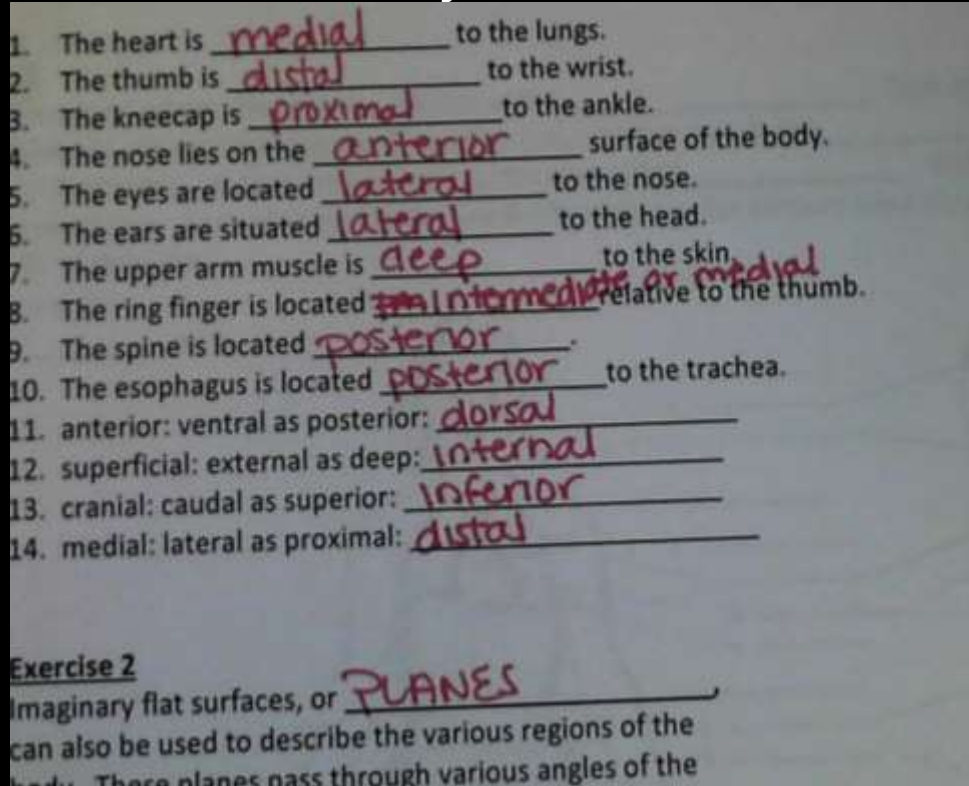


AN INTRODUCTION TO  
HUMAN ANATOMY

Chapter 1

# Happy Friday-

## ▣ Check your Packet-



## ▣ Then think about these:

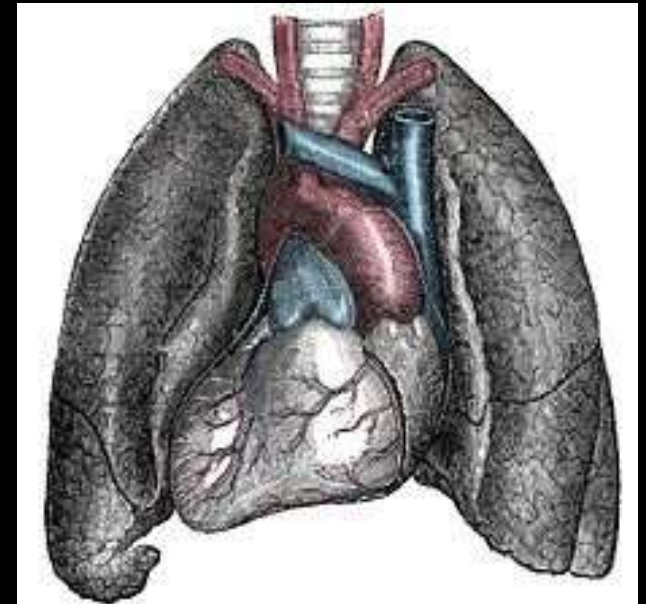
1. If a doctor gives your three pills and tells you to take one pill every half hour, how long will they last?
2. Mrs. Smith has 5 children. Half of them are boys. How is this possible?
3. 1 in 2000 babies are born with this?

