Stomach parts diagram

The stomach, gallbladder, and pancreas are three of the most important digestive organs in the human body. These organs work together to produce and store secretions that digest our food into its most basic building blocks. These three major organs also produce hormones that help to coordinate their functions and even lead to the feeling of fullness after consuming a meal. A hollow muscular organ about the size of 2 closed fists, the stomach is located inferior to the diaphragm and lateral to the liver on the left side of the abdominal cavity. The stomach forms part of the gastrointestinal tract between the esophagus and the duodenum the first section of the small intestine. The wall of the stomach contains several layers of epithelium, smooth muscle, nerves, and blood vessels. The innermost layer of the stomach is made of epithelium containing many invaginations known as gastric pits. The cells of the gastric pits produce gastric juice - an acidic mixture of mucus, enzymes and hydrochloric acid. The hollow portion of the stomach serves as the storage vessel for food before it moves on to the intestines to be further digested and absorbed. At the inferior end of the stomach is a band of smooth muscle called the pyloric sphincter. The pyloric sphincter opens and closes to regulate the flow of food into the duodenum. The gallbladder is a 3-inch long pear-shaped sac located on the posterior border of the liver. Connected to the bile ducts of the liver through the cystic duct , the gallbladder receives bile transported from the liver for storage on a regular basis to prepare for the digestion of future meals. During digestion of a meal, smooth muscles in the walls of the gallbladder contract to push bile into the bile ducts that lead to the duodenum. Once in the duodenum, bile helps with the digestion of fats. The pancreas is a 6-inch long heterocrine gland located inferior to the stomach and surrounded by the duodenum on its medial end. This organ extends laterally from the duodenum toward the left side of the abdominal cavity, where it tapers to a point. The pancreas is considered a heterocrine gland because it has both endocrine and exocrine gland functions. These enzymes together with water and sodium bicarbonate secreted from the pancreas are known as pancreatic juice. The stomach, gallbladder, and pancreas work together as a team to perform the majority of the digestion of food. The stomach, gallbladder, and pancreas all function together as storage organs of the digestive system. The stomach stores food that has been ingested and releases it in small masses to the duodenum. The release of small masses of food at a time improves the digestive efficiency of the intestines, liver, gallbladder, and pancreas and prevents undigested food from making its way into feces. As they are accessory organs of the digestive system, the gallbladder and pancreas have no food passing through them. They do, however, act as storage organs by storing the chemicals necessary for the chemical digestion of foods. The gallbladder stores bile produced by the liver so that there is a sufficient supply of bile on hand to digest fats at any given time. The pancreas stores the pancreatic juice produced by its own exocrine glands so that it is prepared to digest foods at all times. The stomach, gallbladder, and pancreas all share the common function of secretion of substances from exocrine glands. The stomach contains 3 different exocrine cells inside of its gastric pits: mucous cells, parietal cells, and chief cells. The mixture of mucus, hydrochloric acid, and pepsin is known as gastric juice. Gastric juice mixes with food to produce chyme, which the stomach releases into the duodenum for further digestion. The gallbladder stores and secretes bile into the duodenum to aid in the digestion of chyme. A mixture of water, bile salts, cholesterol, and bilirubin, bile emulsifies large masses of fats into smaller masses. These smaller masses have a higher ratio of surface area to volume when compared to large masses, making it easier for them to be digested. The pancreas stores and secretes pancreatic juice into the duodenum to complete the chemical digestion of food that began in the mouth and stomach. Pancreatic juice contains a mixture of enzymes including amylases, proteases, lipases, and nucleases. Several hormones are used to regulate the functions of the stomach, gallbladder, and pancreas. The hormones gastrin, cholecystokinin, and secretin are secreted by organs of the digestive system in response to the presence of food and change the function of the stomach, gallbladder, and pancreas. Our pancreas produces the hormones insulin and glucagon to affect the behavior of cells throughout the body. Gastrin is a hormone produced by the walls of the stomach in response to the filling of the stomach with food. Food stretches the stomach walls and raises the normally acidic pH of the stomach. G cells in the gastric glands of the stomach respond to these changes by producing gastrin. G cells release gastrin into the blood where it stimulates the exocrine cells of the stomach to produce gastric juice. Gastrin also stimulates smooth muscle tissue of the gastrointestinal tract to increase the mixing and movement of food. Finally, gastrin relaxes the smooth muscles that form the pyloric sphincter, causing the pyloric sphincter to open. The opening of the pyloric sphincter allows food stored in the stomach to begin entering the duodenum for further digestion and absorption in the intestines. Cholecystokinin, a hormone produced in the walls of the small intestine , is released into the bloodstream in response to the presence of chyme in the intestine that contains high levels of proteins and fats. Proteins and fats are more difficult

