63a A&P: Digestive System

63a A&P: Digestive System

Class Outline

5 minutes	Attendance, Breath of Arrival, and Reminders
10 minutes	Lecture:
25 minutes	Lecture:
15 minutes	Active study skills:
60 minutes	Total

63a A&P: Digestive System

Class Reminders

ABMP Exam Coach

- "Access your ABMP account" using instructions on page A-74
- Familiarize yourself with ABMP Exam Coach, especially the "Study Subjects" section
- Preview the preparation assignments for MBLEx Prep classes (74a, 75a, 80a, 81a, 84a, 86a, 87a)

Assignments:

- 64b Executive Summary (due before the end of class)
  Packet pages 21-22; Sections 1-4 to be done ***in*** class.
  Completed Executive Summary to be handed in at end of class.
- 66a Review Questions (due before class starts)

Quizzes and Exams:

- 66a Quiz (59a, 61a, 62a, 63a, 64a/b, 65a/b)
- 68a Kinesiology Quiz

Preparation for upcoming classes:

- 63a A&P: Digestive System
  Packet E: 153-160.; RQ – Packet A-199-200
- 63b Full SOAP notes - Integration Massage: Swedish, Passive Stretches, BMTs, and Deep Tissue; Packet F - 58

Classroom Rules

Punctuality - everybody's time is precious

- Be ready to learn at the start of class; we'll have you out of here on time
- Tardiness: arriving late, returning late after breaks, leaving during class, leaving early

The following are not allowed:

- Bare feet
- Side talking
- Lying down
- Inappropriate clothing
- Food or drink except water
- Phones that are visible in the classroom, bathrooms, or internship

You will receive one verbal warning, then you'll have to leave the room.

63a A&P: Digestive System

Packet E - 153

Introduction

Digestive functions are initiated by the ___parasympathetic___ division of the nervous system.

Because digestion requires an expenditure of energy, it occurs primarily during periods of ___low___ activity.

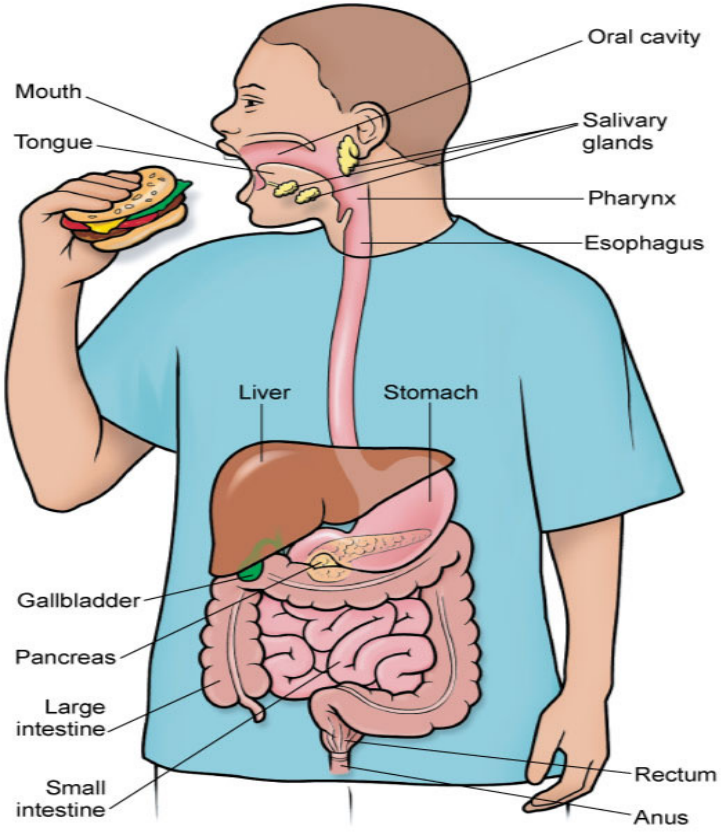
Stress and emotional responses serve to slow digestion because they stimulate the ___sympathetic___ nervous system.

Introduction

People in high-stress or high-responsibility positions are more likely than others to have problems with ulcers, heartburn, colitis, irritable bowel syndrome, and constipation because of frequent disruption of the digestive process.

The digestive system is primarily a long _____tube_____ with accessory organs and glands.

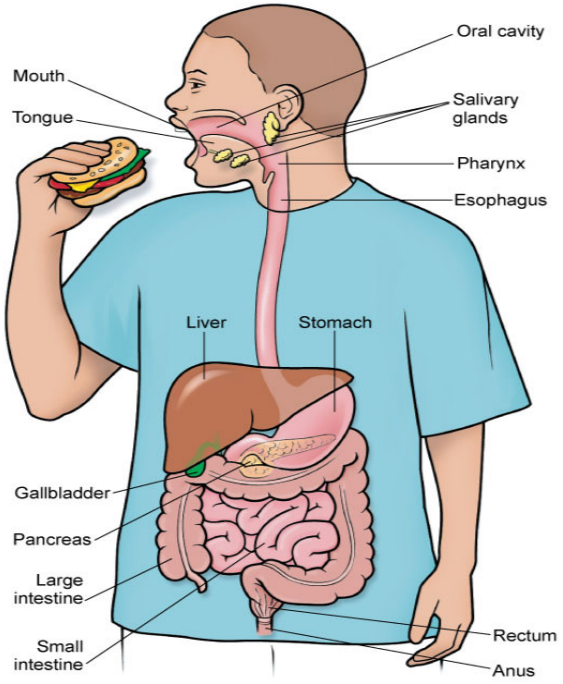
Fun Fact



In an average lifetime, one person consumes 80,000 pounds of food!

Introduction

Gastrointenstinal tract (AKA: G.I. tract or alimentary canal) Muscular passageway of the digestive system. Leads from the mouth to the anus.



Response Moment

Which division of the autonomic nervous system initiates digestion?

Response Moment

Which division of the autonomic nervous system initiates digestion?

Parasympathetic division

What is the name of the muscular passageway of the digestive system?

Response Moment

Which division of the autonomic nervous system initiates digestion?

Parasympathetic division

What is the name of the muscular passageway of the digestive system?

Gastrointestinal tract

Anatomy

Gastrointenstinal Tract:

- Oral cavity
- Pharynx
- Esophagus
- Stomach
- Small intestine
- Large intestine

Accessory Organs:

- Salivary glands
- Pancreas
- Liver
- Gallbladder

FUNCTIONS OF THE DIGESTIVE SYSTEM

FUNCTIONS OF THE DIGESTIVE SYSTEM

FUNCTIONS OF THE DIGESTIVE SYSTEM

Ingestion

Digestion

FUNCTIONS OF THE DIGESTIVE SYSTEM

Absorption

Ingestion

Digestion

FUNCTIONS OF THE DIGESTIVE SYSTEM

Absorption

Defecation

Physiology

Ingestion Process of orally taking materials into the body (eating and drinking).

Physiology

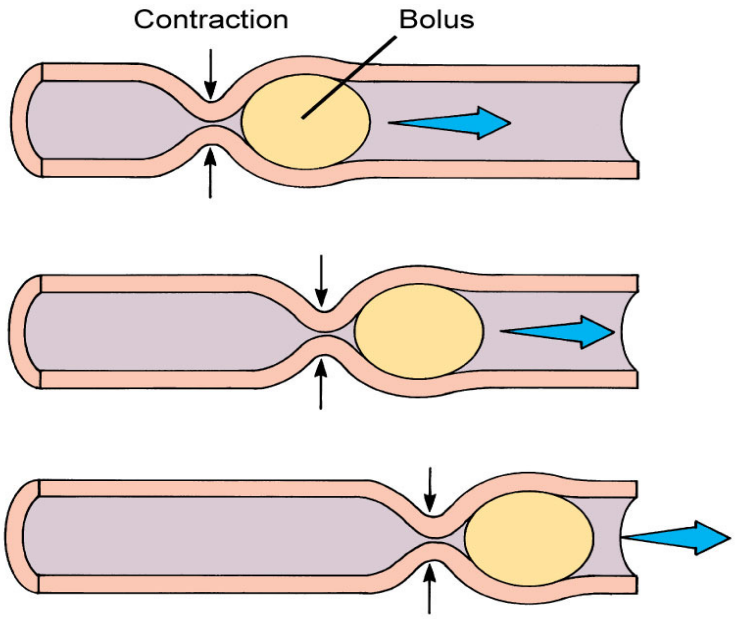
Digestion Series of mechanical and chemical processes that occur as food is broken down into simple molecules.

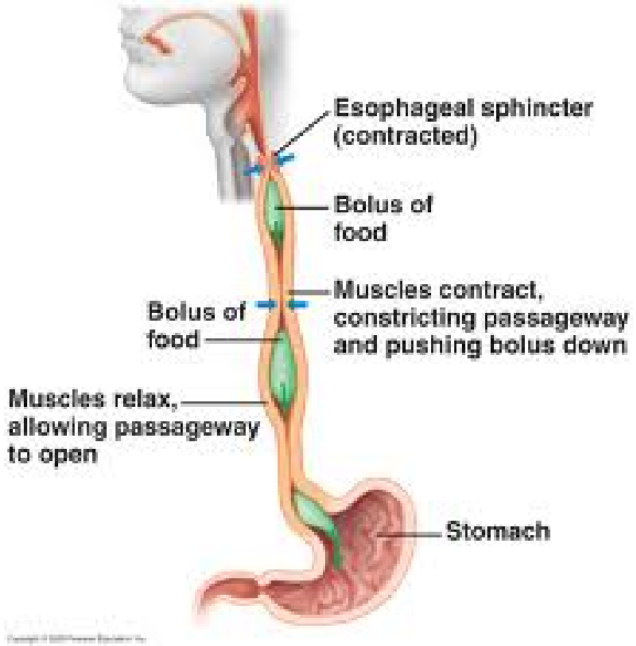
Physiology

Mechanical digestion Digestive process that includes chewing, churning in the stomach, and peristalsis.

Physiology

Peristalsis Wave-like contractions that mix and propel materials in the gastrointestinal tract.



