34.3A: Ingestion

The first step to obtaining nutrition is ingestion, a process where food is taken in through the mouth and broken down by teeth and saliva.

Learning Objectives

- Describe the process of ingestion and its role in the digestive system

Key Points

- Food is ingested through the mouth and broken down through mastication (chewing).
- Food must be chewed in order to be swallowed and broken down by digestive enzymes.
- While food is being chewed, saliva chemically processes the food to aid in swallowing.
- Medications and harmful or inedible substances may be ingested as well.
- Pathogens, such as viruses, bacteria, and parasites, may be transmitted via ingestion, causing diseases like hepatitis A, polio, and cholera.

Key Terms

- **ingestion**: consuming something orally, whether it be food, drink, medicine, or other substance; the first step of digestion
- **bolus**: a round mass of something, especially of chewed food in the mouth or alimentary canal
- **mastication**: the process of chewing
Ingestion

Obtaining nutrition and energy from food is a multi-step process. For animals, the first step is ingestion, the act of taking in food. The large molecules found in intact food cannot pass through the cell membranes. Food needs to be broken into smaller particles so that animals can harness the nutrients and organic molecules. The first step in this process is ingestion: taking in food through the mouth. Once in the mouth, the teeth, saliva, and tongue play important roles in mastication (preparing the food into bolus). Mastication, or chewing, is an extremely important part of the digestive process, especially for fruits and vegetables, as these have indigestible cellulose coats which must be physically broken down. Also, digestive enzymes only work on the surfaces of food particles, so the smaller the particle, the more efficient the digestive process. While the food is being mechanically broken down, the enzymes in saliva begin to chemically process the food as well. The combined action of these processes modifies the food from large particles to a soft mass that can be swallowed and can travel the length of the esophagus.

Figure \(\PageIndex{1}\): Mastication: The first step in obtaining nutrition is ingestion. Ingested food must be broken down into small pieces by mastication, or chewing.

Besides nutritional items, other substances may be ingested, including medications (where ingestion is termed oral administration) and substances considered inedible, such as insect shells. Ingestion is also a common route taken by pathogenic organisms and poisons entering the body.

Some pathogens transmitted via ingestion include viruses, bacteria, and parasites. Most commonly, this takes place via the fecal-oral route. An intermediate step is often involved, such as drinking water contaminated by feces or food prepared by workers who fail to practice adequate hand-washing. This is more common in regions where untreated sewage is prevalent. Diseases transmitted via the fecal-oral route include hepatitis A, polio, and cholera.