for the body to digest than carbohydrates are, so CCK is important in making changes to the digestive system to handle these types of foods. CCK travels through the bloodstream to the stomach, where it slows the emptying of the stomach to give the intestines more time to digest the protein- and fat-rich chyme. CCK also stimulates the gallbladder and pancreas to increase their secretion of bile and pancreatic juice to improve the digestion of fats and proteins. Finally, CCK is detected by receptors in the satiety center of the hypothalamus that control the feeling of hunger. The satiety center reads the presence of CCK as an indication that the body is no longer hungry for food. Secretin is another hormone produced by the intestinal walls, but unlike CCK, it is produced in response to the acidity of chyme that the stomach releases into the duodenum. Secretin flows through the bloodstream to the stomach, where it inhibits the production of hydrochloric acid by parietal cells. Secretin also binds to receptors in the gallbladder and pancreas, stimulating them to secrete increased amounts of bile and pancreatic juice. Sodium bicarbonate present in pancreatic juice neutralizes the acidity of the chyme to prevent damage to the walls of the duodenum and provides a neutral pH environment for the digestion of chyme. Insulin is a hormone produced by the beta cells of the pancreatic islets of the pancreas. The pancreas produces insulin in response to the presence of high levels of glucose in the blood. Insulin stimulates cells, particularly in the liver and skeletal muscles , to absorb glucose from the blood and use it as an energy source or store it as glycogen. Insulin also stimulates adipocytes to absorb glucose to build triglycerides for energy storage. Glucagon is a hormone produced by the alpha cells of the pancreatic islets of the pancreas. Glucagon acts as an antagonist to insulin by stimulating the release of glucose into the bloodstream to raise blood glucose levels between meals. Hepatocytes in the liver store glucose in large macromolecules known as glycogen. Glucagon binding to receptors on hepatocytes triggers the breakdown of glycogen into many glucose molecules, which are then released into the bloodstream. By: Tim Taylor. Last Updated: Jul 16, Now please check your email to confirm your subscription. There was an error submitting your subscription. Please try again. Email Address. All Rights Reserved. Innerbody Research does not provide medical advice, diagnosis, or treatment. You must consult your own medical professional. It is an expanded section of the digestive tube between the esophagus and small intestine. Its characteristic shape is well known. The right side of the stomach is called the greater curvature and the left the lesser curvature. The most distal and narrow section of the stomach is termed the pylorusâ€"as food is liquefied in the stomach it passes through the pyloric canal into the small intestine. In the empty state, the stomach is contracted and its mucosa and submucosa are thrown up into distinct folds called rugae; when distended with food, the rugae are "ironed out" and flat. If the lining of the stomach is examined with a hand lens, one can see that it is covered with numerous small holes. These are the openings of gastric pits which extend into the mucosa as straight and branched tubules, forming gastric glands. Four major types of secretory epithelial cells cover the surface of the stomach and extend down into gastric pits and glands:. There are differences in the distribution of these cell types among regions of the stomachâ€"for example, parietal cells are abundant in the glands of the body, but virtually absent in pyloric glands. The micrograph above shows a gastric pit invaginating into the mucosa fundic region of a raccoon stomach. Notice that all the surface cells and the cells in the neck of the pit are foamy in appearanceâ€"these are the mucous cells. The other cell types are farther down in the pit. Contractions of gastric smooth muscle serve two basic functions. First, it allows the stomach to grind, crush and mix ingested food, liquefying it to form what is called "chyme. The stomach can be divided into two regions on the basis of motility pattern: an accordion-like reservoir that applies constant pressure on the lumen and a highly contractile grinder. The proximal stomach, composed of the fundus and upper body, shows low frequency, sustained contractions that are responsible for generating a basal pressure within the stomach. Importantly, these tonic contractions also generate a pressure gradient from the stomach to the small intestine and are thus responsible for gastric emptying. Interestingly, swallowing of food and consequent gastric distention inhibits contraction of this region of the stomach, allowing it to balloon out and form a large reservoir without a significant increase in pressureâ€"this phenomenon is