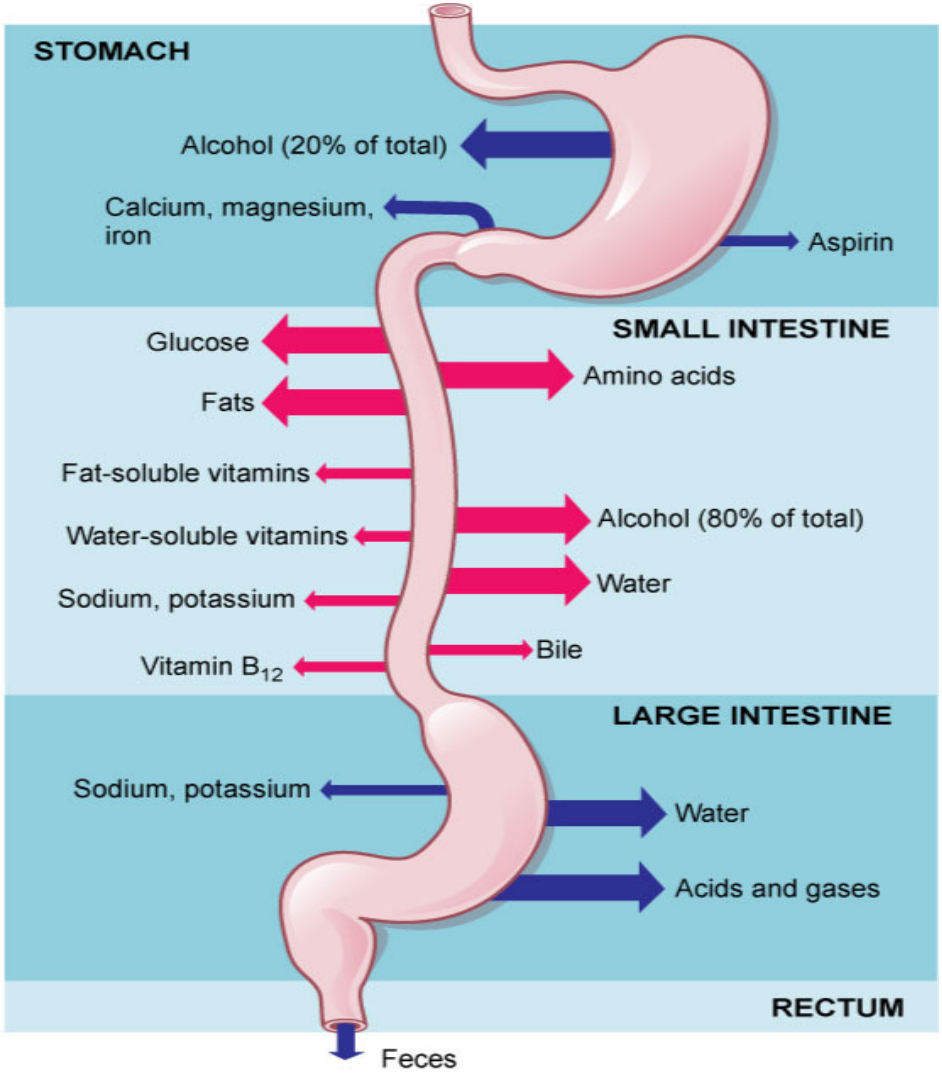


Physiology

Chemical digestion More significant of the two digestive processes. Includes the effects of acids, bases, and enzymes that are released into the digestive tract in response to food.

Physiology

Absorption Process by which simple molecules from the digestive tract are moved into the bloodstream or lymph vessels and then into the body's cells.


STOMACH
Alcohol (20% of total)
Calcium, magnesium, iron
Aspirin
SMALL INTESTINE
Glucose
Amino acids
Fats
Fat-soluble vitamins
Alcohol (80% of total)
Water-soluble vitamins
Water
Sodium, potassium
Bile
Vitamin B_{12}
LARGE INTESTINE
Sodium, potassium
Water
Acids and gases
RECTUM
Feces

Physiology

Defecation Process of ___eliminating___ indigestible or unabsorbed material from the body.

Response Moment

What are the 4 physiologies of the digestive system?

1.

2.

3.

4.

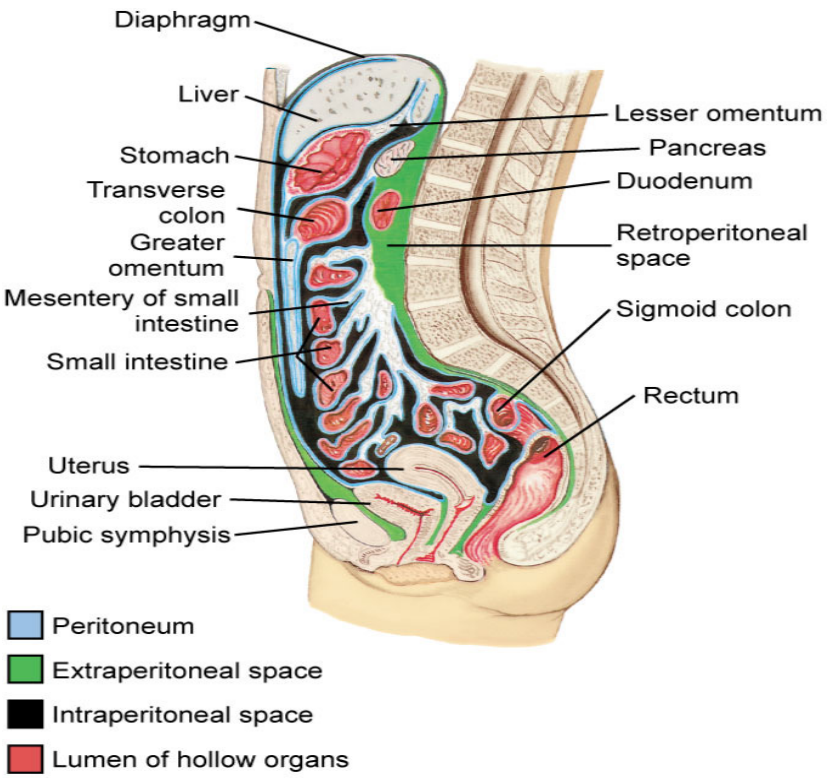
Response Moment

What are the 4 physiologies of the digestive system?

1. Ingestion
2. Digestion
3. Absorption
4. Defecation

Peritoneum

Peritoneum Serous membrane of the abdominal cavity that surrounds the organs within it.



Response Moment

Name the serous membranes:

1. Covers the lungs and lines the thoracic cavity?

2. Covers the heart and lines the mediastinum?

3. Covers the viscera (digestive organs) and lines the abdominopelvic cavity?

Response Moment

Name the serous membranes:

1. Covers the lungs and lines the thoracic cavity?

   Pleura

2. Covers the heart and lines the mediastinum?

   Pericardium

3. Covers the viscera (digestive organs) and lines the abdominopelvic cavity?

   Peritoneum

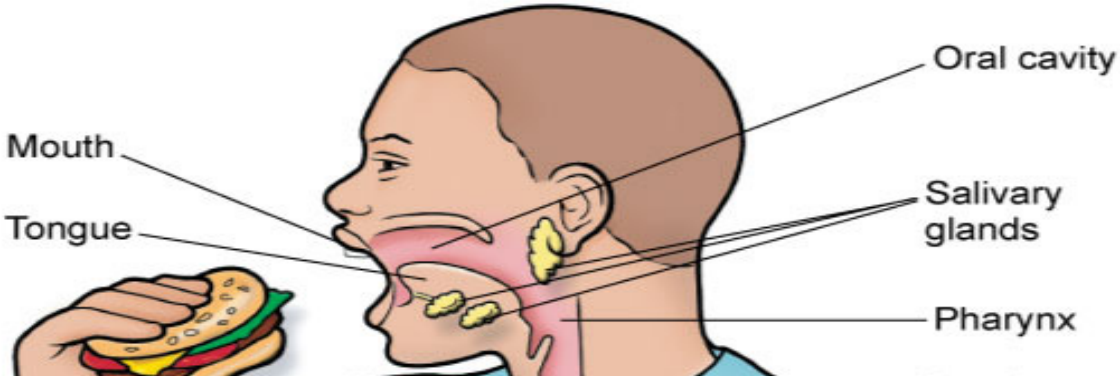
Oral Cavity

Oral cavity (AKA: mouth) First portion of the gastrointestinal tract where food is masticated, chemically broken down, and mixed with saliva.

