

Kierunek lekarski – I rok

The digestive system

The digestive system is the series of tubelike organs that convert our meals into body fuel. In all there's about 30 feet (9 meters) of these convoluted pipeworks, starting with the mouth and ending with the anus. Along the way, food is broken down, sorted, and reprocessed before being circulated around the body to nourish and replace cells and supply energy to our muscles.

Food on the plate needs to become a mashed-up, gooey liquid for the digestive system to be able to split it up into its constituent parts: proteins, carbohydrates, fats, vitamins, and minerals. Our teeth start the process by chewing and grinding up each mouthful, while the tongue works it into a ball-shaped **bolus** for swallowing.

Moistening saliva fed into the mouth from nearby glands starts the process of chemical digestion using specialized proteins called **enzymes**. Secreted at various points along the digestive tract, enzymes break down large molecules of food into smaller molecules that the body is able to absorb.

Once we swallow, digestion becomes involuntary. Food passes down the throat to the **esophagus**, the first of a succession of hollow organs that transport their contents through muscular contractions known as **peristalsis**.

The esophagus empties into the **stomach**, a large, muscular chamber that mixes food up with digestive juices including the enzymes pepsin, which targets proteins, and lipase, which works on fats. Hydrochloric acid likewise helps to dissolve the stomach contents while killing potentially harmful bacteria. The resulting semifluid paste—**chyme**—is sealed in the stomach by two ringlike sphincter muscles for several hours and then released in short bursts into the **duodenum**.

The first of three sections of the **small intestine**, the duodenum produces large quantities of mucus to protect the intestinal lining from acid in the chyme. Measuring about 20 feet (6 meters) in length, the small intestine is where the major digestion and absorption of nutrients take place. These nutrients are taken into the bloodstream, via millions of tiny, fingerlike projections called villi, and transported to the liver.

What's left in the digestive tract passes into the **large intestine**, where it's eaten by billions of harmless bacteria and mixed with dead cells to form solid feces. Water is reabsorbed into the body while the feces are moved into the rectum to await expulsion.

Key Players

Other organs that play a key role in digestion include the liver, gallbladder, and pancreas. The **pancreas** is a gland organ located behind the stomach that manufactures a cocktail of enzymes that are pumped into the duodenum. A duct also connects the duodenum to the **gallbladder**. This pear-shaped sac squeezes out green-brown bile, a waste product collected from the liver that contains acids for dissolving fatty matter.

The **liver** itself is the body's main chemical factory, performing hundreds of different functions. It processes nutrients absorbed into the blood by the small intestine, creating energy-giving glycogen from sugary carbohydrates and converting dietary proteins into new proteins needed for our blood. These are then stored or released as needed, as are essential vitamins and minerals. The liver also breaks down unwanted chemicals, such as any alcohol consumed, which is detoxified and passed from the body as waste.

Source: <http://science.nationalgeographic.com/science/health-and-human-body/human-body/digestive-system-article/>

Ex. 1 Read the above text and answer the following questions.

- 1.What is the main function of the digestive system?
- 2.What constituent parts is food broken down into?
- 3.What starts the process of chemical digestion?
- 4.What is the function of enzymes?
- 5.What is the function of the duodenum?
- 6.Where does the absorption of nutrients take place?
- 7.What is the function of the large intestine?
- 8.What other organs play an essential role in digestion?
- 9.How does bile affect fatty matter?
- 10.Give the main functions of the liver described in the text.

Ex.2 Match the highlighted words from the text in column A with their definitions in column B.

A	B
1. bolus	A. A protein that catalyzes chemical reactions.
2. enzymes	B. The semifluid material produced by digestion of food.
3. esophagus	C. The wormlike movements by which the alimentary canal propel its contents.
4. peristalsis	D. A gland lying behind the stomach secreting digestive enzymes.
5. stomach	E. The first portion of the small intestine.
6. chyme	F. A gland in the upper part of the abdomen on the right side, acting as the main

	chemical factory.
7. duodenum	G. A round mass of food ready to swallow.
8. intestine	H. The reservoir for bile
9. pancreas	I. The passage extending from the pharynx to the stomach.
10. gallbladder	J. The alimentary canal extending from the stomach to the anus.
11. liver	K. The expansion of the alimentary canal between the esophagus and duodenum.

Ex.3. Match the words from the text with their Polish equivalents.

A	B
1. bolus	A. wątroba
2. enzymes	B. żołądek
3. esophagus	C. perystaltyka
4. peristalsis	D. trzustka
5. stomach	E. miazga pokarmowa
6. chyme	F. dwunastnica
7. duodenum	G. enzymy
8. intestine	H. kęs
9. pancreas	I. przelyk
10. gallbladder	J. jelito
11. liver	K. pęcherzyk żółciowy
12. to nourish	L. uwalniany
13. to split up	M. odżywiać
14. sphincter	N. rozdzielić
15. released	O. zwieracz

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