called "adaptive relaxation. The distal stomach, composed of the lower body and antrum, develops strong peristaltic waves of contraction that increase in amplitude as they propagate toward the pylorus. These powerful contractions constitute a very effective gastric grinder; they occur about 3 times per minute in people and 5 to 6 times per minute in dogs. There is a pacemaker in the smooth muscle of the greater curvature that generates rhythmic slow waves from which action potentials and hence peristaltic contractions propagate. As you might expect and at times hope, gastric distention strongly stimulates this type of contraction, accelerating liquefaction and hence, gastric emptying. The pylorus is functionally part of this region of the stomachâ€"when the peristaltic contraction reaches the pylorus, its lumen is

effectively obliterated—chyme is thus delivered to the small intestine in spurts. Motility in both the proximal and distal regions of the stomach is controlled by a very complex set of neural and hormonal signals. Nervous control originates from the enteric nervous system as well as parasympathetic predominantly vagus nerve and sympathetic systems. A large battery of hormones have been shown to influence gastric motility—for example, both gastrin and cholecystokinin act to relax the proximal stomach and enhance contractions in the distal stomach. The bottom line is that the patterns of gastric motility likely are a result of smooth muscle cells integrating a large number of inhibitory and stimulatory signals. Liquids readily pass through the pylorus in spurts, but solids must be reduced to a diameter of less than mm before passing the pyloric gatekeeper. Larger solids are propelled by peristalsis toward the pylorus, but then refluxed backward when they fail to pass through the pylorus - this continues until they are reduced in size sufficiently to flow through the pylorus. At this point, you may be asking "What happens to solids that are indigestible - for example, a rock or a penny? Will it remain forever in the stomach? However, many of the indigestible solids that fail to pass through the pylorus shortly after a meal do pass into the small intestine during periods between meals. This is due to a different pattern of motor activity called the migrating motor complex, a pattern of smooth muscle contractions that originates in the stomach, propagates through the intestines and serves a housekeeping function to periodically sweep out the gastrointestinal tract. Share Flipboard Email. Regina Bailey. Biology Expert. Regina Bailey is a board-certified registered nurse, science writer and educator. Cite this Article Format. Bailey, Regina. Anatomy of the Stomach. The human digestive system is the means by which tissues and organs receive nutrients to function. The system breaks down food, extracts nutrients from it, and converts them into energy. The digestive tract begins this involuntary process once food is consumed. Saliva begins the breakdown of food, and other enzymes in the digestive tract extend this process. As digestion continues, the food is propelled from organ to organ through muscular contractions called peristalsis. The connection between all of these organs and their fluids requires a delicate balance that can easily be disrupted by numerous factors, including diet, stress, disease, and more. Other problems are connected to serious conditions that affect portions of the digestive system, including:. Combined with the cardiovascular system, the circulatory system helps to fight off disease, helps the body maintain a normal body temperature, and€!. Humans are sexual, meaning that both a male and a female are needed to reproduce. Each is equipped with specific organs capable of producing specific€!. The supraspinatus muscle is a rotator cuff muscle located in the shoulder, specifically in the supraspinatus fossa, a concave depression in the rear€!. The corpus spongiosum is yet another part of the male anatomy that facilitates sexual reproduction. It is a soft, spongy tissue that surrounds the€!. The fimbriae of the uterine tube, also known as fimbriae tubae, are small, fingerlike projections at the end of the fallopian tubes, through which€!. There are many blood vessels within the male pelvic region. Many are there to supply the lower half of the body but many supply the male reproductive€!. The spermatic cord is actually a bundle of fibers and tissues that form a cord-like structure that runs through the abdominal region down to the€!. The prostatic plexus is a relatively large bundle of nerves that arises from the inferior lower portion of the pelvic plexus, a bundle of nerves€!. The prostate gland is situated at the origin of the urethra, the tube that carries urine out of the body. It is approximately the size of a small€!. Read this next. Circulatory Medically reviewed by the Healthline Medical Network. Supraspinatus Medically reviewed by the Healthline Medical Network. Fimbriae Medically reviewed by the Healthline Medical Network. Vessels Medically reviewed by the Healthline Medical Network. Spermatic cord Medically reviewed by the Healthline Medical Network. Prostatic plexus Medically reviewed by the Healthline Medical Network. Prostate Medically reviewed by the Healthline Medical Network. The muscles of the abdomen protect vital organs underneath and provide structure