Chemical Digestion

chemical digestion is responsible for the breaking down of high molecular weight molecules into small molecules. Also, the digestive enzymes secreted by various glands along the digestive tract drive this process. Furthermore, acids and bile facilitate the enzymatic action.

During chemical digestion, carbohydrates, proteins, lipids, and nucleic acids are broken down into their monomeric forms. Therefore, chemical digestion can be considered as a catabolic process.

What is Metabolism ?

Metabolism is the collection of all biochemical reactions that occur inside the body of living organisms. It occurs through three main phases.

The first phase is the catabolism in which carbohydrates, proteins, fats, and nucleic acids in food are broken down into their small monomer units and nitrogenous wastes are eliminated.

The second phase is the production of energy by using the resultant monomers such as glucose.

the third phase is the anabolism in which small monomer units polymerize to form complex molecules such as polypeptides, lipids polysaccharides, and nucleic acids.

Ultimately, all of these biochemical reactions are responsible for the organism's growth, development, maintenance of structures, reproduction and response to the outside environment.

DIGESTION VERSUS METABOLISM

DIGESTION	METABOLISM
The process in the alimentary canal by which food is broken up physically, as by the action of the teeth, and chemically, as by the action of enzymes, and converted into a substance suitable for absorption and assimilation into the body	The sum of the physical and chemical processes in an organism by which its material substance is produced, maintained, and destroyed, and by which energy is made available
Both mechanical and biochemical processes occur	Only biochemical processes occur
Only catabolism occurs	Both catabolism and anabolism occur
Only occurs in animals	Occurs in all living organisms including animals and plants
Occurs in the digestive system	Occurs inside the cell

Human nutrition, process by which substances in food are transformed into body tissues and provide energy for the full range of physical and mental activities that make up human life.

The study of human nutrition is interdisciplinary in character, involving not only physiology, biochemistry, and molecular biology but also fields such as psychology and anthropology, which explore the influence of attitudes, beliefs, preferences, and cultural traditions on food choices.

Human nutrition further touches on economics and political science as the world community recognizes and responds to the suffering and death caused by malnutrition.

The ultimate goal of nutritional science is to promote optimal health and reduce the risk of chronic diseases such as cardiovascular disease and cancer as well as to prevent classic nutritional deficiency diseases such as kwashiorkor and pellagra.

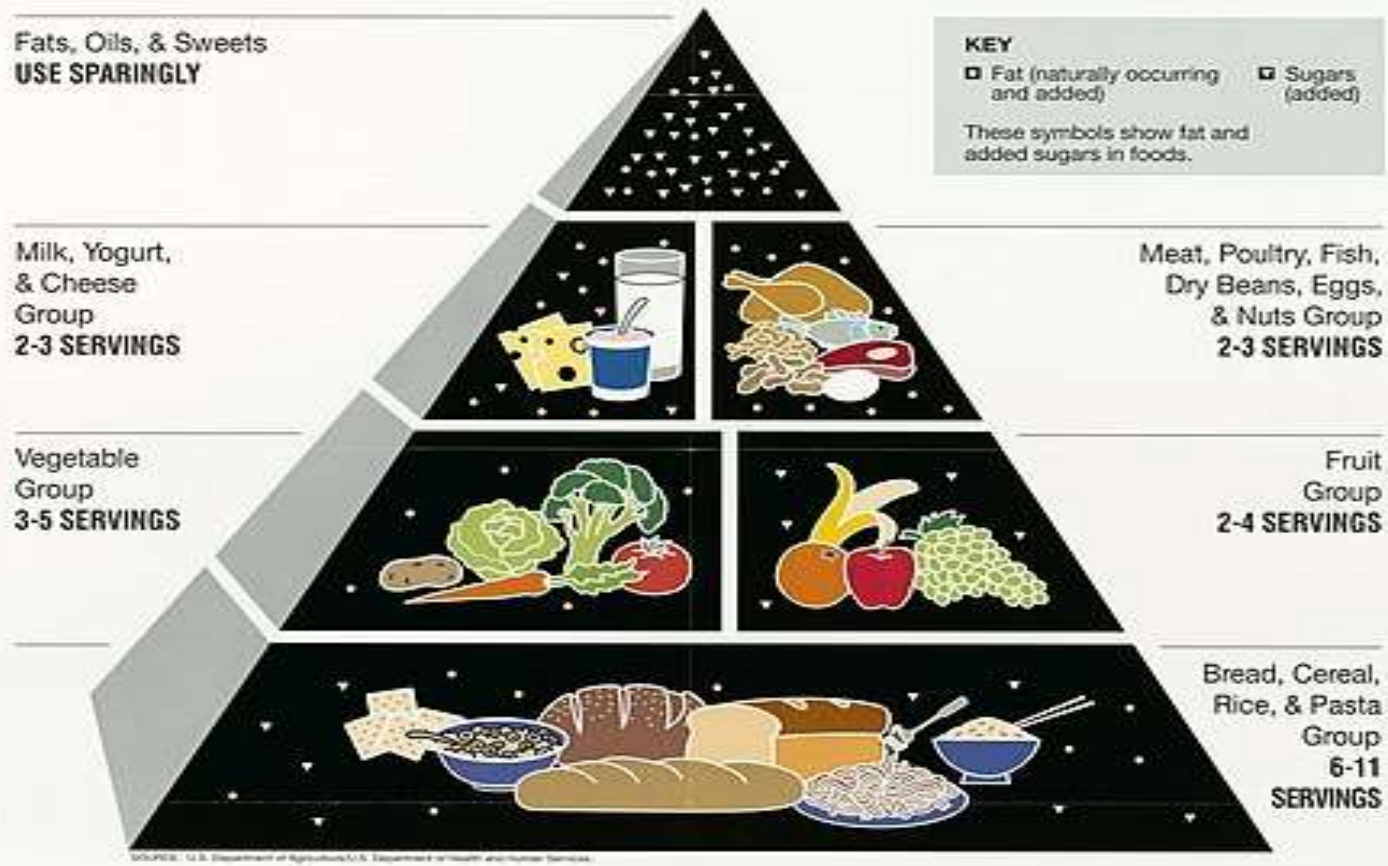
Utilization of food by the body

Calories and kilocalories: energy supply

The human body can be thought of as an engine that releases the energy present in the foods that it digests.
This energy is utilized partly for the mechanical work performed by the muscles and in the secretory processes and partly for the work necessary to maintain the body's structure and functions. The performance of work is associated with the production of heat; heat loss is controlled so as to keep body temperature within a narrow range. Unlike other engines, however, the human body is continually breaking down (catabolizing) and building up (anabolizing) its component parts.
Foods supply nutrients essential to the manufacture of the new material and provide energy needed for the chemical reactions involved.

Food Guide Pyramid

A Guide to Daily Food Choices



Use the Food Guide Pyramid to help you eat better every day. . .the Dietary Guidelines way. Start with plenty of Breads, Cereals, Rice, and Pasta; Vegetables; and Fruits. Add two to three servings from the Milk group and two to three servings from the Meat group. Each of these food groups provides some, but not all, of the nutrients you need. No one food group is more important than another — for good health you need them all. Go easy on fats, oils, and sweets, the foods in the small tip of the Pyramid.

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