

## Key Concepts: Module: Aging of the Gastrointestinal System

Welcome to the Module: Aging of the Gastrointestinal (GI) System! This module will help us learn about the GI system, age-related changes in and age-related disorders of the GI system. Also, we will learn about ways of promoting GI wellness in older adults (Saxon, et al, 2022).

**Key Concept 1: Components of the GI system** include the following (Saxon, et al, 2022):

- Alimentary canal which includes the mouth, pharynx, esophagus, stomach, small intestine, and large intestine or colon.
- Accessory organs and glands which include the teeth (for chewing food), tongue (taste buds), saliva (moistening food), gallbladder (secretes bile which helps to digest fats), liver (detoxifies and metabolizes food and stores vitamins and minerals), pancreas (secretes insulin to maintain an optimal blood sugar level).

**Key Concept 2: The digestion process** includes the following (Saxon, et al, 2022):

- Food taken in the mouth, swallowed, and moved along the alimentary canal through peristalsis.
- **Mechanical digestion** includes chewing churning of food in the stomach, and small intestine contractions to absorb nutrients and move food along.
- **Chemical digestion** includes enzymes which break down food and its components further
- **Nutrients absorbed** into bloodstream.
- **Wastes** eliminated when they are passed from the large intestine out through the rectum and anus.

**Key Concept 3: Age-related changes in the GI system** (Saxon, et al, 2022):

- **Slower digestion** but **lifestyle factors** such as unhealthy diet, lack of exercise, and lack of sufficient hydration can contribute to this.
- **Mouth:** thinning or wearing of tooth enamel, tooth loss, less saliva leading to dry mouth, slower swallowing and chewing, less taste buds.
- **Esophagus:** slower movement of food into stomach
- **Stomach:** Slower stomach emptying
- **Small intestine:** Less enzymes to help digest food, slower peristalsis or movement of digesting/digested food into large intestine.
- **Large intestine:** Weaker anal sphincter and intestinal muscles.

**Key Concept 4: Age-related disorders of the GI system** (Saxon, et al, 2022):

- **Mouth** (Saxon, et al, 2022):
  - Xerostomia: Dry mouth
  - Dysphagia: Difficulty swallowing.
  - Periodontal disease: inflamed gums, gum disease, the gums eventually separate from teeth and involves bone loss. Often due to plaque accumulation
  - Oral cancer: cancer of the mouth, cheek lining, tongue, gums; often linked with smoking and alcohol consumption.
- **Esophagus** (Saxon, et al, 2022):
  - Cancer of the esophagus: cancerous growth in the esophagus
  - Gastroesophageal reflux disease (GERD): occurs with the backflow of stomach acid into the esophagus leading to esophageal irritation and a burning sensation.
  - Hiatal hernia: upper part of stomach bulges through the diaphragm and into the chest.
- **Stomach** (Saxon, et al, 2022):
  - Gastritis: Inflammation of the lining of the stomach
  - Gastric/peptic ulcer: sores in the stomach
  - Cancer of the stomach: cancerous growth in the stomach
- **Small intestine** (Saxon, et al, 2022):
  - Cancer of the small intestine: cancerous growth in the small intestine
- **Large intestine** (Saxon, et al, 2022):
  - Appendicitis: Inflammation of the appendix which is a small structure protruding from the large intestine.
  - Diarrhea
  - Constipation
  - Diverticulosis and diverticulitis: pouches that are most commonly seen in the large intestine and diverticulitis occurs when these pouches become inflamed. The pouches may be infected.
  - Colorectal cancer: cancer of the colon or rectum. Colonoscopy is recommended for the detection of colorectal cancer since it can detect colon cancer.
  - Hemorrhoids: swollen veins in the rectal area that may be uncomfortable.

## **Key Concept 5: Promoting Optimal GI Wellness**

- Eat a healthy diet with adequate amounts of complex carbohydrates, vitamins, minerals, fiber, protein, healthy fats, and hydration.
- Engage in regular exercise, especially aerobic and strength training. Usually 150 minutes of aerobic exercise weekly and strength training 2-3 times weekly is recommended.
- Have regular medical and dental checkups
- Have recommended screening for colorectal cancer such as colonoscopy.

## **Reference**

Saxon, S. et al (2022). *Physical change in aging*. New York, NY: Springer Publishing.