for the spine. These muscles help the body bend at the waist. The major muscles of the abdomen include the rectus abdominis in front, the external obliques at the sides, and the latissimus dorsi muscles in the back. The major organs of the abdomen include the small intestine, large intestine, and stomach. Together, these three turn nutrients into usable energy, as well as help dispose of solid waste. Major organs that help filter contaminants out of the body are also in the abdominal region. These include the liver and kidneys. The liver is located in the upper right-hand part of the abdominal cavity, under the ribs. Although it has many functions, the liver is best known for processing blood, separating waste from nutrients. The gallbladder is a small sack under the liver that holds extra bile made by the liver until it is pumped into the small intestine. Bile helps break down fat. The pancreas is yet another gland that produces enzymes to help your body digest proteins, carbohydrates, and fats. It also makes hormones that help regulate the distribution of nutrients, including sugar. Most people have two kidneys , which are located near the back of the body, under the ribs, on

each side of the spine. Kidneys filter waste out of the bloodstream, which is passed out of the body as urine. The kidneys also help regulate levels of electrolytes, like salt and potassium, and produce certain hormones that play various roles throughout the body. On top of the kidneys are the suprarenal adrenal glands. These synthesize and secrete hormones that help the kidneys to conserve sodium, thus conserving water. Key bones in the abdominal area include the base of the ribcage and the lumbar spine in the lower back. Because of the important organs situated in the abdominal area, many health concerns stem from this area. Some include:. The corpus spongiosum is yet another part of the male anatomy that facilitates sexual reproduction. It is a soft, spongy tissue that surrounds theâ€¦. The fimbriae of the uterine tube, also known as fimbriae tubae, are small, fingerlike projections at the end of the fallopian tubes, through whichâ€¦. There are many blood vessels within the male pelvic region. Many are there to supply the lower half of the body but many supply the male reproductiveâ€¦. The spermatic cord is actually a bundle of fibers and tissues that form a cord-like structure that runs through the abdominal region down to theâ€¦. Humans are sexual, meaning that both a male and a female are needed to reproduce. Each is equipped with specific organs capable of producing specificâ€¦. The prostatic plexus is a relatively large bundle of nerves that arises from the inferior lower portion of the pelvic plexus, a bundle of nervesâ€¦. The prostate gland is situated at the origin of the urethra, the tube that carries urine out of the body. It is approximately the size of a smallâ€¦. The pelvic region holds major organs under its layers of muscles. Some of the most important include the major digestive organs, the intestines. Read this next. Fimbriae Medically reviewed by the Healthline Medical Network. Vessels Medically reviewed by the Healthline Medical Network. Spermatic cord Medically reviewed by the Healthline Medical Network. Prostatic plexus Medically reviewed by the Healthline Medical Network. Prostate Medically reviewed by the Healthline Medical Network. A hollow, J-shaped muscular organ, the stomach is an important part of the digestive system of the human body. Bodytomy provides information on the location and functions of the stomach, along with a labeled diagram to help you understand the anatomy of the human stomach. To provide protection from the highly acidic environment, the epithelial cells that line the stomach produce a new layer of mucus every two weeks. Located in the upper-left section of the abdomen, the stomach is a visceral organ that lies beneath the diaphragm. The average length of this muscular organ is about 10 inches. It extends between the seventh thoracic vertebra T7 and the third lumbar vertebra L3. It is an organ of the digestive system. When we eat, enzymes in the mouth act on the food. This food then passes from the esophagus to the stomach. The stomach acts as a storage vessel for the food. Normally, the stomach can hold up to a liter of food at a given time. This capacity can vary from person to person. Would you like to write for us? Well, we're looking for good writers who want to spread the word. Get in touch with us and we'll talk Food usually remains in the stomach for about two hours. During this time, the gastric enzymes act on the food, turning it into chyme, which refers to partially-digested, semi-liquid mass of food. By peristalsis or the wave-like muscle contractions, the partially-digested food is moved from the stomach into the small intestine, where most of digestion and absorption of nutrients takes place. The human stomach has two surfaces, two orifices, and two curvatures. The two orifices of the stomach are called cardiac orifice and pyloric orifice. The former is located on the left, at the level of the tenth thoracic vertebra T The pyloric orifice lies at the level of the first lumbar vertebra L1. It is the opening from where the food travels towards the duodenum. Given below is a labeled diagram of the stomach to help you understand stomach anatomy. Cardia