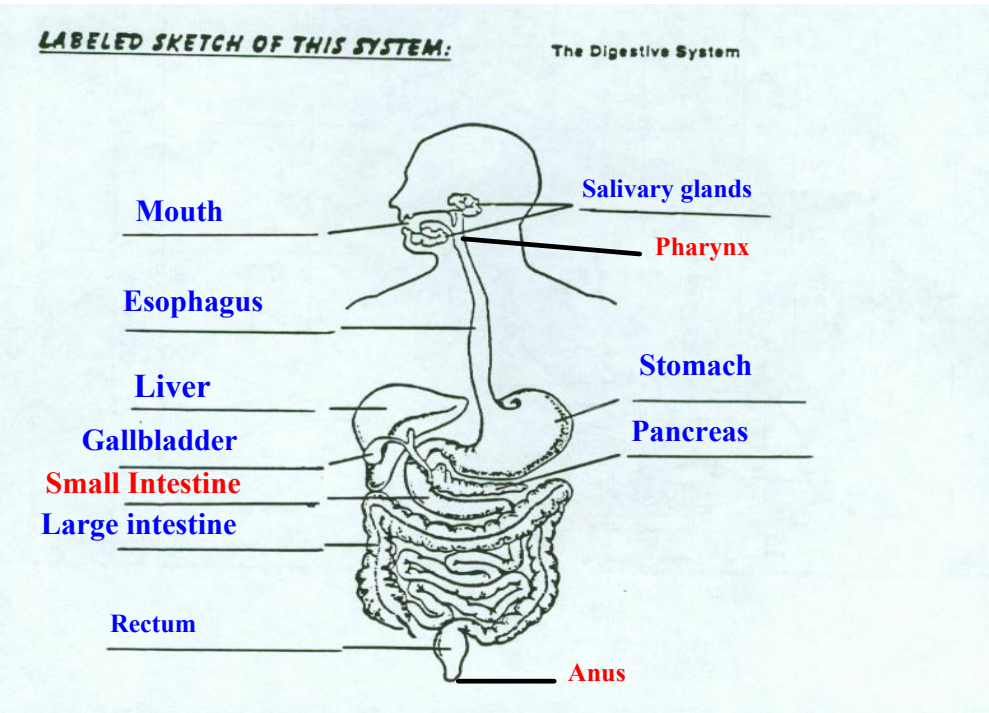
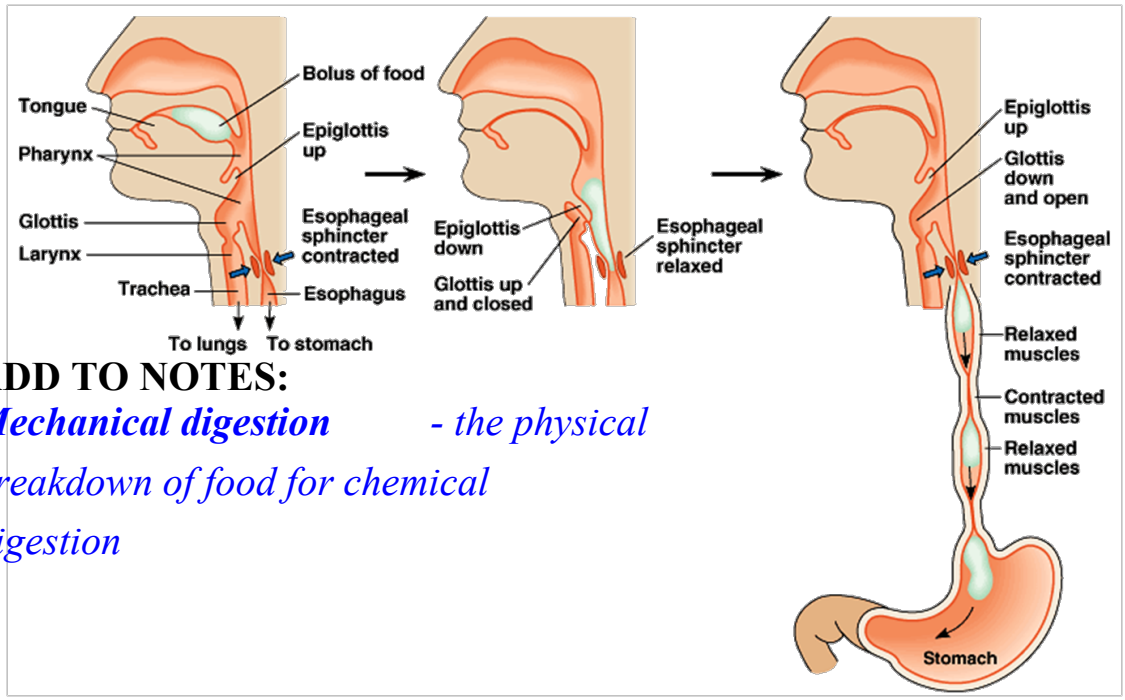
DIGESTIVE SYSTEM

