in the small intestine. The mucosal surface is flat with several deep intestinal glands. Numerous goblet cells line the small and large intestines. The large intestine can be summarized as:
The accumulation of unabsorbed material to form feces.
Some digestion by bacteria.

2. Anatomy and Physiology

ANATOMY AND PHYSIOLOGY

Individual Components of the Gastrointestinal System

The gastrointestinal tract (GIT) consists of a hollow muscular tube starting in the oral cavity, where food enters the mouth, continuing through the pharynx, esophagus, stomach to the intestine, and anus where food exits. The GIT is divided into three major sections: the stomach, small intestine, and large intestine. The small intestine is where most nutrient absorption occurs. The large intestine is responsible for the formation of feces and the absorption of water and electrolytes.

3. Anatomy and Physiology

Individual Components of the Gastrointestinal System

The small intestine is composed of the duodenum, jejunum, and ileum. It averages approximately 6 meters in length, extending from the pyloric sphincter of the stomach to the ileocecal valve. The small intestine is compressed into numerous folds and occupies a large portion of the abdominal cavity. It is divided into four main regions:

- Duodenum
- Jejunum
- Ileum
- Cecum

The cecum is where the caecal valve separating the ileum from the cecum. The small intestine is compressed into numerous folds and occupies a large portion of the abdominal cavity. The duodenum serves a mixing function as it combines digestive enzymes with the chyme. The jejunum and ileum are responsible for most nutrient absorption. The cecum holds the caecal valve and contains the cecal appendix, which is a small projection of the cecum.

4. Anatomy and Physiology

Individual Components of the Gastrointestinal System

Stomach

The stomach is a J-shaped expanded bag, which is divided into four main regions: the cardia, fundus, body, and antrum. It is located between the esophagus and small intestine. It is divided into four main regions:

- Cardia: The opening to the stomach from the esophagus
- Fundus: The uppermost part of the stomach
- Body: The largest section between the fundus and the curved portion of the J
- Antrum: The part of the stomach which curves around the head of the pancreas.

The duodenum serves a mixing function as it combines digestive enzymes with the chyme. The jejunum and ileum are responsible for most nutrient absorption. The cecum holds the caecal valve and contains the cecal appendix, which is a small projection of the cecum.

5. Anatomy and Physiology

Individual Components of the Gastrointestinal System

Large Intestine

The large intestine is a tube that begins at the ileocecal valve and ends at the anus. It is divided into three main sections: the cecum, colon, and rectum. The large intestine is responsible for the formation of feces and the absorption of water and electrolytes. It is divided into two main regions:

- Cecum
- Colon

The cecum is where the caecal valve separating the ileum from the cecum. The colon is divided into the ascending colon, transverse colon, descending colon, and sigmoid colon. The rectum is the final section of the large intestine and is responsible for the storage and expulsion of feces.
The bacteria are responsible for the formation of intestinal gas. Hydrogen, carbon dioxide, and methane are produced by the fermentation of certain sugars and proteins. The reabsorption of water, salts, sugars, and vitamins is also a function of the large intestine. The large intestine is divided into two parts: the colon and the rectum. The colon is the longest part of the digestive tract, and it is responsible for the absorption of water and the production of feces. The rectum is the shortest part of the digestive tract, and it is responsible for the storage of feces until they are eliminated from the body.

The liver is a large, reddish-brown organ situated in the right upper quadrant of the abdomen. It is surrounded by a strong capsule and divided into three lobes: the right, left, and quadrate lobes. The liver has several important functions. It acts as a metabolic filter by filtering blood from the intestines. It also stores and releases hormones, such as insulin and glucagon. In addition, the liver has detoxification functions, producing abnormal red blood cells that are formed in the liver. It is also involved in the production of bile, which helps to emulsify fats and absorb vitamins.

The gallbladder is a small, pear-shaped organ that sits in a depression on the posterior surface of the liver's right lobe. It consists of a fundus, body, and neck. It empties via the cystic duct into the duodenum. Bile is a thick fluid that contains enzymes and helps to digest fats. Bile is produced by the liver and stored in the gallbladder until it is needed. It is released from the gallbladder in response to hormone signals from the duodenum in the presence of food. Bile is a thick, yellow fluid that contains enzymes and helps to digest fats.

The pancreas is a lobular, pinkish-grey organ that lies behind the stomach. Its head communicates with the duodenum and its tail extends to the spleen. The pancreas has both exocrine and endocrine functions. The exocrine portion makes up 80-85% of the pancreas and is the area relevant to the gastrointestinal tract. The exocrine portion secretes fluid-filled endocrine cells that produce hormones. The endocrine portion is made up of islets of Langerhans, which secrete hormones that regulate blood sugar levels. The endocrine portion is responsible for the production of insulin, glucagon, and other hormones.