The digestive system is a complex network of organs and tissues in the human body that is responsible for breaking down food and extracting nutrients from it. The system starts from the mouth and ends at the anus, and is divided into several stages.

The first stage of digestion is the mechanical and chemical breakdown of food in the mouth. This process starts when we chew food, which is called mastication. The chewing process breaks down food into smaller pieces, which are mixed with saliva and moistened to form a soft ball called a bolus. Saliva contains an enzyme called amylase, which starts the chemical breakdown of carbohydrates into smaller sugars.

The bolus is then passed down the esophagus to the stomach through a process called peristalsis. The esophagus is a muscular tube that propels the food downwards through muscular contractions. The lower esophageal sphincter muscle opens to allow the food to enter the stomach, where it is mixed with gastric juices to form a partially digested mixture called chyme.

The stomach is a sac-like organ that stores and mixes food with gastric juices. Gastric juices contain hydrochloric acid and pepsin, which kill bacteria and help to break down proteins into smaller peptides. The stomach muscles contract to mix and grind the food, further breaking it down into smaller pieces. The mixture is then released into the small intestine in small amounts over several hours.

The small intestine is the main site of nutrient absorption in the digestive system. The walls of the small intestine are lined with small finger-like projections called villi, which increase the surface area for absorption. The small intestine also receives digestive juices from the liver and pancreas, which contain bile, which helps to emulsify fats, and digestive enzymes, which break down carbohydrates, proteins, and fats into their smallest components for absorption.

After passing through the small intestine, the remaining undigested food and waste products are passed into the large intestine. The large intestine absorbs water and electrolytes from the remaining food, forming feces. The feces are stored in the rectum until they are eliminated from the body through the anus.

The digestive system is regulated by several hormones, including gastrin, secretin, and cholecystokinin. These hormones are produced in response to various stimuli and stimulate or inhibit the production of digestive juices and the contractions of the digestive muscles.

In addition to the digestive organs, the digestive system also includes the accessory glands, which produce and secrete digestive juices into the digestive tract. These include the salivary glands, liver, pancreas, and gallbladder.