JOB OF THIS SYSTEM:

- ***To break down food, mechanically, and then chemically, into molecules small enough to be absorbed by the body and used for energy and absorption of nutrients.***

LABELED SKETCH OF THIS SYSTEM:

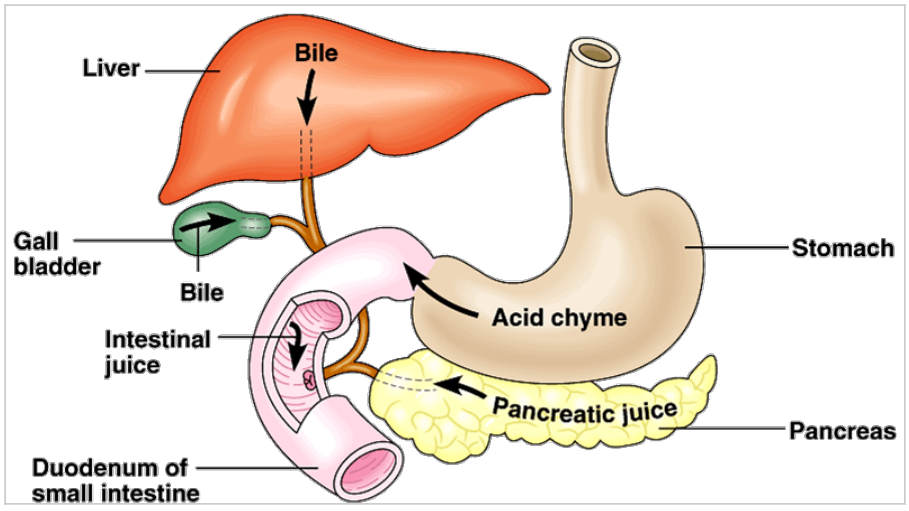


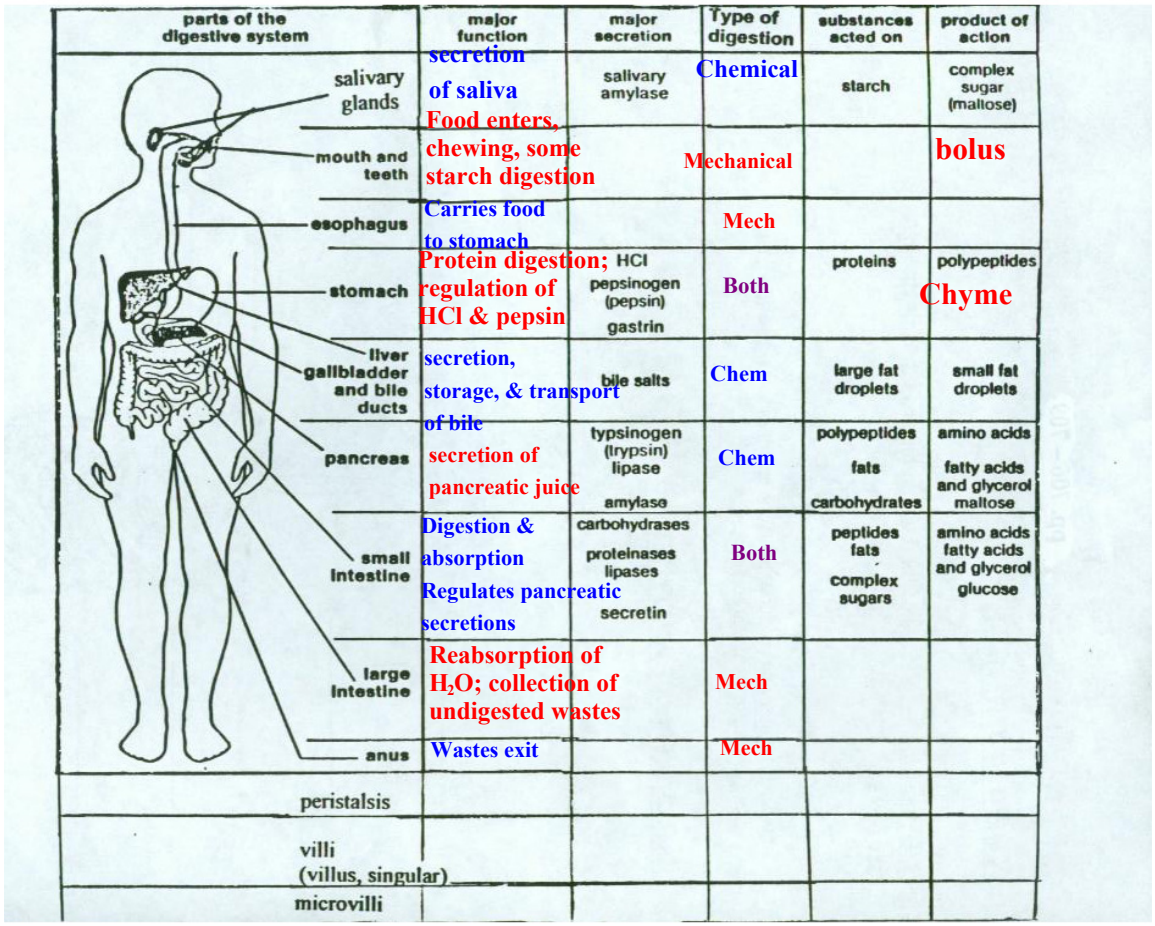


ADD TO NOTES:

Mechanical digestion *- the physical breakdown of food for chemical digestion*

ADD: ***Chemical digestion*** *- process of changing food on a molecular level using enzymes*