Tongue

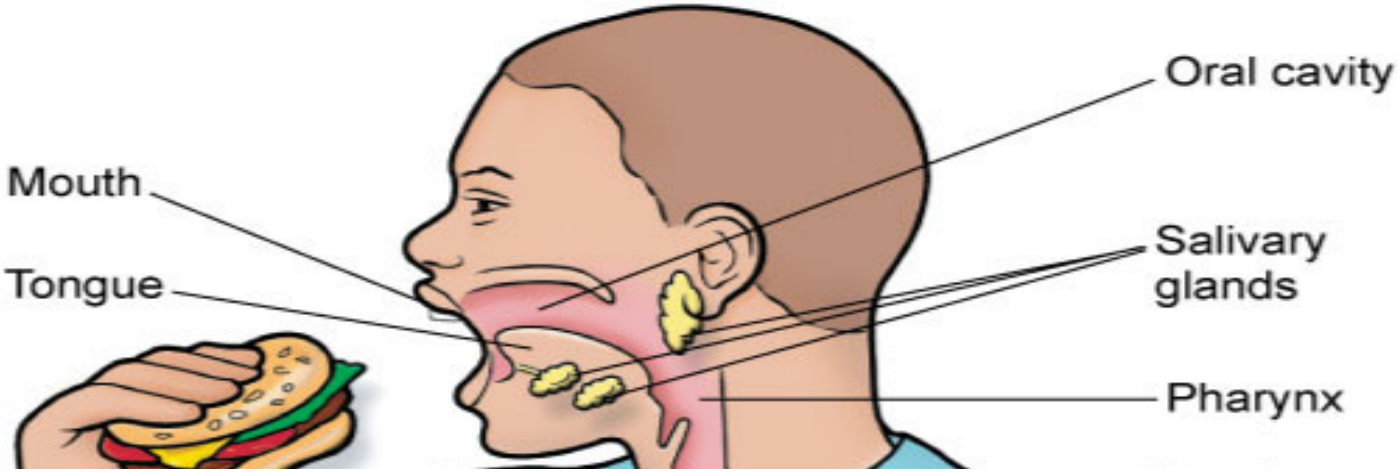
Teeth

Salivary glands



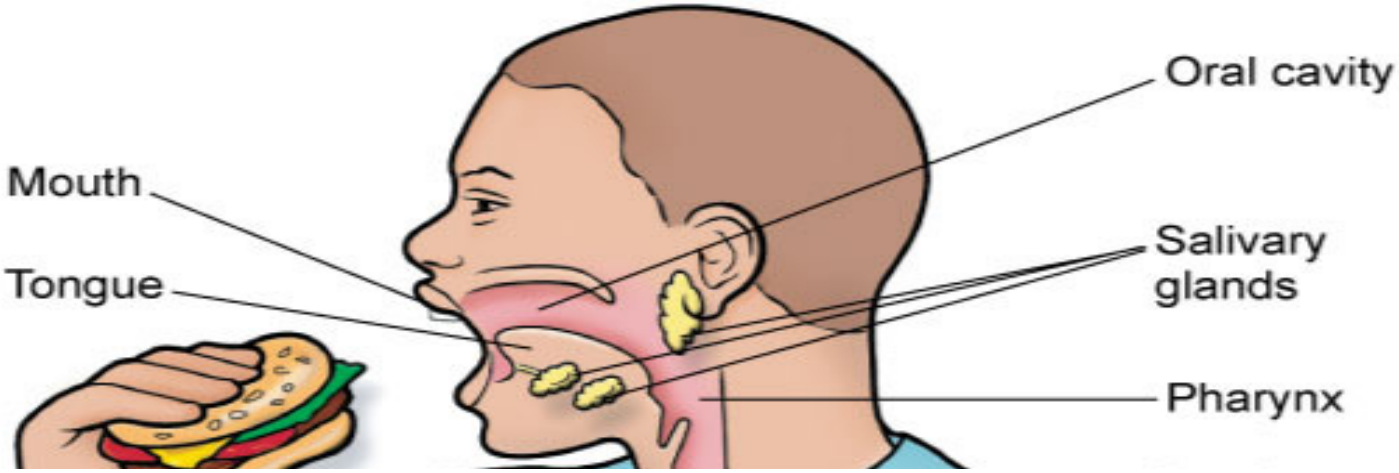
Oral Cavity

Mastication Chewing.



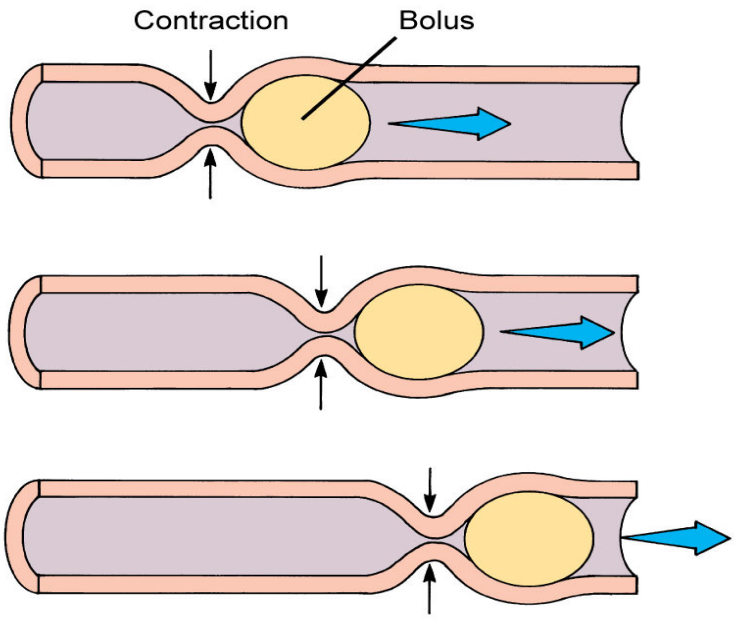
Oral Cavity

Saliva Fluid secreted by salivary and mucous glands in the mouth. Lubricates food and contains digestive enzymes that break down lipids and carbohydrates.



Oral Cavity

Bolus Soft ball of ___chewed___ food.



Oral Cavity

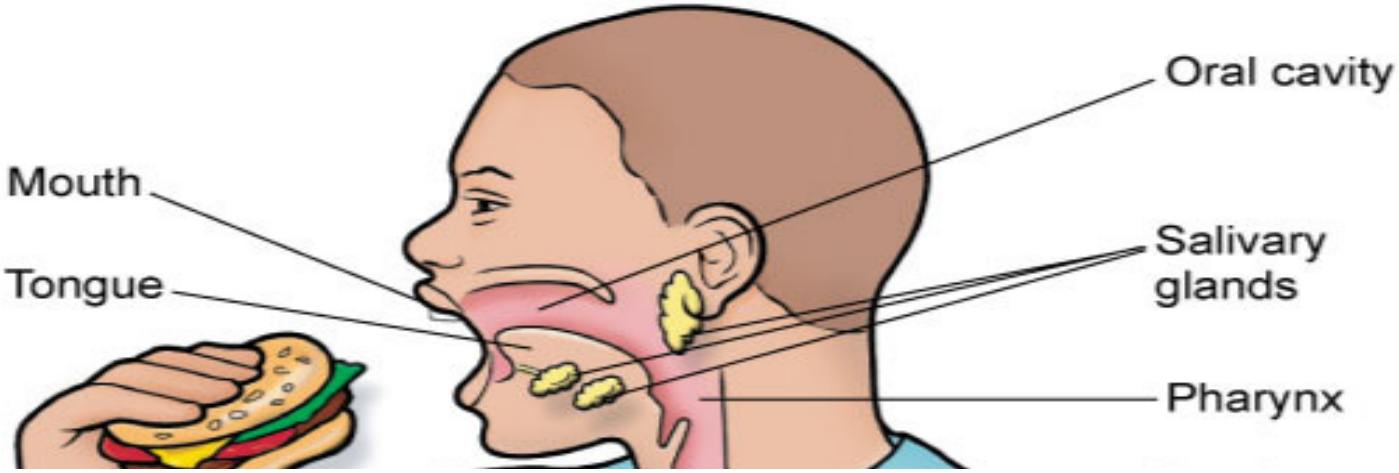
Tongue Large, strong muscle that mixes food particles with saliva and directs the bolus towards the back of the throat.

Teeth Accessory structures used to bite off and mechanically break up larger pieces of food into smaller ones that can be swallowed.

Salivary glands Three paired glands that secrete saliva into the oral cavity. Examples: submandibular, sublingual, and parotid.

Oral Cavity

Enzyme A catalyst that ___accelerates___ chemical reactions.



Response Moment

Draw and label the oral cavity:

What is mastication?

What is saliva?

What is bolus?

Response Moment

Draw and label the oral cavity:

What is mastication?

Chewing

What is saliva?

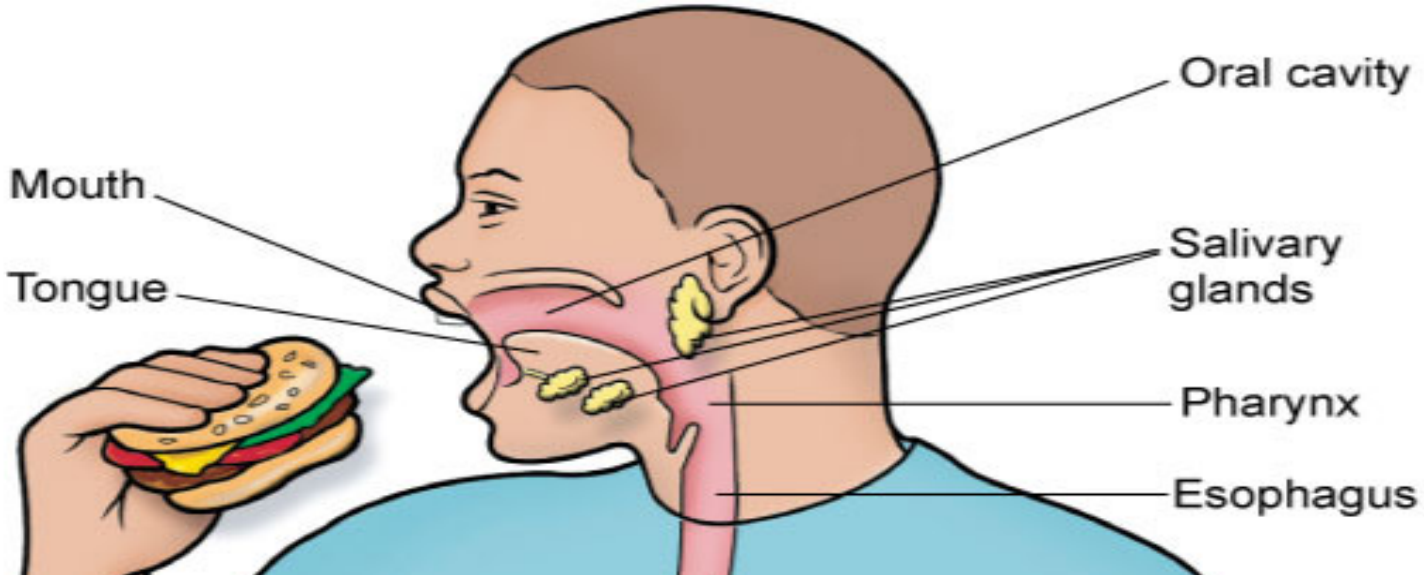
Lubricates food and contains digestive enzymes to chemically break down food

What is bolus?