refers to the section of the stomach that is located around the cardiac orifice. The lower esophageal sphincter lies at the junction where the esophagus meets the stomach. It prevents the backflow of food from the stomach to the esophagus. The fundus lies above the cardiac orifice. It contains swallowed air. It is located to the left and lies above the body of the stomach, which is the large central section. The pyloric region of the stomach is divided into pyloric antrum, which is a funnel-shaped section that becomes the pyloric canal while approaching the duodenum, the first section of the small intestine. At the end of this canal lies the pyloric sphincter. This ring of muscle fibers is responsible for regulating the movement of chyme into the duodenum. It determines the rate at which food moves from the stomach to the duodenum. The greater curvature is longer and convex in shape, whereas the lesser curvature is shorter and concave in shape. The greater curvature lies on the left of the cardiac orifice, over the dome of the fundus, and along the left border of the stomach to the pylorus. The lesser curvature lies on the right. It runs from the cardiac orifice to the pylorus. The greater omentum and the lesser omentum divide the abdominal cavity into the greater sac and the lesser sac. These are formed by two layers of peritoneum one layer folded over itself. The presence of lymph nodes and immune cells in the greater omentum helps fight gastrointestinal infections. The greater omentum basically hangs down from the greater curvature of the stomach. On the other hand, the lesser

omentum is attached to the stomach and the liver, and is continuous with peritoneal layers of the stomach and duodenum, which in turn combine at the lesser curvature. The stomach lies in front of the lesser sac. Mucosa refers to the inner lining of the stomach. Large, wrinkle-like folds called rugae lie in the mucosa when the stomach is empty. These flatten as the stomach fills and the stomach wall gets distended. It contains gastric glands, as well as pits. The mucosa is divided into the epithelial layer non-ciliated simple columnar epithelium , lamina propria layer of thin connective tissue , and muscularis mucosae thin layer of smooth muscle. Submucosa, which lies under the mucosa, is made up of connective tissue. Under the submucosa lies muscularis externa, which consists of layers of smooth muscle. Muscularis externa is composed of an outer longitudinal layer, a middle circular layer, and an inner oblique layer. It is the contraction of these muscle layers that helps in mixing, churning, and breaking down food. The outer layer that covers the stomach is called serosa. It is fused with visceral peritoneum, and is composed of simple squamous epithelium and areolar connective tissue. On the surface of the mucosa, the simple columnar epithelial cells or the goblet cells secrete mucus. The mucosa also contains tubule-shaped gastric glands that secrete gastric juices and mucus. Gastric pits, which are narrow channels in the stomach that act as openings for the gastric glands, are also lined by the surface mucus cells. Gastric juices are secreted by special types of exocrine glands. These include neck mucous cells, chief cells, and parietal cells. The neck mucous cells secrete mucus that has a more neutral pH than that secreted by the cells at the surface of the stomach lining. The chief cells secrete pepsinogen, which is the inactive precursor to a proteolytic enzyme called pepsin. The conversion of pepsinogen to pepsin takes place in the lumen of the stomach, in the presence of gastric hydrochloric acid. The parietal cells secrete hydrochloric acid, which is a highly corrosive acid. It is hydrochloric acid that is responsible for the low pH environment in the stomach. The parietal cells also secrete intrinsic factor, which is a glycoprotein that binds to vitamin B12 in the stomach and facilitates its absorption in the small intestine. The G-cell, which is a type of hormone-producing cell in the lining of the gastric pits, produces and secretes a peptide hormone called gastrin either on receiving a signal from the vagus nerve, or due to the rise in the gastric pH of the stomach or distension of the stomach wall during a meal. Gastrin also promotes the production of hydrochloric acid by parietal cells. The stomach receives parasympathetic nerve fibers from the vagus nerves and sympathetic fibers from the celiac ganglia. It must be noted that sensory vagal fibers play a role in gastric secretion. There are three phases of gastric secretion, which include the cephalic phase, gastric phase, and the intestinal phase. In the cephalic phase, parasympathetic reflexes are triggered due to the smell, sight, taste, or even thoughts about food. The gastric phase occurs with the entry of food into the stomach and the consequent rise in the pH and distension of the wall of the stomach. The intestinal phase commences as food enters the duodenum. It is characterized by the secretion of intestinal gastrin. During this phase, acid in the upper section of the small intestine triggers a sympathetic reflex, which in turn inhibits the secretion of gastric juice from the stomach wall. The stomach gets its supply of oxygenated blood from the branches of celiac artery. These branches include:. The left gastric artery is the narrowest