Digestive System Factoids

Also called:
- Gastrointestinal tract (GI tract)
- Alimentary canal
- Continuous, coiled, hollow muscular tube
- Ventral body cavity
- Open at both ends
- Outside of body

Function of Digestive System

Converts/breaks down food into:
- Raw materials
  - building new body tissues
  - repairing damaged tissues
- Fuel
  - for body cells

BIG → small
Digestive Processes

- Ingestion
- Propulsion
- Mechanical digestion
- Chemical digestion
- Absorption
- Defecation

Digestive System

- Mouth
- Salivary glands
- Pharynx
- Esophagus
- Stomach
- Gallbladder
- Pancreas
- Liver
- Small intestine
- Large intestine
- Rectum
- Anus

Mouth and Teeth

- hard palate
- soft palate
- uvula
- tonsil
- molars (3)
- premolars (2)
- canine (1)
- incisors (2)
Peristalsis

- Involuntary
- Alternate waves
  - contraction & relaxation of organ wall
- Function:
  - Squeezes food distally along GI tract
    - propulsion

Segmentation

- Localized contractions at site of food
- Function:
  - Mix food and digestive juices
  - Food moved back and forth
    - mechanical digestion
    - NOT propulsion
Stomach

- Cardiac sphincter
- Fundus
- Body
- Pylorus
- Pyloric sphincter

After food is processed by the stomach called chyme

Chyme sent from stomach through pyloric sphincter to small intestine (SI)
Small Intestine (SI)

- Body's major digestive organ (90%)
- Between stomach and large intestine (LI)
- Longest section of the alimentary tube

- Well designed for absorption
  - large surface area

Anatomy of Small Intestine

Small Intestine

3 subdivisions:
- Duodenum
- Jejunum
- Ileum
Digestion in the SI

- Mechanical digestion
  - Segmentations and peristalsis
- Chemical digestion
  - Intestinal juice
  - Pancreatic juice
  - Bile

Large Intestine (LI)

- Larger than SI
- Shorter than SI
- Runs from ileocecal valve to anus

Function:
- resorbs water from indigestible food residue

Woman Accused of Giving Sherry Enema

Tammy Warner, 42, has been indicted on negligent homicide charges for allegedly giving her husband a sherry enema that killed him.

Michael Warner, 58, died last May after the enema caused his blood-alcohol level to rise to .47 percent.

"That's extremely high," Detective Lt. Robert Turner said. "You're either going to be in the hospital or the funeral home with that much alcohol."

Turner said Michael Warner was an alcoholic who could not swallow liquor because of ulcers and heartburn.

"He was told that he could not drink alcohol or that he would die, according to the people that we interviewed," Turner said. "We are going to prove that she gave him the sherry and that she knew that he wasn't supposed to have any and that it could be detrimental to his health, and that she gave it to him anyway."
Large Intestine

Small intestine
Ileocecal valve
Caecum
Appendix
Rectum
Internal anal sphincter
Anus
Anal canal

Slide 23
Accessory Organs

Liver
Esophagus
Stomach
Pancreatic ducts
Pancreas
Gall bladder
Duodenum

Liver
Second largest organ in body
Location – below diaphragm/above stomach
- Functions (partial list):
  - Lipid metabolism & storage
  - Bile
  - Carbohydrate metabolism & storage
  - Detoxification center
**Nutrients**

- **Carbohydrates**
  - Polysaccarides > disaccarides > monosaccarides
  - Starch > maltose > glucose

- **Proteins**
  - Polypeptides > peptides > amino acids

- **Lipids**
  - Triglycerides > fatty acids + glycerol

**Digestive Enzymes**

- Salivary amylose - salivary gland - starch
- Pepsin - stomach - protein
- Trypsin - small intestine - protein
- Lipase - small intestine - lipids
- Pancreatic amylase - small intestine - starch
Small Intestine Absorption

Fats in the Small Intestine

Enzyme Secretion Regulation

- **Neural**
  - Physical presence of food
    - Stretching, smell, taste, thinking about food

- **Hormonal**
  - Specific types of food molecules
Hormonal Control of Digestive Secretions

- Liver
- Stomach
- Gallbladder
- Pancreas
- Duodenum

Blood vessel

Secretin
CCK
Gastrin

Digestive System Summary

- Salivary glands
- Esophagus
- Stomach
- Small intestine (duodenum, jejunum, ileum)
- Liver and gallbladder
- Pancreas
- Large intestine (cecum, colon, rectum)

The End.