Soft ball of chewed food

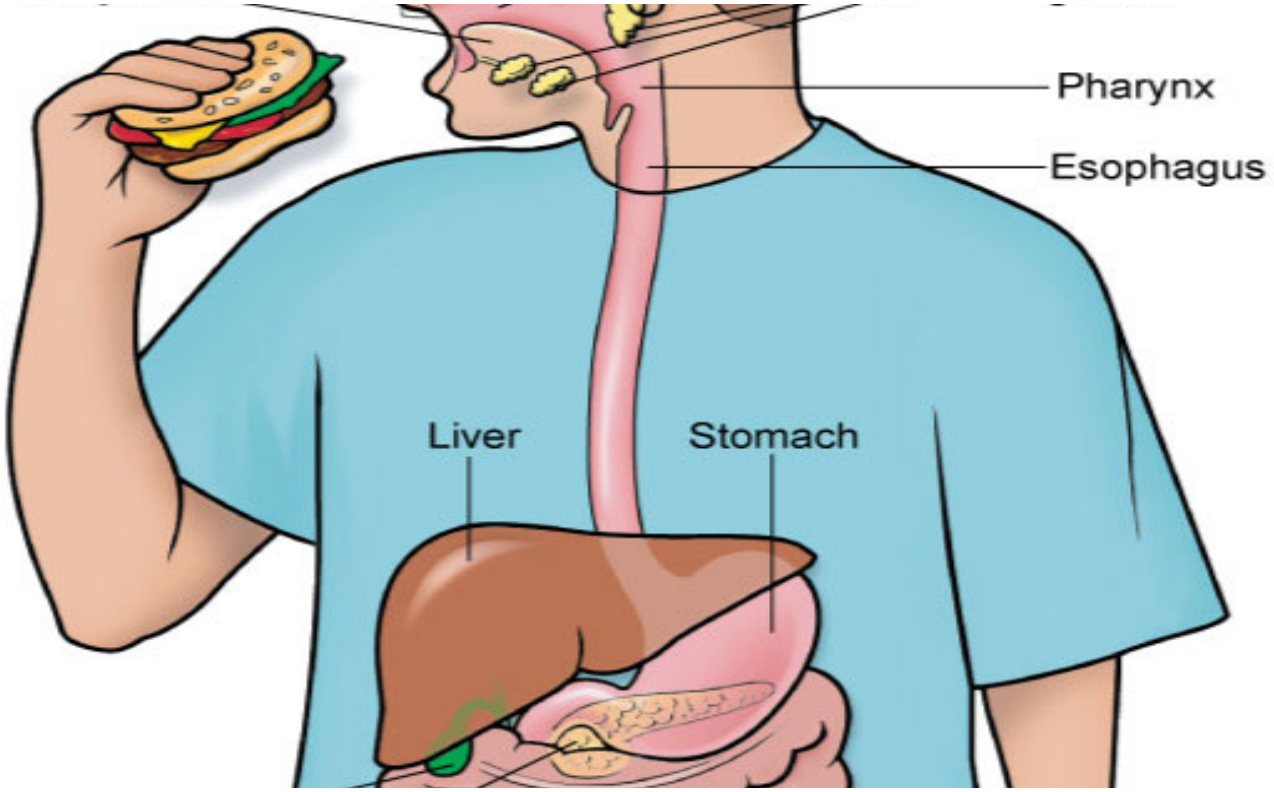
Pharynx

Pharynx (AKA: throat) Muscular tube shared by respiratory and digestive systems.



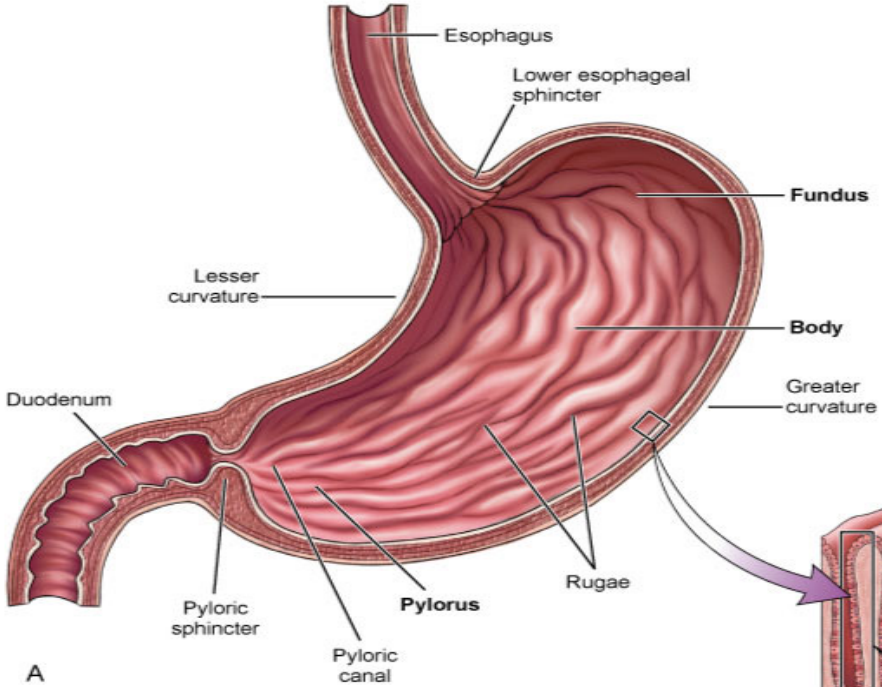
Esophagus

Esophagus Muscular tube that connects the pharynx to the stomach.



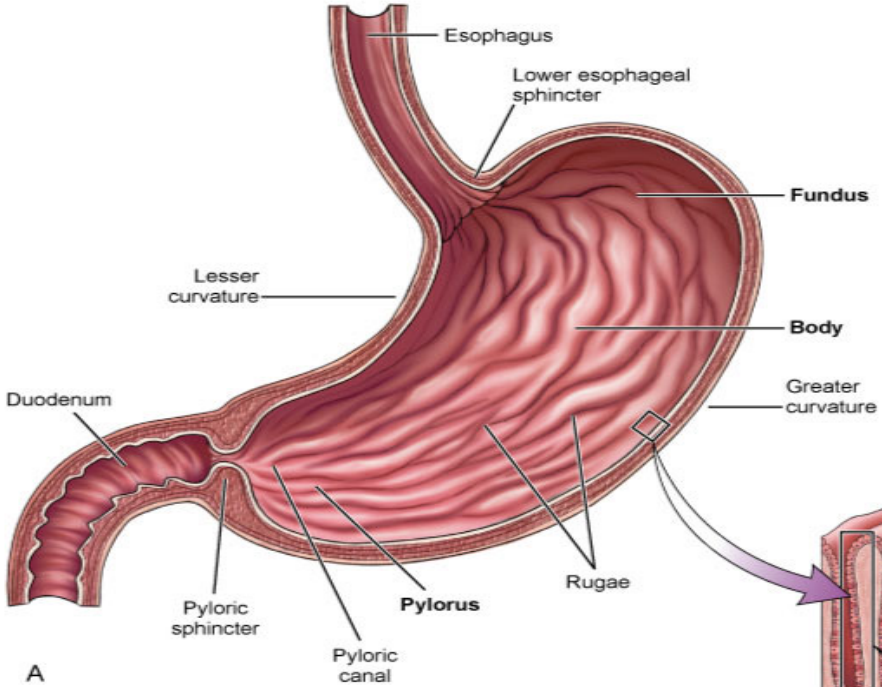
Esophagus

Sphincter Ring of muscle that remains contracted or _____closed_____ until it is triggered to relax and open. Examples: upper esophageal, lower esophageal, pyloric, iliocecal, and anal.



Stomach

Stomach Organ that is an enlargement of the gastrointestinal tract, bound at both ends by sphincters. Breaks bolus of food down into chyme. Secretes the digestive enzyme that breaks down proteins.

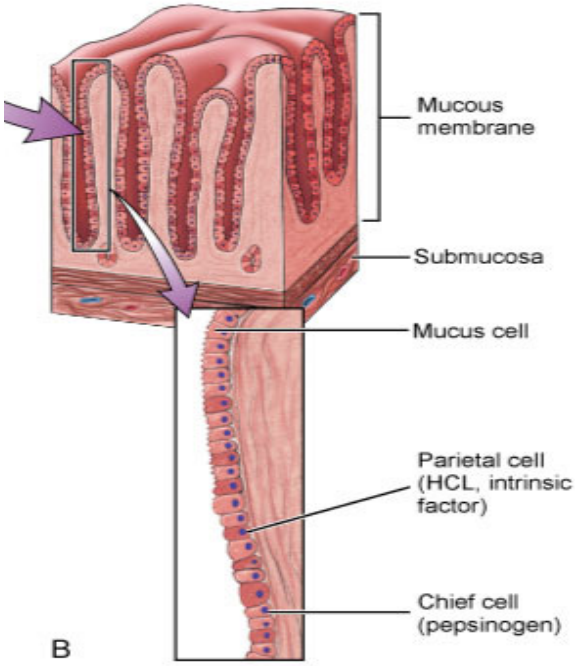


Stomach

Chyme Semi-liquid substance created by churning bolus and gastric juices in the stomach.

Stomach

Gastrin Hormone secreted by the stomach that initiates the production and secretion of gastric juices and stimulates bile and pancreatic enzyme emissions into the small intestines.

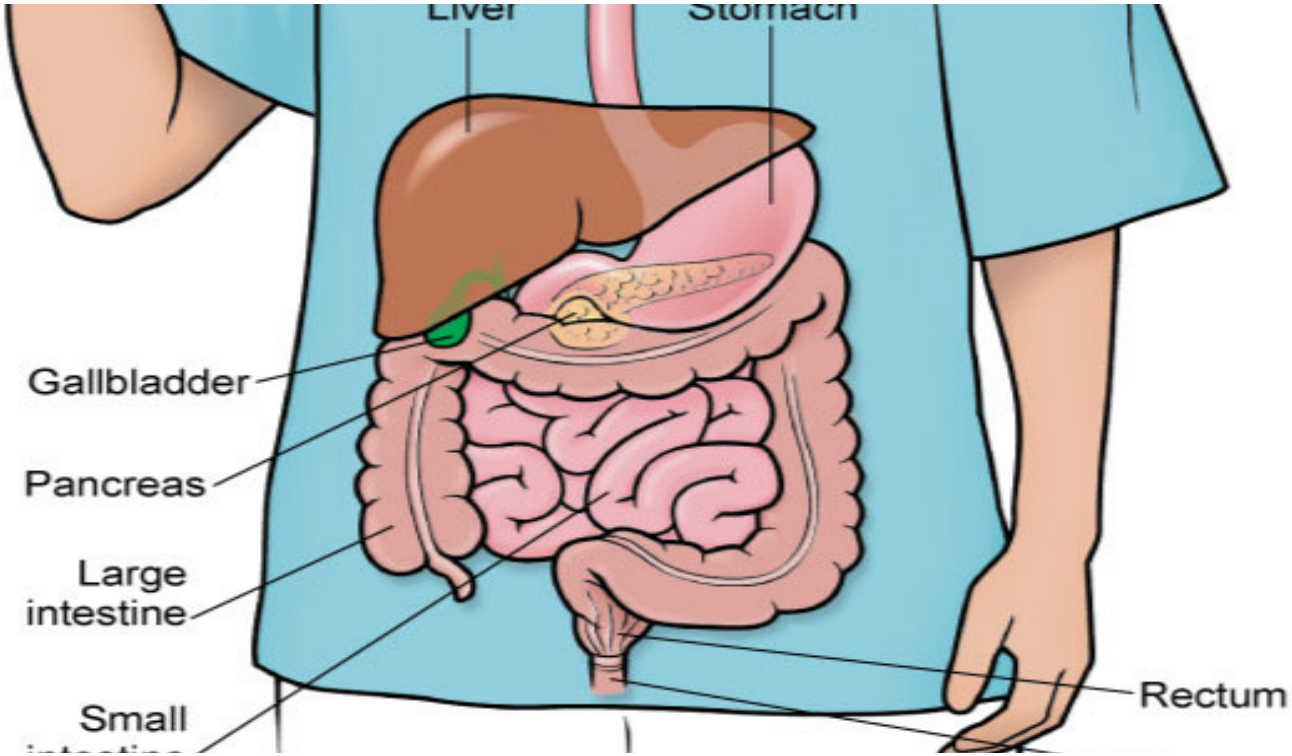


Stomach

Gastric juices Fluid secreted by the walls of the stomach. Hydrochloric acid, enzymes, mucus, and water.