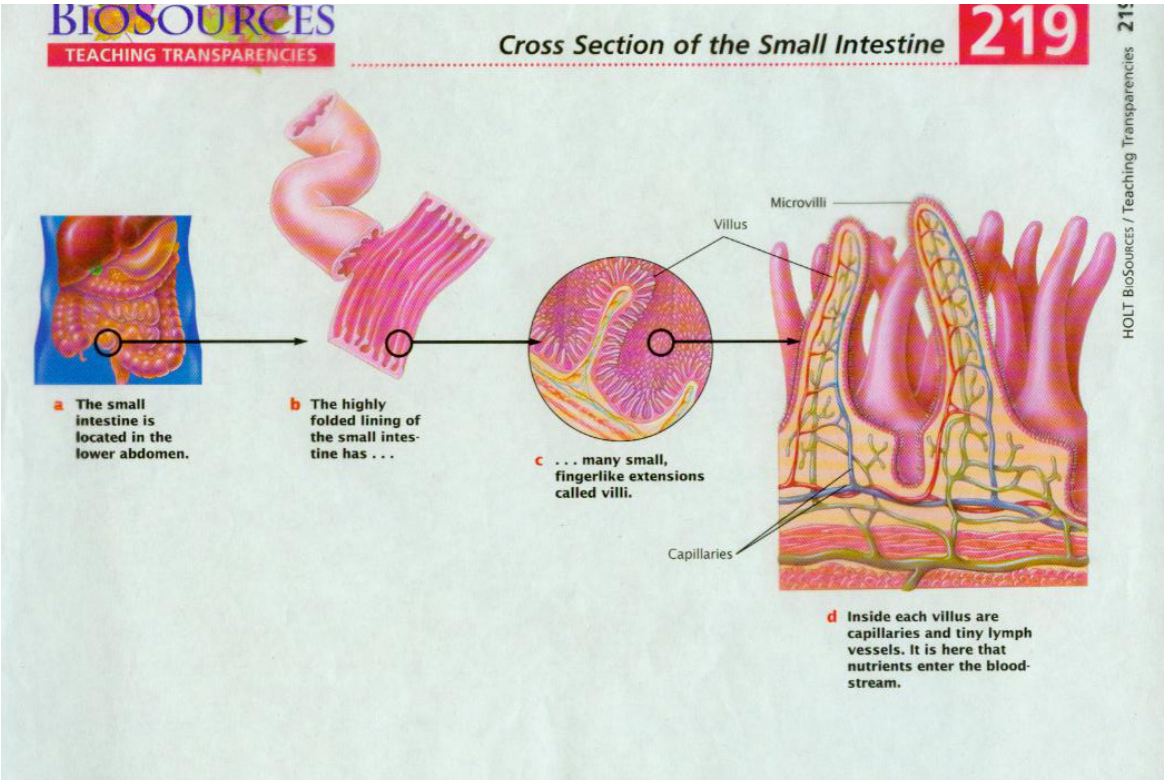


parts of the digestive system	major function	major secretion	Type of digestion	substances acted on	product of action
salivary glands	secretion of saliva	salivary amylase	Chemical	starch	complex sugar (maltose)
mouth and teeth	Food enters, chewing, some starch digestion		Mechanical		bolus
esophagus	Carries food to stomach		Mech		
stomach	Protein digestion; regulation of HCl & pepsin	HCl pepsinogen (pepsin) gastrin	Both	proteins	polypeptides Chyme
liver gallbladder and bile ducts	secretion, storage, & transport of bile	bile salts	Chem	large fat droplets	small fat droplets
pancreas	secretion of pancreatic juice	typsinogen (trypsin) lipase amylase	Chem	polypeptides fats carbohydrates	amino acids fatty acids and glycerol maltose
small intestine	Digestion & absorption Regulates pancreatic secretions	carbohydrases proteinases lipases secretin	Both	peptides fats complex sugars	amino acids fatty acids and glycerol glucose
large intestine	Reabsorption of H_2O; collection of undigested wastes		Mech		
anus	Wastes exit		Mech		
peristalsis					
villi (villus, singular)					
microvilli					

Peristalsis - ***involuntary waves of muscle contraction that keeps food moving in one direction throughout the digestive system***

Villi - ***(singular, villus) increases surface area for absorption of nutrients; full of capillaries (in small intestine).***

Microvilli - ***on villi; absorption of nutrients.***



