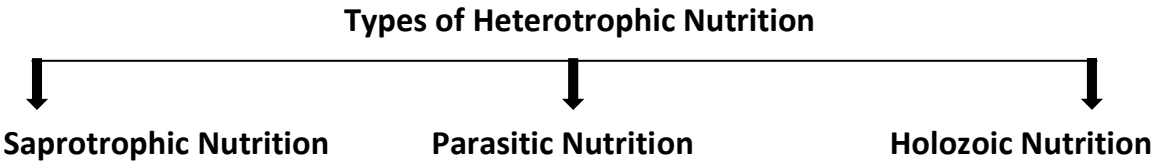
Heterotrophic Nutrition in Animal

Heterotrophic nutrition is a type of nutrition in which organisms rely on autotrophs for food, either directly or indirectly. They are known as **heterotrophs**. They are unable to prepare their own food. Except for green plants, all eukaryotes are unable to produce their own food. Food is obtained from other organisms. This type of nutrition is also referred to as heterotrophic nutrition.

Heterotrophs can further be divided into different types:



1. Saprotrophic or Saprophytic Nutrition

Animals that consume only dead and decaying organisms for energy are known as saprophytes. They are a crucial component of the ecosystem because they recycle nutrients and maintain our surroundings clean. Fungi and bacteria are common examples of saprophytes. They secrete digestive enzymes to the organic matter to break down the complex insoluble organic substance into soluble and simple compounds. These simple compounds are then absorbed by the cells to feed the organism.

2. Parasitic Nutrition

Parasites live in or on another organism and obtain their nourishment at the expense of their host. The majority of parasites is unhealthy for their hosts and occasionally kills them. Plants and animals can both act as hosts. In contrast to commensalism, the parasite does some damage to the host. The head louse on a human, the Cuscuta plant, ticks on dogs, and tapeworms are a few examples of parasites.

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Types of parasites

Parasites are categorized into two major types as follows:

Ectoparasites: These parasites live outside the host's body and feed and get their energy from the living thing. Ectoparasites include things like bedbugs, lice, ticks, and mosquitoes.

Endoparasites: These parasites stay inside the host organism's body and feed and get their energy from it. The tapeworm, Ascaris, Plasmodium vivax, and other parasites are examples of endoparasites.

3. Holozoic Nutrition

It is a process by which animals take in their food. It involves different steps namely, ingestion, digestion, absorption, assimilation and egestion. Human beings exhibit holozoic mode of nutrition involving five basic steps.

Ingestion: The process of taking food into the body is called ingestion.

Digestion: the process in which the food containing large, insoluble molecules is broken down into small, water soluble molecules is called digestion.

Absorption: The process in which the digested food passes through the intestinal wall into blood stream is called absorption.

Assimilation: The process in which the absorbed food is taken in by the body cells and used for energy, growth and repair is called assimilation.

Egestion: The process in which the undigested food is removed from the body is called egestion.

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Types of holozoic organisms

Holozoic organisms are categorized into four types as follows:

1. Herbivorous: This is the group of animals that feed only on plants or their products. Example: cow, sheep, deer, rabbit, camel, kangaroo, giraffe, etc.

2. Carnivorous: This is the group that feeds on the meat of other animals only. Example: tiger, lion, bear, snake, eagle etc.

3. Omnivorous: This group of animals feed on plants as well as the meat of other animals. Example: dog, human beings, etc.

4. Scavengers: This group of animals feed on dead and decaying meat left by other animals. Example: vulture, crows, jackal, etc.

Nutrition in Amoeba

Amoeba feeds on minute microscopic organisms or bacteria. It is a microscopic single celled organism. The mode of Nutrition in Amoeba is Holozoic in which solid food is engulfed in following steps:

Ingestion: When Amoeba comes in contact with prey, the finger like Pseudopodia surrounds it and engulfs it. This food is trapped in a food vacuole. This food vacuole now moves into the cytoplasm.

Digestion: Food in the food vacuole is digested by digestive enzymes secreted by cytoplasm. The reaction in the food vacuole is first acidic due to HCL and then becomes alkaline. In acidic medium prey is killed. In alkaline medium the prey is digested.

Absorption: Digested food now diffuses into the cytoplasm and used for energy growth and repair.

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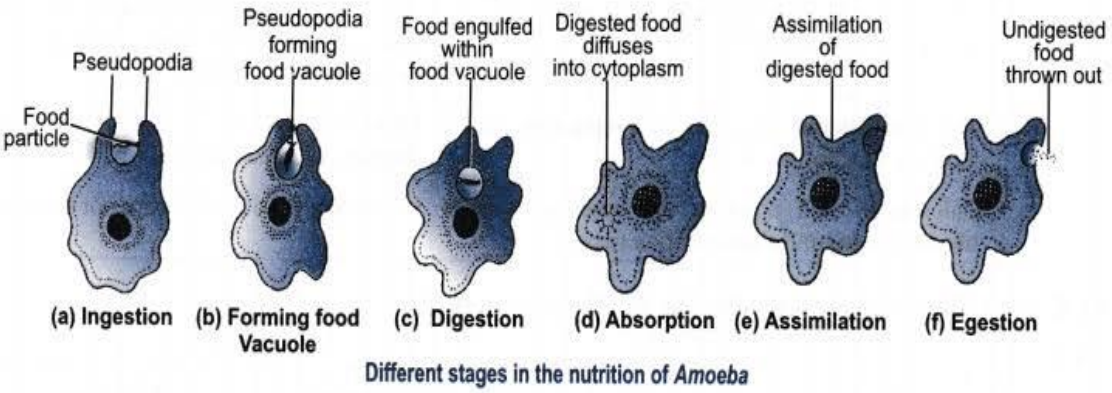
Assimilation: The energy obtained from the food is used for the growth and development of amoeba and this is known as assimilation.

Egestion: Now food vacuoles moves to the body surface and then ruptures, so undigested food expelled out of the body at any point because amoeba has no Anus.

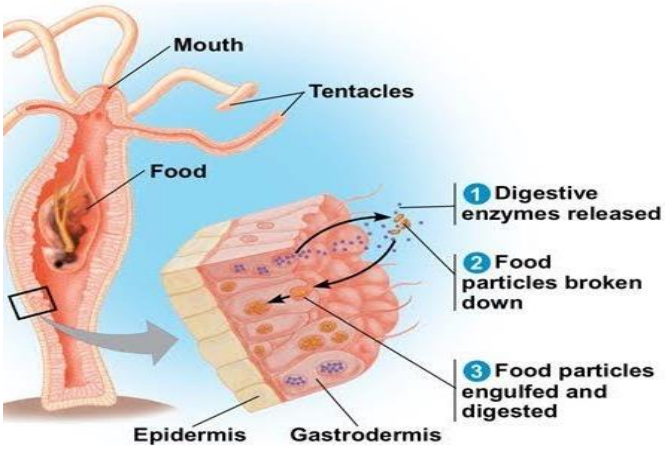


Different stages in the nutrition of *Amoeba*

Nutrition in Hydra

Hydra is a simple multicellular animal. It has a number of tentacles around its mouth, which are used for ingestion of food.

These tentacles entangle small aquatic animals and kill them with their stinging cells.



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After this they push them into their mouth. Now inside their body cavity digestive juices are secreted by the surrounding cells.

These juices digest the food and the digested food is absorbed through the cavity walls and assimilated in the cells.

Note: In hydra, holozoic mode of nutrition is seen. Holozoic nutrition involves ingestion of food which is either solid or liquid. They are also heterotrophic in nature, i.e. they cannot produce their own food.