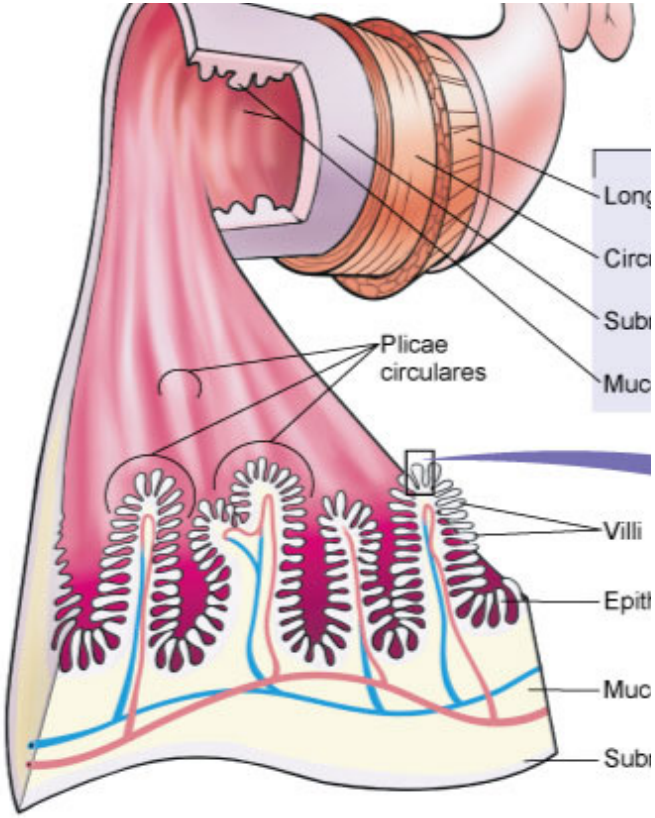
Small Intestines

Small intestine (AKA: small bowel) longest section of the G.I. tract. Situated in the central abdomen. Consists of the duodenum, jejunum, and ileum. 90% of nutrient absorption occurs here.



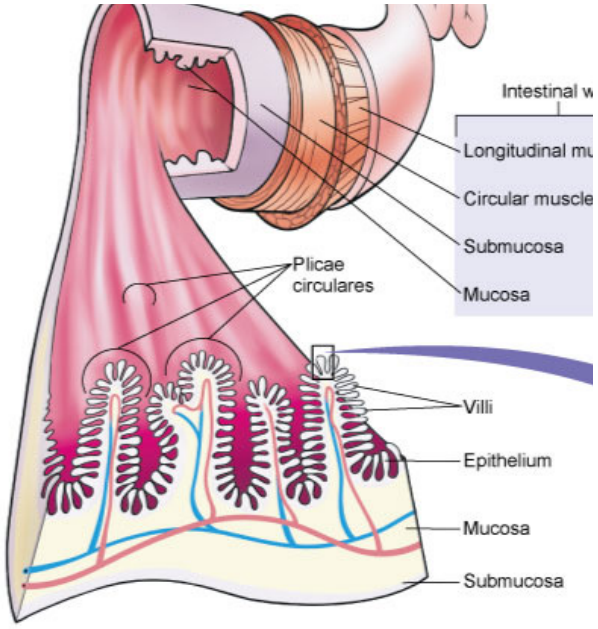
Small Intestines

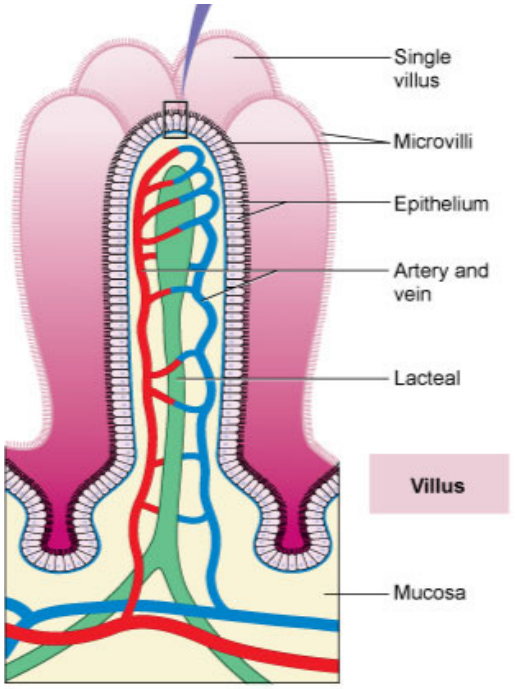
Plicae circulares Circular folds on the inside walls of the small intestine.



Small Intestines

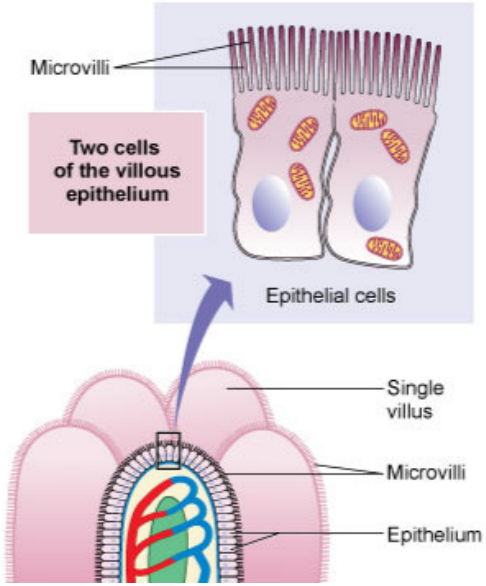
Villi Finger -like projections on the plicae circulares the small intestine that house blood and lymph capillaries.





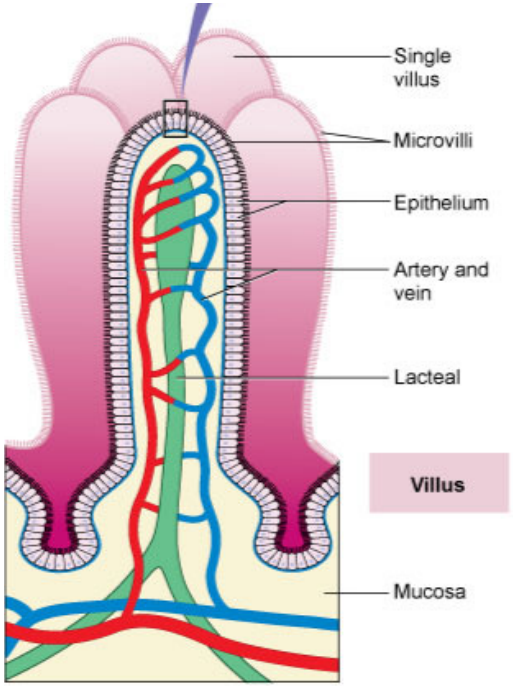
Small Intestines

Microvilli Microscopic protrusions from cellular membrane of villi.



Small Intestines

Lacteals Lymph capillaries within villi of the small intestine that assist in the absorption of ___fat___.

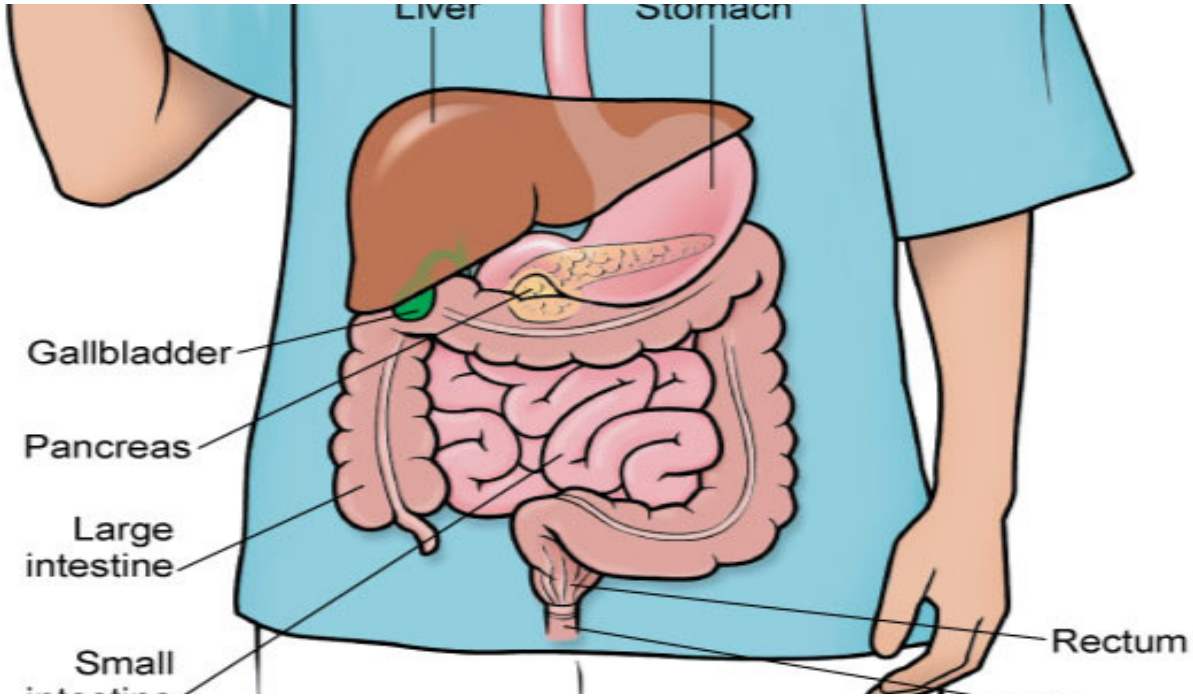


Small Intestines

Duodenum First portion of the small intestine.