branch of the celiac. It passes upward and runs to the left to reach the food pipe. Then, it runs down along the lesser curvature of the stomach. It provides blood to the upper right section of the stomach, as well as the lower section of the food pipe. The right gastric artery arises from the hepatic artery. This artery provides blood to the lower right section of the stomach. The short gastric arteries supply blood to the fundus. The left gastroepiploic and the right gastroepiploic arteries provide blood to the upper and the lower section of the greater curvature of stomach, respectively. The veins of the stomach correspond to the aforementioned arteries. While the right and left gastric veins drain into the portal vein, the short gastric veins and the left gastroepiploic vein return blood into the splenic vein. The right gastroepiploic vein returns blood into the superior mesenteric vein. On a concluding note, the main functions of the stomach include storage and mixing of food into chyme, and the passage of chyme into the duodenum. The cells in the stomach lining secrete gastric juices, with the maximum secretion taking place an hour after a meal. Necessary cookies are absolutely essential for the website to function properly. This category only includes cookies that ensures basic functionalities and security features of the website. These cookies do not store any personal information. Any cookies that may not be particularly necessary for the website to function and is used specifically to collect user personal data via analytics, ads, other embedded contents are termed as non-necessary cookies. It is mandatory to procure user consent prior to running these cookies on your website. Skip to primary navigation Skip to main content Skip to primary sidebar Skip to footer Understanding the Human Stomach Anatomy With Labeled Diagrams A hollow, J-shaped muscular organ, the stomach is an important part of the digestive system of the human body. Let's Work Together! Get Updates Right to Your Inbox

To better understand how weight loss surgery works, it is important to understand how your gastrointestinal tract functions. As the food you consume moves through the tract, various digestive juices and enzymes are introduced at specific stages that allow absorption of nutrients. Food material that is not absorbed is then prepared for elimination. A simplified description of the gastrointestinal tract appears below. Your doctor can provide a more detailed description to help you better understand how weight loss surgery works. Skip to Content Set Your Location. The Gastrointestinal Tract To better understand how weight loss surgery works, it is important to understand how your gastrointestinal tract functions. The esophagus is a long muscular tube, which moves food from the mouth to the stomach. The abdomen contains all of the digestive organs. The stomach, situated at the top of the abdomen, normally holds just over 3 pints about ml of food from a single meal. Here the food is mixed with an acid that is produced to assist in digestion. In the stomach, acid and other digestive juices are added to the ingested food to facilitate breakdown of complex proteins, fats and carbohydrates into small, more absorbable units. A valve at the entrance to the stomach from the esophagus allows the food to enter while keeping the acid-laden food from "refluxing" back into the esophagus, causing damage and pain. The pylorus is a small round muscle located at the outlet of the stomach and the entrance to the duodenum the first section of the small intestine. It closes the stomach outlet while food is being digested into a smaller, more easily absorbed form. When food is properly digested, the pylorus opens and allows the contents of the stomach into the duodenum. The small intestine is about 15 to 20 feet long 4. The small intestine is made up of three sections: the duodenum, the jejunum and the ileum. The duodenum is the first section of the small intestine and is where the food is mixed with bile produced by the liver and with other juices from the pancreas. This is where much of the iron and calcium is absorbed. The jejunum is the middle part of the small intestine extending from the duodenum to the ileum; it is responsible for digestion. The last segment of the intestine, the ileum, is where the absorption of fat-soluble vitamins A, D, E and K and other nutrients are absorbed. Another valve separates the small and large intestines to keep bacteria-laden colon contents from coming back into the small intestine. In the large intestines, excess fluids are absorbed and a firm stool is formed. The colon may absorb protein, when necessary. The stomach is located in the upper-left area of the abdomen below the liver and next to the spleen. Its main function is to store and break down the foods and liquids that we consume before those contents travel to other organs to be further digested. When the stomach is empty, the inside has small folds called rugae. Rugae allow the stomach to expand to accommodate large meals. They also grip the food inside the stomach to help physically break it down. The average stomach can hold about 1. It only holds food for three to five hours, before passing it along the digestive tract. To counteract these strong juices, the stomach protects itself with mucus-like secretions. After the stomach