2.08 Understand the functions and disorders of the digestive system
2.08 Understand the functions and disorders of the digestive system

Essential questions

- What are the functions of the digestive system?
- How do the functions of chemical and physical digestion interrelate?
- What are the common disorders of the digestive system?
- How are disorders of the digestive system treated?
- How do you relate the body’s use of nutrients to the digestive system?
Understand the functions of the digestive system

1. **Mouth**: Teeth and tongue begin mechanical digestion by breaking apart food.
2. **Salivary Glands**: Begin chemical digestion as ptyalin begins to change starch to maltose.
3. **Esophagus**: Peristalsis and gravity move food along.
4. **Stomach**: Hydrochloric acid prepares the gastric area for enzyme action. Pepsin breaks down proteins. In children, rennin breaks down milk proteins. Lipase acts on emulsified fats.
5. **Liver**: Produces bile.
6. **Gallbladder**: Stores bile and releases it into small intestine to emulsify fats.
7. **Pancreas**: Enzymes are released into the small intestine. Amylase breaks down starch. Steapsin breaks down fats. Pancreatic proteases break down proteins.
8. **Small Intestine**: Produces enzymes, prepares foods for absorption, lactase converts lactose, maltase converts maltose, sucrase converts sucrose to simple sugars. Peptidases reduce proteins to amino acids. Primary location of absorption.
9. **Large Intestine**: Absorbs water and some other nutrients, and collects food residue for excretion.

2.08 Understand the functions and disorders of the digestive system
Functions of the digestive system

Mouth (buccal cavity)

- What digestive system functions occur in the mouth?

What is bolus?
Functions of the digestive system

Tongue

What is the digestive system function of the tongue?
Functions of the digestive system

Teeth

- Define mastication.
- How is the tooth’s shape related to its function?
  - Incisors
  - Cuspids
  - Bicuspids
  - Molars

2.08 Understand the functions and disorders of the digestive system
Functions of the digestive system

Salivary glands

- What is the function of the salivary glands?

- What chemical action takes place in the mouth as a result?
Functions of the digestive system

What are the functions of these oral cavity structures?

- Palate
- Uvula
Functions of the digestive system

PHARYNX

- What does the pharynx do?
Functions of the digestive system

Esophagus

- What does the esophagus do?
- What is its relevance to your health?
Functions of the digestive system

Stomach

- What are the functions of the stomach?
- What chemicals are released there?
- How long does it take for the stomach to empty?
Functions of the digestive system

**Gastric juices**
- Enteroendocrine glands
  - gastrin
- Parietal cells
  - HCL and intrinsic factor
- Chief type cells
  - pepsinogen
- Mucus cells
  - alkaline mucus
- Rennin

2.08 Understand the functions and disorders of the digestive system
Functions of the digestive system

Small Intestine

- What digestive process occurs here?
- What are villi?
- What is the relevance to your health?
Functions of the digestive system

Pancreas

- What digestive enzymes are secreted by the pancreas?

- What is the function of the pancreas?

Which other system does the pancreas function?
Functions of the digestive system

Liver

- What are the functions of the liver?

What is the function of
- bile
- glycogen?

- What vitamin is produced by the liver? Why is it important?
Functions of the digestive system

Gallbladder

- What is the function of the gallbladder?
- Why is this function important?
Functions of the digestive system

- **Large intestine**
  - What are the functions of the large intestines?
  - What is its relevance to health?
  - What type of diet promotes colon health?

**What is chyme?**

**What is the semi-solid liquid secreted from the ileum through the ileocecval valve called that enters the large intestine?**

2.08 Understand the functions and disorders of the digestive system
Understand the functions of the digestive system

- Discuss the processes of digestion and their relevance to health.
  - Chemical
  - Physical
  - Absorption
  - Elimination
Functions of the digestive system

News Flash... New treatment!!!!

- Fecal transplant
  - Allows the bacteria from the healthy stool to repopulate the gut of the patient who has lost healthy bacteria in their gut
  - Used to treat *Clostridium difficile* that grows in human intestines

- Symptoms range from persistent diarrhea to life-threatening inflammation of the colon to death
Functions of the digestive system

Potty Trivia...

- What can healthcare professionals learn from observing stool specimens?

- On average, how much flatus does a person produce per day?

2.08 Understand the functions and disorders of the digestive system
Act of Digestion

- Discuss each action of the digestive system...
- Ingestion
- Mastication
- Digestion
- Secretion
- Absorption
- Excretion

2.08 Understand the functions and disorders of the digestive system
Functions of the digestive system

Check your knowledge...
Disorders of the digestive system

- **Anorexia**
  - Decreased or poor appetite
  - Symptom

- **Anorexia nervosa**
  - Eating disorder characterized by refusal to eat
  - Psychiatric disorder

2.08 Understand the functions and disorders of the digestive system
Disorders of the digestive system

**Caries**

- What is another name for caries?

- What are caries?

Can you identify preventive measures?
Disorders of the digestive system

**Cholecystitis**

- What is cholecystitis?
- What are the symptoms?
- How is it treated?
- Cholelithiasis
Disorders of the digestive system

CLEFT PALATE

- What is cleft palate?
- What is its impact on health?
- Who have this condition?

What specialist(s) should be consulted to correct a cleft palate?
Disorders of the digestive system

Cirrhosis

- What is cirrhosis?
- What are the symptoms?

What is the leading cause of cirrhosis?
How can it be treated?
Disorders of the digestive system

**CONSTIPATION**

- What is constipation?
- What are some causes?
- What is obstipation?

How can constipation be prevented?

2.08 Understand the functions and disorders of the digestive system
Disorders of the digestive disorders

Diarrhea

- Define diarrhea.
- What causes it?
- What are the effects on your health?
Disorders of the digestive disorders

GASTROENTERITIS

What is gastroenteritis?

What causes it?

What healthcare professional would you see for treatment?
Disorders of the digestive system

Gastroesophageal reflux disease (GERD)

- What are some common causes of GERD?
Disorders of the digestive system

Hepatitis

- Acute
- Chronic

- Hepatitis A, B, C, D, E

- What are some common symptoms of hepatitis?
Disorders of the digestive system

IRRITABLE BOWEL SYNDROME

- Define irritable bowel syndrome.

- Discuss how will treatments relate to:
  - Lifestyle
  - Diet
  - Medication

How might this disorder impact someone’s daily functioning?
Disorders of the digestive system

Peptic ulcer

- What is a peptic ulcer?
- What causes it?
- How is it treated?
Relevance of nutrition to the digestive system

- Healthy dietary habits help maintain homeostasis of body systems
Relevance of nutrition to the digestive system

- **Vitamins**
  - Fat soluble
    - Vitamins A, D, E, K
  - Water soluble
    - Vitamins C, B

- **Electrolytes**
  - Calcium
  - Chloride
  - Magnesium
  - Phosphorus
  - Potassium
  - Sodium

What roles do electrolytes and vitamins play in the digestive system?
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