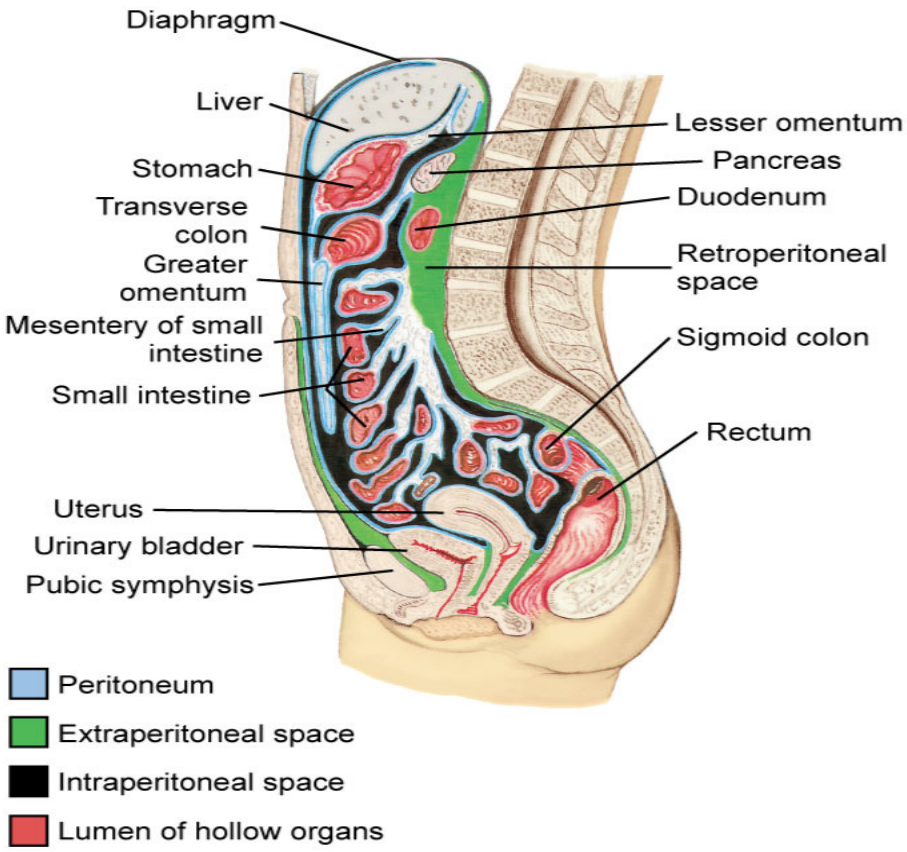
Jejunum Intermediate portion of the small intestine.

Ileum Final portion of the small intestine.



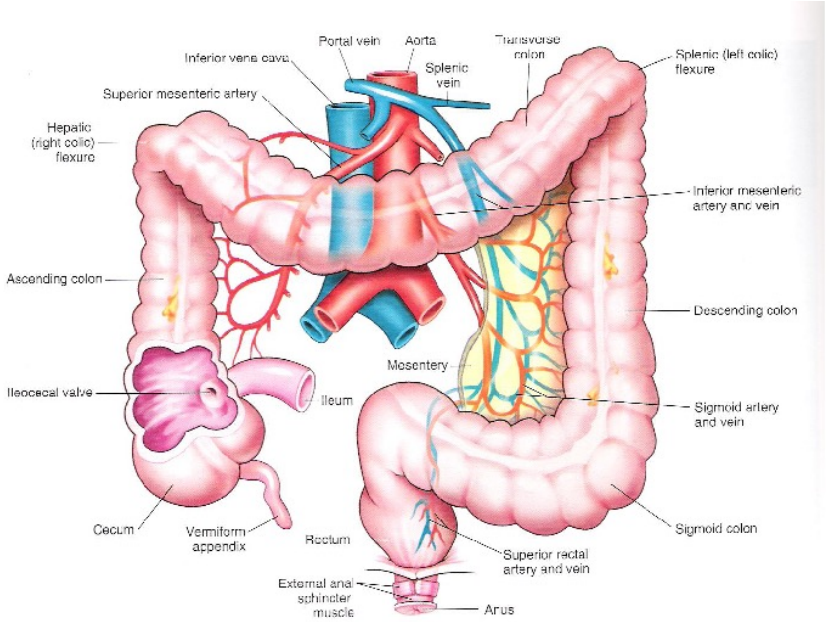
Small Intestines

Mesentery Section of the peritoneum. Consists of lesser and greater omenta.



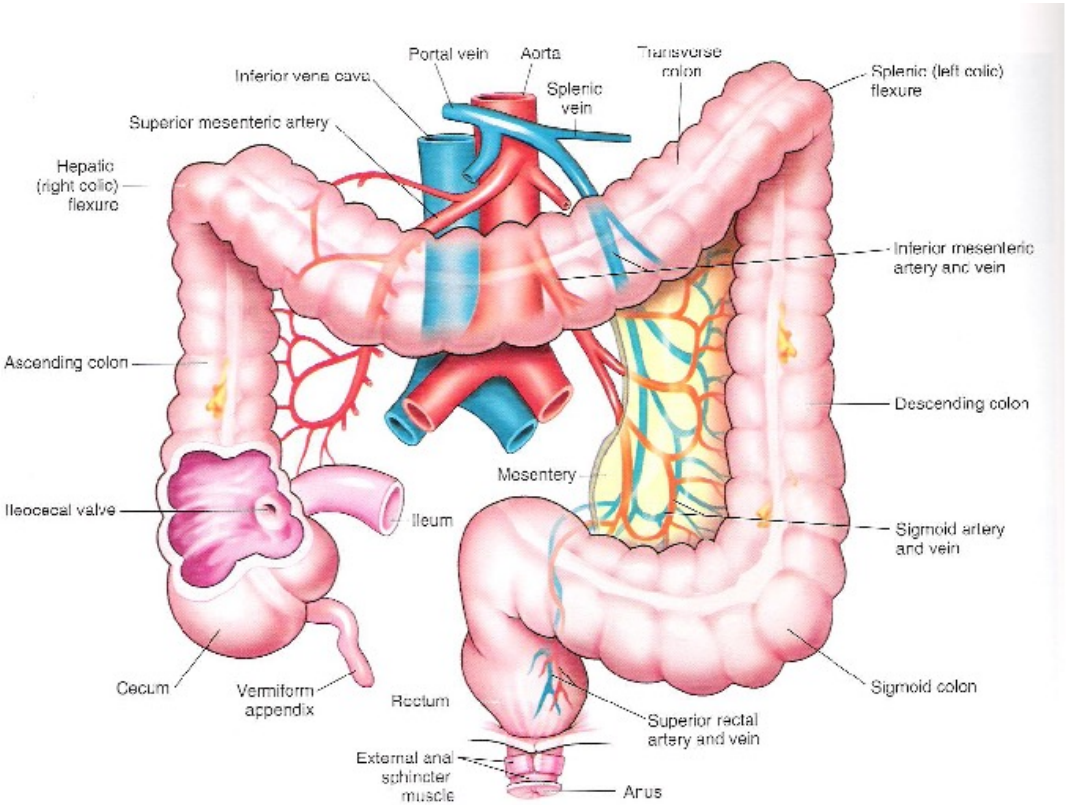
Large Intestines

Large intestine (AKA: colon) Final section of the gastrointestinal tract through which undigested and unabsorbed food moves before the body eliminates it. Also forms and stores ___feces___ until defecation. Consists of the cecum, ascending colon, transverse colon, descending colon, sigmoid colon, and rectum.



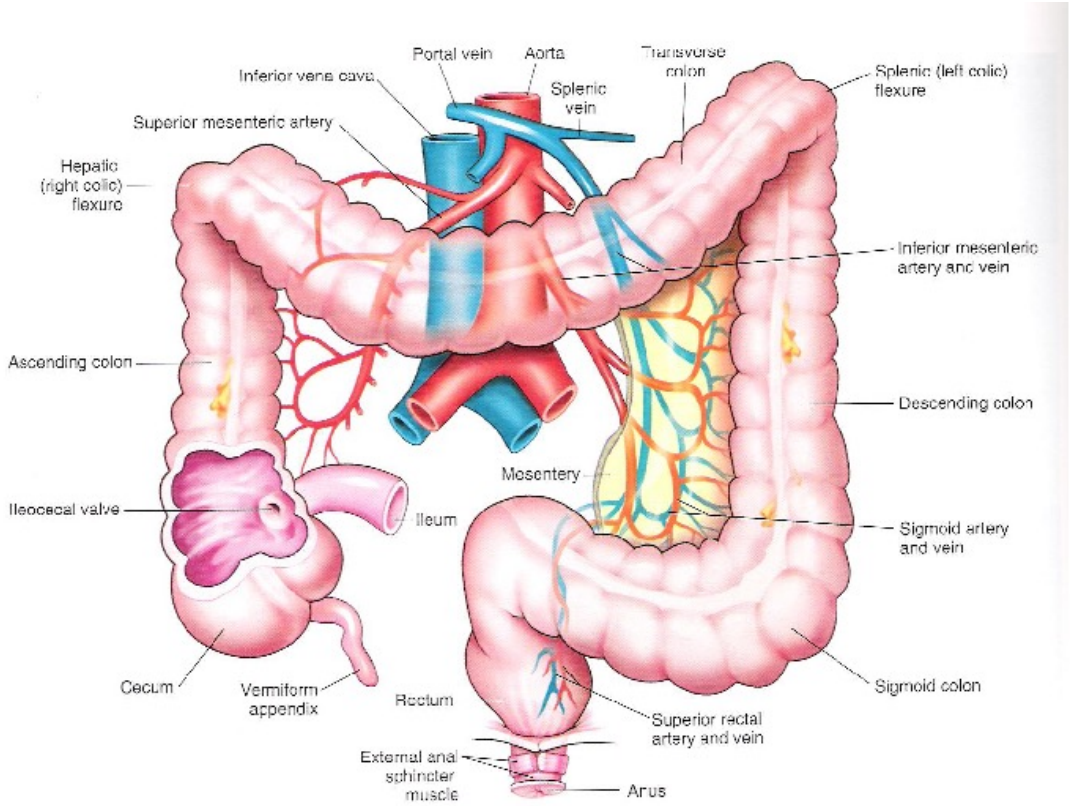
Large Intestines

Cecum Small, sac-like structure that is the first section of the large intestine.