- List path structures a piece of food would take as it travels through the digestive system.

Piece of food → mouth/teeth → esophagus → stomach → small intestine → large intestine → rectum → anus

- List other structures that produce secretions/enzymes that act on food, but do not actually have food pass through them.

Salivary glands → gallbladder/ liver → pancreas

NUTRIENTS & THEIR ROLES IN THE HUMAN BODY

Nutrient	Function	Found In Foods Like:
Water	involved in ***chemical reactions***, helps digest food, eliminate ***wastes***, maintains ***blood*** volume, regulates body ***temperature,*** keeps ***skin*** smooth	water itself
Carbohydrates **Types:** ***COMPLEX & SIMPLE***	main source of ***energy***	fruits, vegetables, honey, sugar, grains, potatoes
Proteins	raw materials for ***growth*** & **repair**, make up all ***enzymes*** and many ***hormones***	dairy products, meats, eggs, some plant foods
Fats Types: ***SATURATED*** ***UNSATURATED*** ***POLYUNSATURATED***	provide ***energy*** & are key components in **cell** ***membranes***, ***neurons*** & certain ***hormones***	red meats, dairy products, plant oils, some fish and fish oils
Minerals - ***inorganic substances***	used to carry out cell ***processes*** and to ***build or repair tissues***	dairy products, leafy greens, legumes, nuts, meats, seafoods, whole grains
VitaminsTypes: ***WATER-SOLUABLE*** ***FAT-SOLUABLE***	work with enzymes as ***organic co-enzymes*** to regulate cell functions, growth, development	same as minerals & some carbohydrates