has done its work, the highly acidic mixture of gastric juices and food known as chyme leaves the stomach, moves past the pyloric sphincter, and goes into the duodenum before entering the small intestine. Because the chemicals in the stomach work due to a subtle balance, many problems can arise with the stomach. Some common conditions related to the stomach include: The sigmoid vein, also called the vena sigmoideus, refers to one group of sigmoid veins. These veins are tributaries of the inferior mesenteric veinâ€¦. The masseter muscle is a facial muscle that plays a major role in the chewing of solid foods. The muscle is shaped similar to a parallelogramâ€¦. The gastroduodenal artery is a blood vessel that arises from the common hepatic artery. In some people, it originates from the left or right hepaticâ€¦. The ascending colon or right colon is the beginning part of the colon. It is usually located on the right side of the body, extending from the cecumâ€¦. The appendicular vein removes oxygen-depleted blood from the appendix, which is located at the bottom of the ascending colon. The left colic vein assists the body by draining old blood from the intestines. The left colic vein is a branch of the inferior mesenteric vein thatâ€¦. Located in the pancreas, the pancreatic vein is responsible for draining the pancreas

into the superior mesenteric and splenic veins. It contributesâ€¦. The colon is part of the large intestine, the final part of the digestive system. Its function is to reabsorb fluids and process waste products fromâ€¦. The pancreas is a glandular organ that produces a number of hormones essential to the body. It forms an integral part of the digestive system. The middle colic vein lies in the abdomen alongside the middle colic artery. This vein drains blood from the transverse colon, which is the topâ€¦. Read this next. Sigmoid vein Medically reviewed by the Healthline Medical Network. Masseter Medically reviewed by the Healthline Medical Network. Gastroduodenal artery Medically reviewed by the Healthline Medical Network. Ascending colon Medically reviewed by the Healthline Medical Network. Appendicular vein Medically reviewed by the Healthline Medical Network. Left colic vein Medically reviewed by the Healthline Medical Network. Pancreatic vein Medically reviewed by the Healthline Medical Network. Descending colon Medically reviewed by the Healthline Medical Network. Pancreas Medically reviewed by the Healthline Medical Network. Middle colic vein Medically reviewed by the Healthline Medical Network. At the point where the esophagus leads into the stomach, the digestive tube is usually kept shut by muscles of the esophagus and diaphragm. When you swallow, these muscles relax and the lower end of the esophagus opens, allowing food to enter the stomach. If this mechanism does not work properly, acidic gastric juice might get into the esophagus, leading to heartburn or an inflammation see Figure 2. The stomach receives food from the esophagus, mixes the food with gastric juice, initiates protein digestion, carries on limited absorption, and moves food into the small intestine. The fundus , which balloons superior to the cardia, is a temporary storage area. It is usually filled with air that enters the stomach when you swallow. The dilated body region, called the body corpus , which is the main part of the stomach, lies between the fundus and pylorus. In the body of the stomach food is churned and broken into smaller pieces, mixed with acidic gastric juice and enzymes, and pre-digested. The antrum â€" the lower portion near the intestine , where the food is mixed with gastric juice. The pylorus is the distal portion and the last part of the stomach where it approaches the small intestine. The pyloric canal is a narrowing of the pylorus as it approaches the small intestine. At the end of the pyloric canal the muscular wall thickens, forming a powerful circular muscle, the pyloric sphincter. This muscle is a valve that controls gastric emptying. The first 3 parts of the stomach cardia, fundus, and body are sometimes called the proximal stomach. Some cells in these parts of the stomach make acid and pepsin a digestive enzyme , the parts of the gastric juice that help digest food. They also make a protein called intrinsic factor, which the body needs to absorb vitamin B The lower 2 parts antrum and pylorus are called the distal stomach. The stomach has 2 curves, which form its inner and outer borders. They are called the lesser curvature and greater curvature, respectively. The stomach wall is made up of several layers of mucous membrane, connective tissue with blood vessels and nerves, and muscle fibers see Figure 5. As a cancer grows from the mucosa into deeper layers, the stage becomes more advanced and the prognosis is not as good. The muscle layer alone has three different sub-layers. The muscles move the contents of the stomach around so vigorously that solid parts of the food are crushed and ground, and mixed into a smooth food pulp. The inner mucous membrane lining has large folds that are visible to the naked eye. If you look at the mucous membrane under a microscope, you can see lots of tiny glands. There are three different types of glands. These glands make digestive enzymes, hydrochloric acid, mucus and bicarbonate. Gastric juice is made up of digestive enzymes, hydrochloric