# Definitions

- **Anatomy**
  - the study of the names of the structures in the human body
- **Physiology**
  - the study of the functions of body parts

# Variation in Human Structure

- ▣ Anatomy books can only teach you the most common structure
  - No 2 humans are exactly alike
- ▣ Examples
  - Some people completely lack certain organs
  - Most have 2 kidneys
  - **Situs inversus**



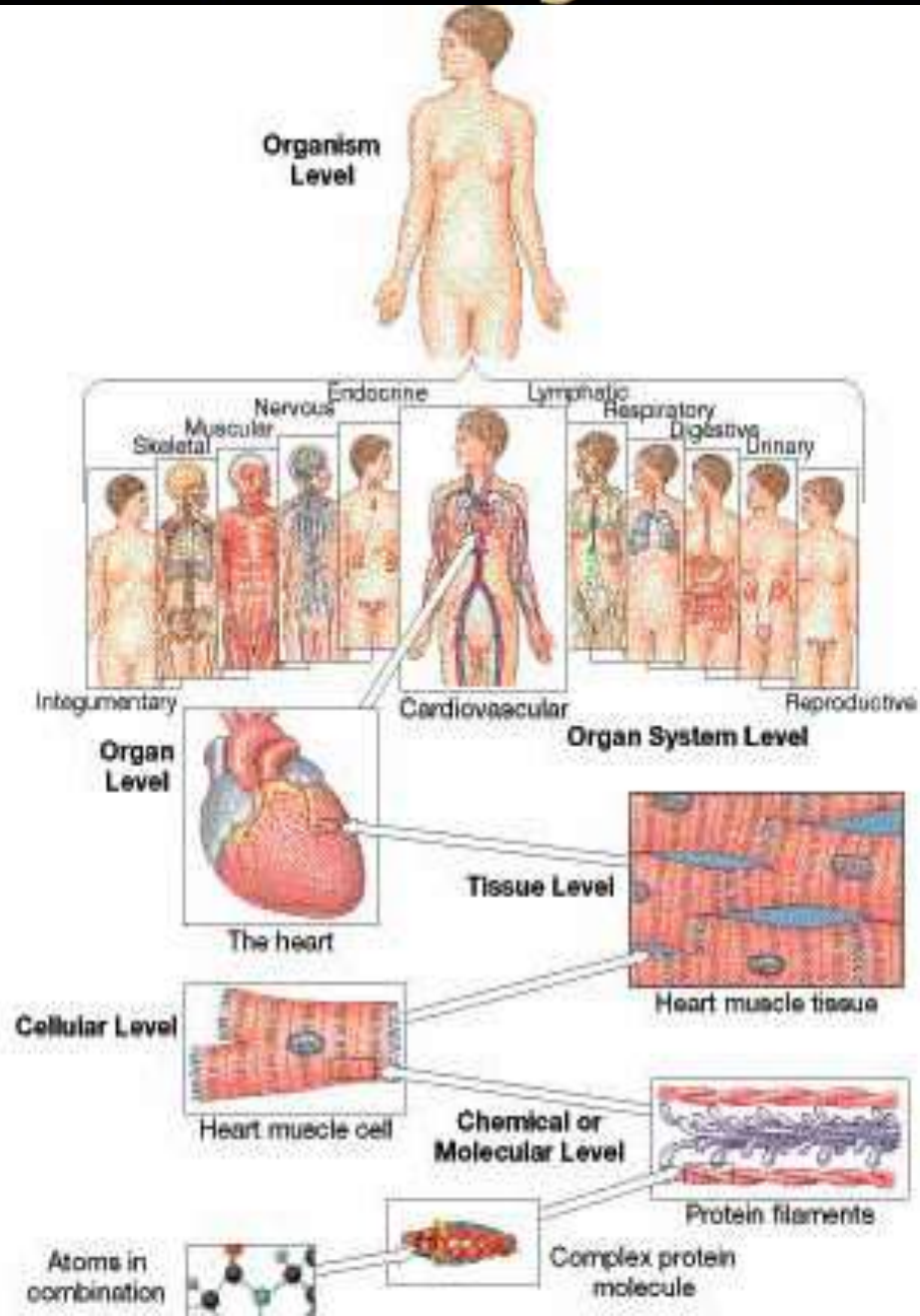
# Fields in Anatomy and physiology

- ▣ **Microscopic anatomy**
  - ▣ **Gross anatomy**
  - ▣ **Radiologic anatomy**
  - ▣ **Cytology**
  - ▣ **Histology**
- 
- ▣ **When studying anatomy and physiology we will examine many levels of organization....**

# Organization beyond molecular level...

- ▣ Molecules are organized into **cells**
  - Basic unit of a living organism
- ▣ Cells are grouped together into **tissues**
  - Groups of cells having the same function
- ▣ **Organs** are groups of different tissues
  - Special functions
- ▣ Organs are grouped into **organ systems**
  - Groups of organs working together

# Levels of Organization



# Homeostasis

- ▣ All the organs and systems work together to maintain homeostasis inside your body.
- ▣ Homeostasis is the existence of a stable internal environment.
- ▣ Homeostatic regulation: adjustments in physiological systems that will preserve homeostasis.



## Homeostasis

- ▣ Receptor: sensitive to a particular stimulus
- ▣ Control Center: Receives and processes information from the receptor
- ▣ Effector: responds to signal sent from control center.
  