EXCRETORY SYSTEM

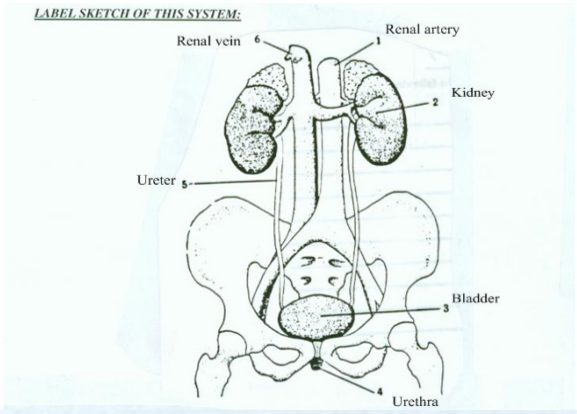
JOB OF THIS SYSTEM:

- ***To remove wastes (water, salts, some urea, carbon dioxide).***
- ***99% of water is purified in kidneys & returned to blood*** (circulatory system)**.**
- ***1% becomes wastes & excreted as urine.***

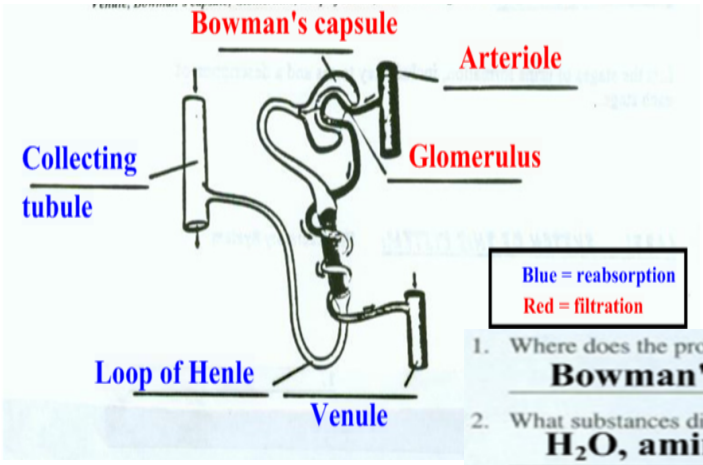
Stages of urine formation:

- ***Filtration* - blood pressure in capillaries forces water, glucose, amino acids, and various salts through small pores into the nephron (Bowman's capsule).**

- ***Reabsorption* - water & solutes move out of the nephron & into the capillaries (Loop of Henle).**