acid and other substances that are important for absorbing nutrients â€" about 3 to 4 liters of gastric juice are produced per day. The hydrochloric acid in the gastric juice breaks down the food and the digestive enzymes split up the proteins. The acidic gastric juice also kills bacteria. The mucus covers the stomach wall with a protective coating. Together with the bicarbonate, this ensures that the stomach wall itself is not damaged by the hydrochloric acid. The stomach takes in food from the esophagus gullet or food pipe , mixes it, breaks it down, and then passes it on to the small intestine in small portions. Following a meal, the mixing movements of the stomach wall aid in producing a semifluid paste of food particles and gastric juice called chyme. Peristaltic waves push the chyme toward the pylorus of the stomach. As chyme accumulates near the pyloric sphincter, the sphincter begins to relax. Stomach contractions push chyme a little at a time into the small intestine. The rate at which the stomach empties depends on the fluidity of the chyme and the type of food present. Liquids usually pass through the stomach rapidly, but solids remain until they are well mixed with gastric juice. Fatty foods may remain in the stomach from three to six hours; foods high in proteins move through more quickly; carbohydrates usually pass through faster than either fats or proteins. As chyme enters the duodenum the proximal portion of the small intestine , accessory organsâ€"the pancreas, liver, and gallbladderâ€"add their secretions. The mucous membrane that forms the inner lining of the stomach is thick. Its surface is studded with many small openings called gastric pits located at the ends of tubular gastric glands Figure 6. Gastric

glands generally contain three types of secretory cells. Mucous cells, in the necks of the glands near the openings of the gastric pits, secrete mucus. Chief cells and parietal cells are in the deeper parts of the glands. The chief cells secrete digestive enzymes, and the parietal cells release a solution containing hydrochloric acid. The products of the mucous cells, chief cells, and parietal cells together form gastric juice. Pepsin is by far the most important digestive enzyme in gastric juice. The chief cells secrete pepsin in the form of an inactive enzyme precursor called pepsinogen. When pepsinogen contacts hydrochloric acid from the parietal cells, it breaks down rapidly, forming pepsin. Pepsin begins the digestion of nearly all types of dietary protein into polypeptides. This enzyme is most active in an acidic environment, which is provided by the hydrochloric acid in gastric juice. This coating normally prevents the stomach from digesting itself. Another component of gastric juice is intrinsic factor, which the parietal cells secrete. Intrinsic factor is necessary for the absorption of vitamin B12 in the small intestine. Table 1 summarizes the major components of gastric juice. Note: Lining of the stomach. Gastric glands include mucous cells, parietal cells, and chief cells. The mucosa of the stomach is studded with gastric pits that are the openings of the gastric glands. Chief cells of the gastric glands. Formed from pepsinogen in the presence of hydrochloric acid. A protein-splitting enzyme that digests nearly all types of dietary protein into polypeptides. Hydrochloric acid. Parietal cells of the gastric glands. Provides the acid environment needed for the production and action of pepsin. Intrinsic factor. Necessary for vitamin B12 absorption in the small intestine. Gastric juice is produced continuously, but the rate varies considerably and is controlled both neurally and hormonally. When a person tastes, smells, or even sees appetizing food, or when food enters the stomach, parasympathetic impulses on the vagus nerves stimulate the release of the neurotransmitter acetylcholine Ach. This acetylcholine Ach stimulates gastric glands to secrete abundant gastric juice, which is rich in hydrochloric acid and pepsinogen. These parasympathetic impulses also stimulate certain stomach cells to release the peptide hormone gastrin, which increases the secretory activity of gastric glands Figure 6. Gastrin stimulates cell division in the mucosa of the stomach and intestines, which replaces mucosal cells damaged by normal

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 stomach function, disease, or medical treatments. As food moves into the small intestine, acid triggers sympathetic impulses that inhibit gastric juice secretion. At the same time, proteins and fats in this region of the intestine cause the intestinal wall to release the peptide hormone cholecystokinin. This hormonal action decreases gastric motility as the small intestine fills with food. Gastric enzymes begin breaking down proteins, but the stomach wall is not well adapted to absorb digestive products. The stomach absorbs only small volumes of water and certain salts as well as certain lipid-soluble drugs. Alcohol, which is not a nutrient, is absorbed both in the small intestine and in the stomach. Conditions Procedures. Drugs Supplements Vitamins and Minerals. What is the stomach? Contents What is the stomach Parts of the Stomach Figure 4. National Center for Biotechnology Information, U. National Library of Medicine. Inactive form of pepsin. Mucous cells. How does the stomach work?