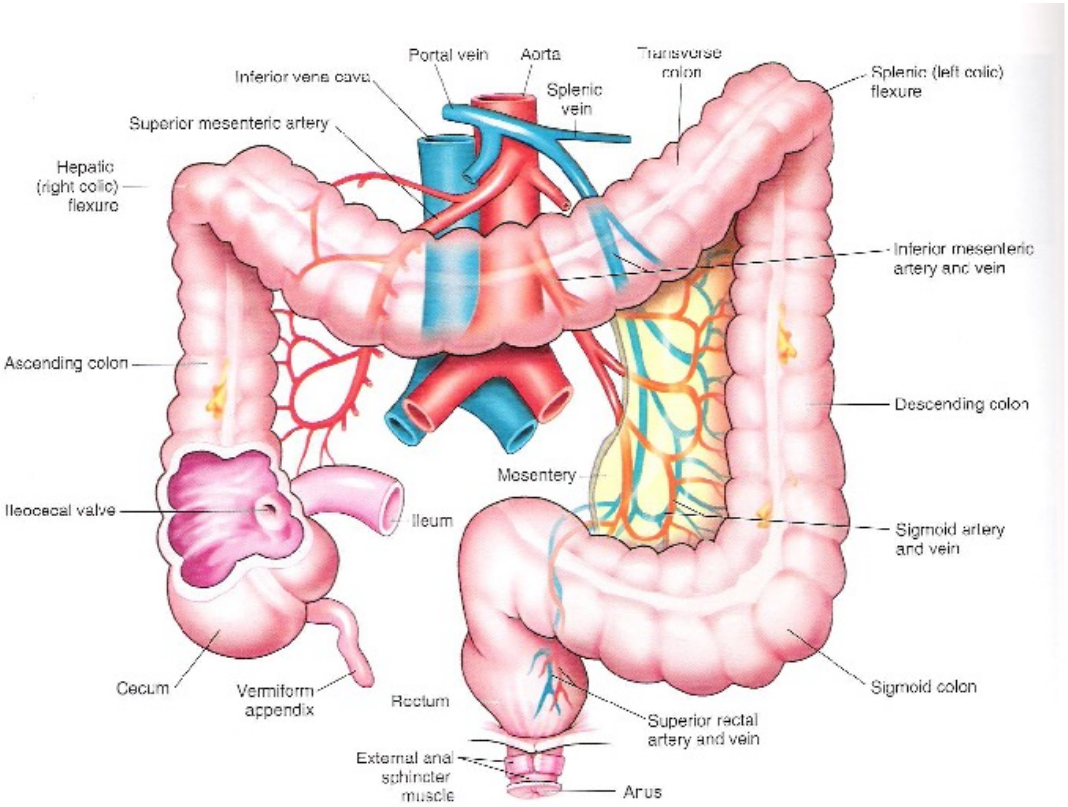
Large Intestines

Ascending colon The portion of the large intestine that extends from the cecum to the hepatic flexure.



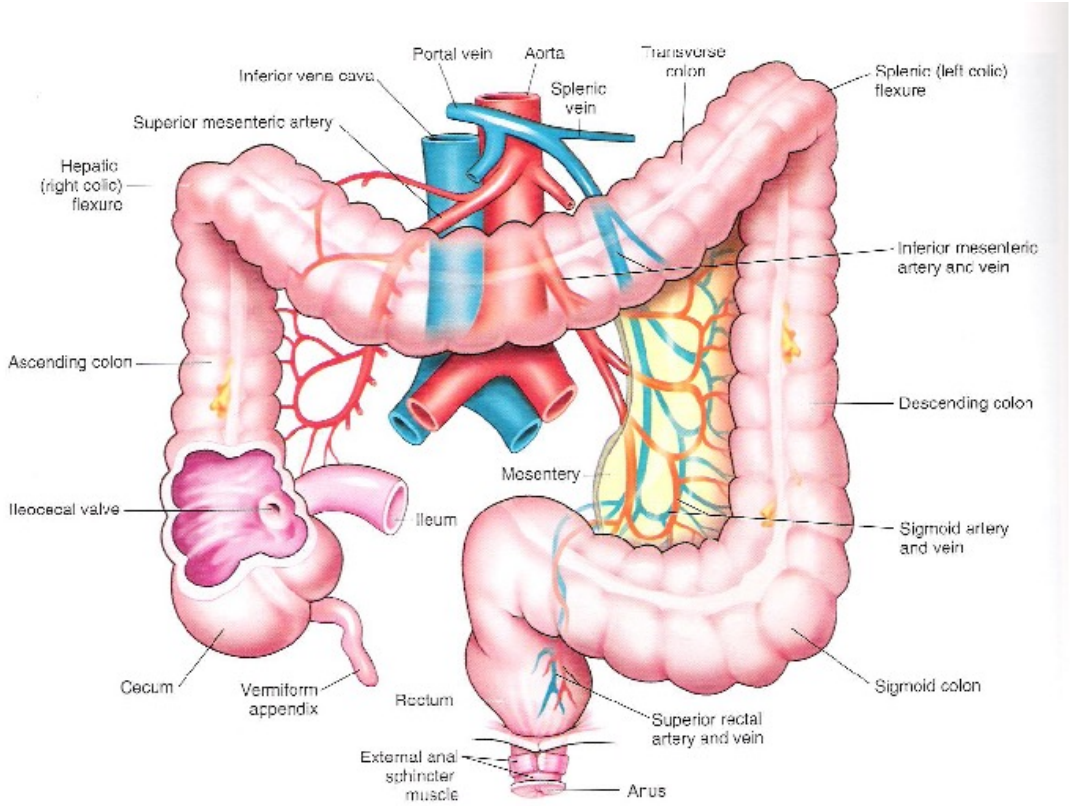
Large Intestines

Transverse colon The horizontal portion of the large intestine between the hepatic flexure and splenic flexure.



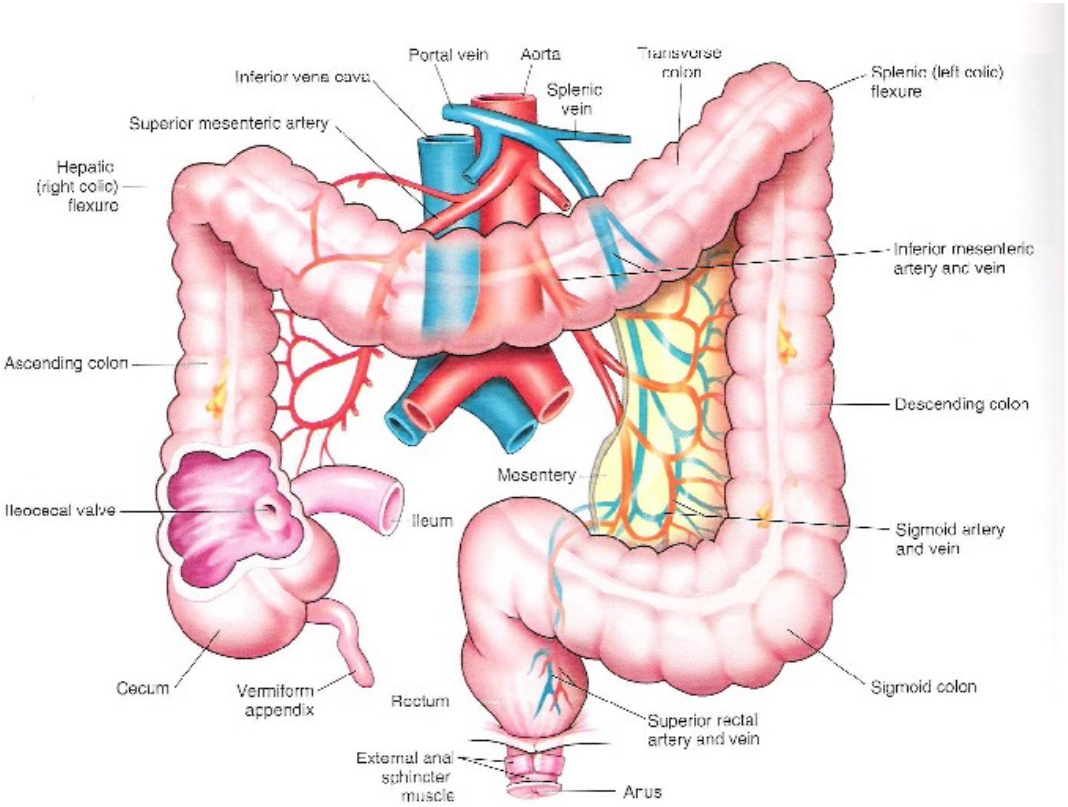
Large Intestines

Descending colon The portion of the colon that extends from the splenic flexure to the sigmoid flexure.