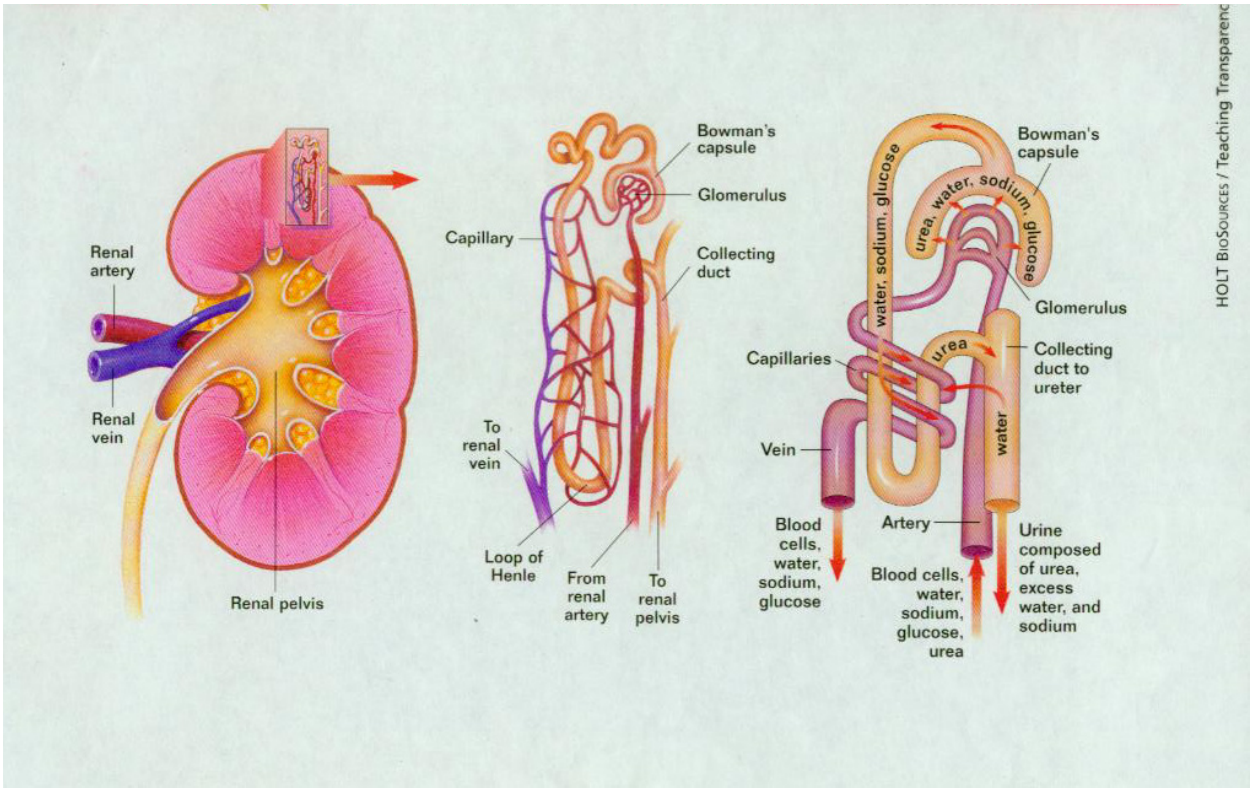


a. Carries urine from the kidneys to the urinary bladder: 5- Ureter
b. Carries waste-laden blood into the kidneys: 1- Renal artery
c. Purifies blood by removing excess water, urea, and other waste products: 2- Kidney
d. Collects and stores urine until it is excreted from the body: 3- Urinary bladder
e. Carries purified blood from the kidneys toward the heart: 6- Renal vein
f. Provides a passageway for the urine as it leaves the body: 4- Urethra



Blue = reabsorption
Red = filtration

1. Where does the process of filtration take place? **Bowman's capsule w/in the glomerulus.**
2. What substances diffuse into Bowman's capsule? **H_2O, amino acids, glucose, salts, urea**
3. What substances are reabsorbed into the blood? **H_2O, amino acids, glucose, salts**
4. Where does the process of reabsorption take place? **Loop of Henle**
5. What substances are excreted as urine? **H_2O, uric acid, salts, urea**



