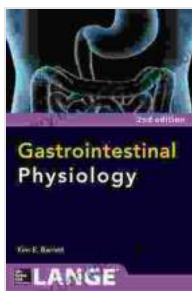


Gastrointestinal Physiology: Unveiling the Secrets of Digestion and Absorption

Gastrointestinal physiology is a branch of physiology that focuses on the study of the gastrointestinal (GI) tract, which is responsible for the digestion and absorption of nutrients from food. The GI tract is a complex system that includes the mouth, esophagus, stomach, small intestine, large intestine, and rectum.

The process of digestion begins in the mouth, where food is broken down by chewing and the action of enzymes in saliva. The food is then swallowed and travels down the esophagus to the stomach. In the stomach, food is mixed with gastric juices, which contain hydrochloric acid and enzymes that further break down the food.

The partially digested food then travels to the small intestine, where it is mixed with bile from the liver and enzymes from the pancreas. The bile helps to dissolve fats, while the enzymes break down proteins, carbohydrates, and fats into smaller molecules that can be absorbed by the intestinal cells.



Gastrointestinal Physiology 2/E (Lange) by Kim E. Barrett

★★★★☆ 4.6 out of 5

Language	: English
File size	: 17650 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 337 pages



The small intestine is the primary site of nutrient absorption. The intestinal cells have a number of specialized structures, such as microvilli and brush borders, that increase their surface area and facilitate the absorption of nutrients. The absorbed nutrients are then transported to the liver via the portal vein.

The large intestine is responsible for the absorption of water and electrolytes from the remaining food material. The food material is also formed into stool, which is stored in the rectum until it is expelled from the body through defecation.

The GI tract is a highly regulated system that maintains a stable internal environment despite changes in the external environment. This is achieved through a number of homeostatic mechanisms, which include:

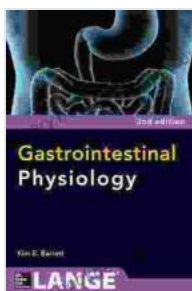
- **Neural control:** The GI tract is innervated by the autonomic nervous system, which controls the secretion of digestive juices, the movement of food through the GI tract, and the absorption of nutrients.
- **Hormonal control:** The GI tract is also regulated by a number of hormones, which are produced by the stomach, small intestine, and pancreas. These hormones control the secretion of digestive juices, the movement of food through the GI tract, and the absorption of nutrients.
- **Local control:** The GI tract also has a number of local control mechanisms, such as the enteric nervous system and the mucosal immune system. These mechanisms help to regulate the secretion of

digestive juices, the movement of food through the GI tract, and the absorption of nutrients.

There are a number of disorders that can affect the GI tract. These disorders can be caused by a variety of factors, including:

- **Infections:** The GI tract can be infected by a number of bacteria, viruses, and parasites. These infections can cause a variety of symptoms, including diarrhea, vomiting, abdominal pain, and fever.
- **Inflammation:** The GI tract can also be inflamed by a number of factors, including Crohn's disease, ulcerative colitis, and celiac disease. These inflammatory conditions can cause a variety of symptoms, including abdominal pain, diarrhea, and weight loss.
- **Cancer:** The GI tract can also be affected by cancer. The most common types of GI cancer include colon cancer, rectal cancer, and stomach cancer. These cancers can cause a variety of symptoms, including abdominal pain, weight loss, and fatigue.

Gastrointestinal physiology is a complex and fascinating field of study. The GI tract is a vital organ system that plays a number of important roles in the body. By understanding the physiology of the GI tract, we can better understand the causes of GI disorders and develop more effective treatments for these conditions.



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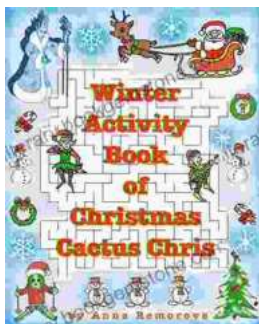
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