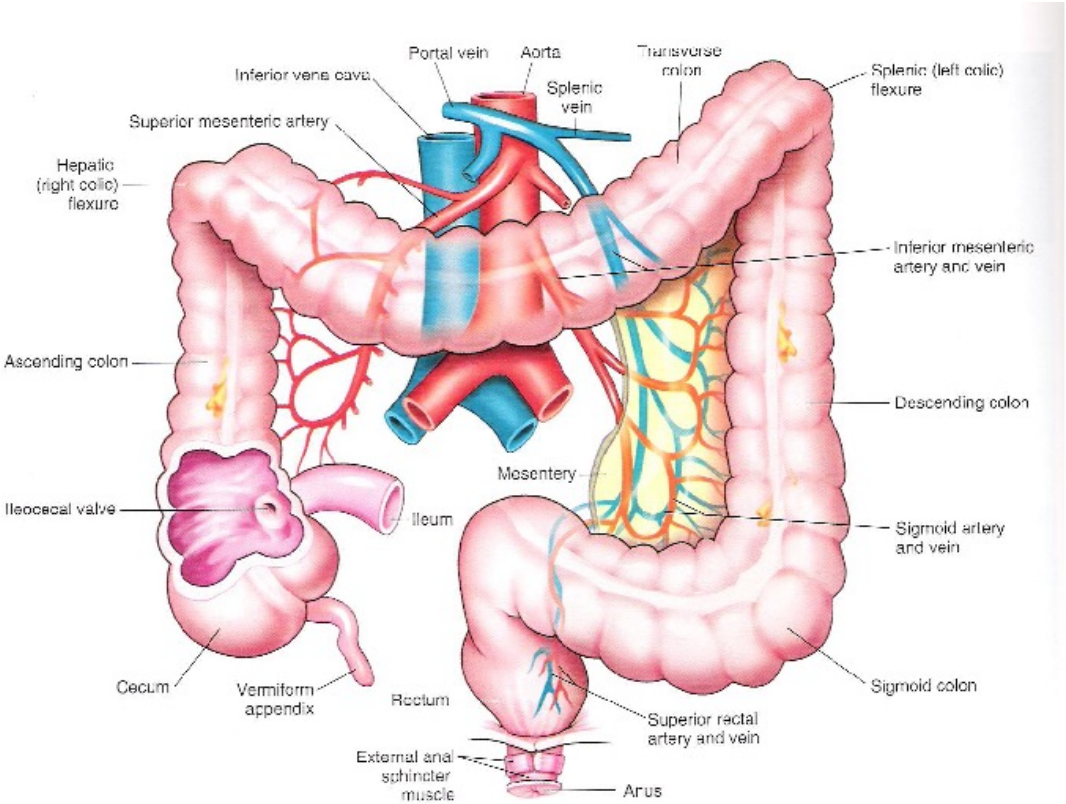
Large Intestines

Sigmoid colon The S-shaped part of the colon in between the sigmoid flexure and the rectum.



Large Intestines

Rectum Section of the large intestine between the sigmoid colon and the anal canal.

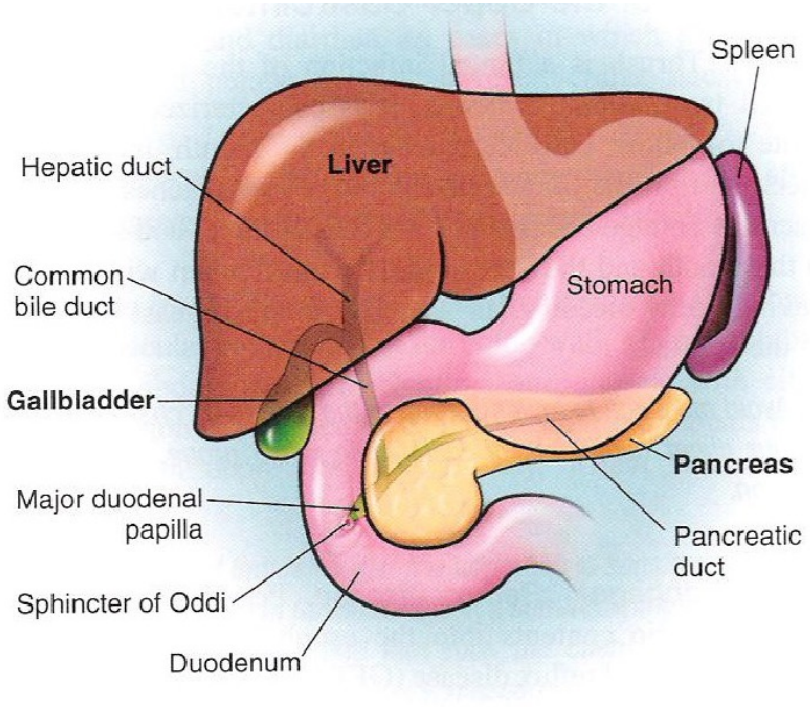


Large Intestines

Defecation Process of eliminating indigestible or unabsorbed material from the body.

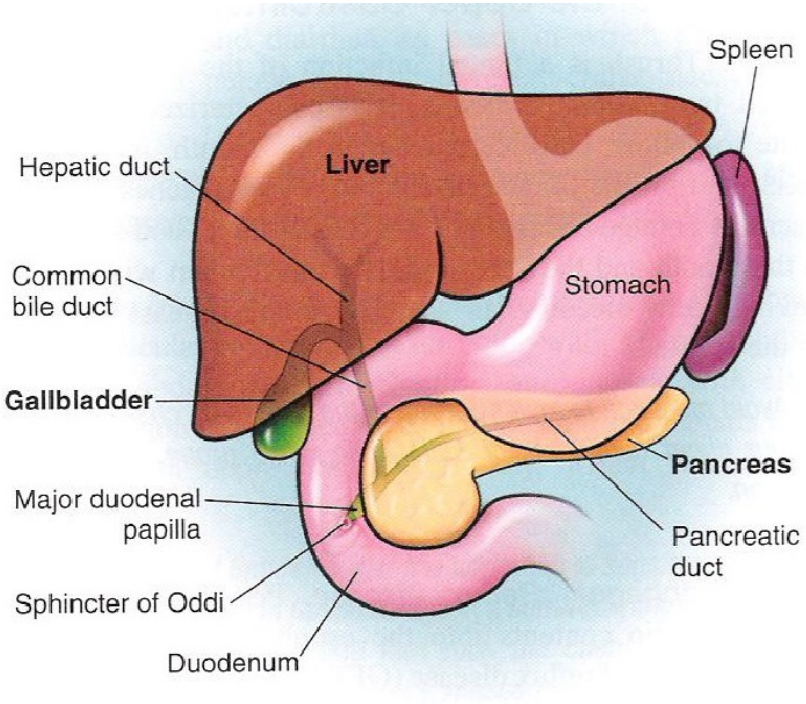
Accessory Organs

Liver Organ located in the upper right quadrant of the abdominal cavity. Largest and most complex internal organ. Filters toxins, produces bile, metabolizes nutrients, and produces plasma proteins.



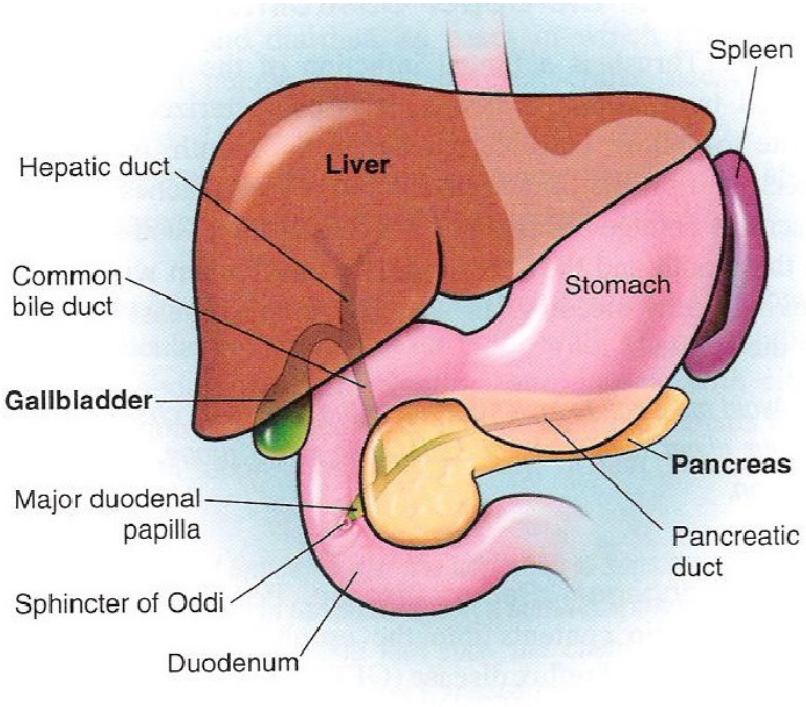
Accessory Organs

Bile Emulsifies fat. Produced in the liver and stored in the gallbladder.



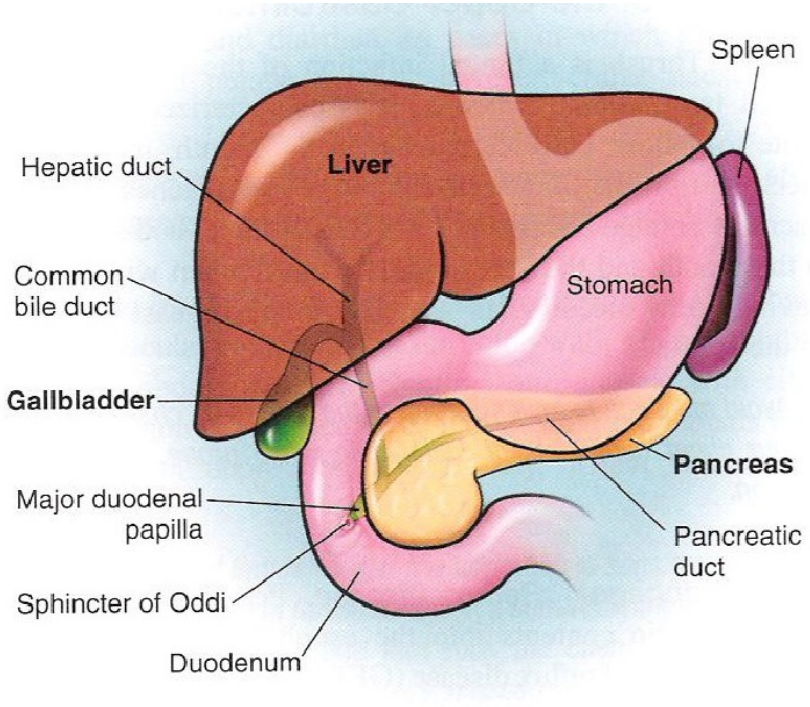
Accessory Organs

Gallbladder Hollow organ located on the inferior surface of the liver. Stores bile.



Accessory Organs

Pancreas Organ located behind to the stomach. Both an endocrine gland that secretes insulin and glucagon, and an exocrine gland that secretes enzymes that break down proteins, carbohydrates, and fats.



Response Moment

What are the 3 digestive accessory organs?

1.

2.

3.

Response Moment

What are the 3 digestive accessory organs?

1. Liver
2. Gallbladder
3. Pancreas

63a A&P: Digestive System