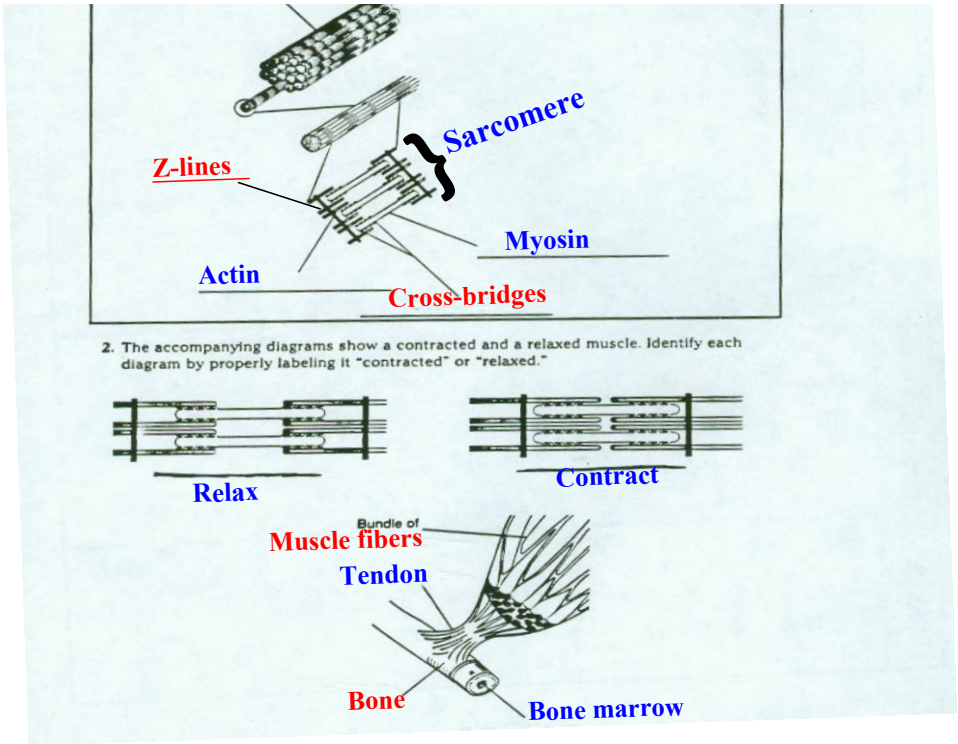
MUSCULAR SYSTEM

JOB OF THIS SYSTEM:

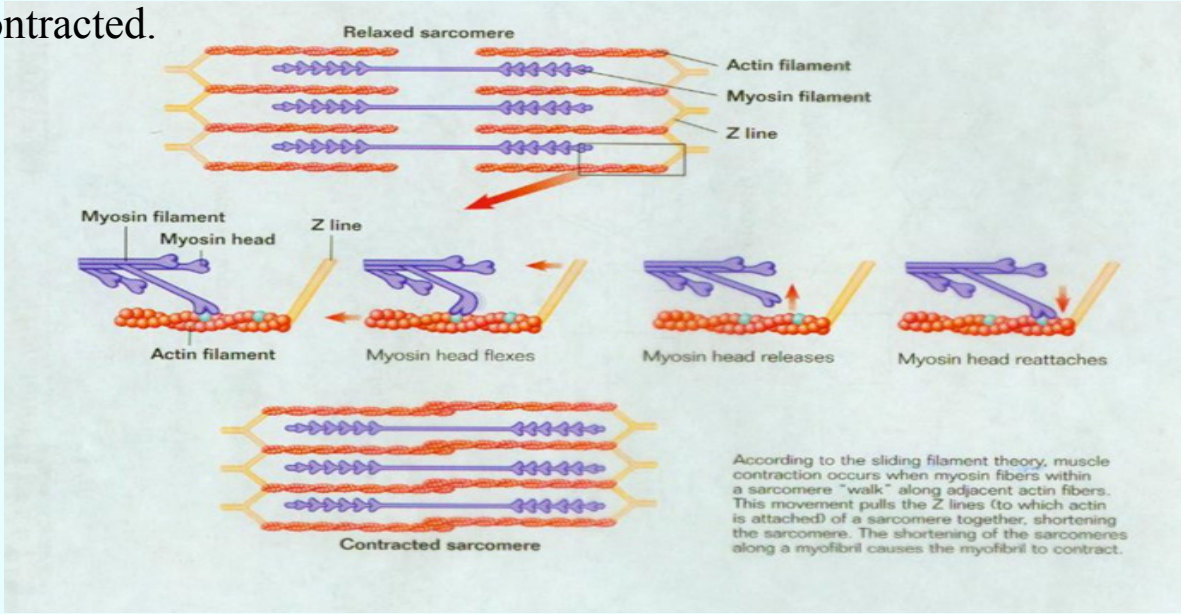
- ***Allows body to move.***

PreAP Add to notes:

- There are ***more than 600 muscles in the body***
- Nearly ***half of your body mass is muscle***
- ***Muscles pull bones & work in pairs***



Muscle contraction: Muscle is stimulated by neuron; myosin grabs and pulls actin toward the center of the sarcomere; muscle is contracted.



ADD to notes

Skeletal muscle - attaches to and moves your bones, allows voluntary movement

Smooth muscle- found in the walls of your internal organs and blood vessels, it is considered an involuntary muscle because you do not control it

Cardiac muscle- makes up the heart and is an involuntary muscle