

The digestive system



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The Digestive System By Anwar Brown The digestive system is where ingested food is broken down and absorbed through physical and chemical processes in the body.

The function is to provide the body with nourishment as well as to help excrete waste materials. This system is composed of the digestive tract which extends from the mouth to the anus. Digestion relies on assistance from parts of the nervous and circulatory system which releases hormones and enzymes.

Digestive system involves breaking down large molecules into smaller molecules through various processes such as digestion, absorption and assimilation. The act of digestion starts when food is swallowed through the mouth and transported to the esophagus as a bolus. The salivary glands react with the food to digest starch which breaks it down to glucose. Then it is passed through the esophagus down to the stomach by peristalsis and the enzymes in the stomach digest protein from it. Also, enzymes from both the pancreas and liver break down the carbohydrates, proteins and fats into simpler molecules. The food becomes dissolved in the juices from the digestive organs and then is directed through the intestines. Any waste material such as fiber and other undigested products are sent into the colon and which are excreted by bowel movement.

The process of absorption mainly takes place in the small intestines where molecules of food, water and minerals are absorbed. It involves four procedures which are active transport, passive diffusion, endocytosis and facilitated diffusion that absorb nutrients into the body. The small intestine

has the villi which allows for absorption of nutrients and specialized cells release them into the bloodstream for storage. Carbohydrates are composed of starch and sugar which are broken down into simple molecules like glucose, fructose and lactose by facilitated diffusion.

Proteins are necessary to build and repair cells and, they are broken down into amino acids for absorption by active transport. Fats are powerhouses of energy which are broken down into small molecules such as fatty acids and glycerol by diffusion. Vitamins are essential nutrients composed of water soluble and fat soluble properties which are absorbed and stored by endocytosis. Water is absorbed into the small intestine by diffusion and also salt is dissolved. The pancreas manufactures insulin which is released into the flow of blood and aids in the metabolism of sugar.

The liver cleanses possible harmful chemicals and releases bile that helps to absorb fats. The gall bladder stores bile and secretes it into the small intestine for digestion of fats. The small intestine absorbs all the nutrients needed and passes on the remaining mixture to the large intestine. The large intestine is responsible for detoxifying waste and forming feces for the process of excretion.

In the stomach and small intestine, hormones that control the digestive process are secreted. Gastrin hormone helps the stomach to dissolve food and needed for cell growth in the digestive organs. Secretin hormone stimulates the stomach, pancreas and liver that releases digestive substances to digest protein and other nutrients. Cholecystokinin hormone

allows the gall bladder to release its contents and boosts cell regeneration in the pancreas.

The nervous system plays a vital role in controlling the reactions of the digestive process. Nerves within the brain and spinal cord release acetylcholine and adrenaline into the digestive organs. Acetylcholine helps in the movement of food through the gastrointestinal tract and produces digestive juices in the organs. Adrenaline regulates the blood flow to the digestive organs by relaxing them. The organs work together with the hormones and the nerves in order for the smooth operation of the digestive system. References" Digestion." Wikipedia.

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" Your Digestive System and How It Works." 7 6 2009 .