- ▣ Ex: Thermostat in home
  - Receptor- thermometer in room
  - Control center- thermostat
  - Effector- heater or air conditioner

## Positive and Negative Feedback

- ▣ Negative Feedback- Most homeostatic regulation is this method
  
- ▣ The effector is meant to oppose or eliminate the stimulus.
  
- ▣ Ex: Temperature regulation- Temperature increasing
  - Receptor- cells in skin sensitive to changes in temperature
  - Control Center- brain
  - Effectors- blood vessels to skin and sweat glands- increase blood flow and secretions on skin to cool down body.

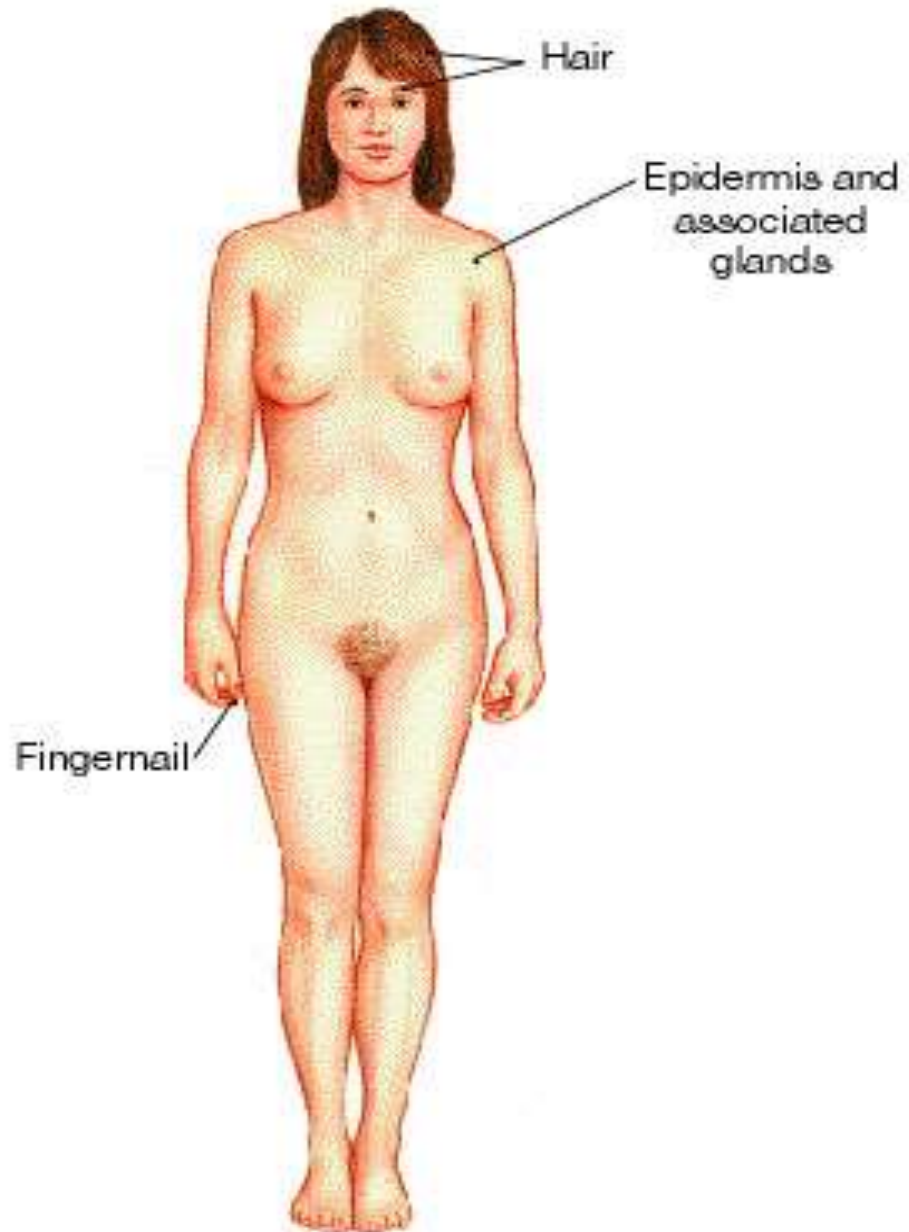
## Positive Feedback

- ▣ Positive Feedback- initial stimulus produces a response that reinforces the stimulus
- ▣ Not as common
  - Flight or Fight Response- STRESS
  - Ex. Blood Clotting
  - When blood begins to clot- blood vessels release more and more chemicals to accelerate the rate of blood clotting
  - When homeostasis begins to fail we experience disease.

# **SURVEY OF THE HUMAN BODY**

**FILL OUT CHART ON OVERHEAD....  
IN COLORED PEN/ PENCIL- FILL IN  
WHAT YOU ALREADY KNOW (10  
MINUTES)**

**PENCIL- FILL IN USING BOOK  
(15 MINUTES)**

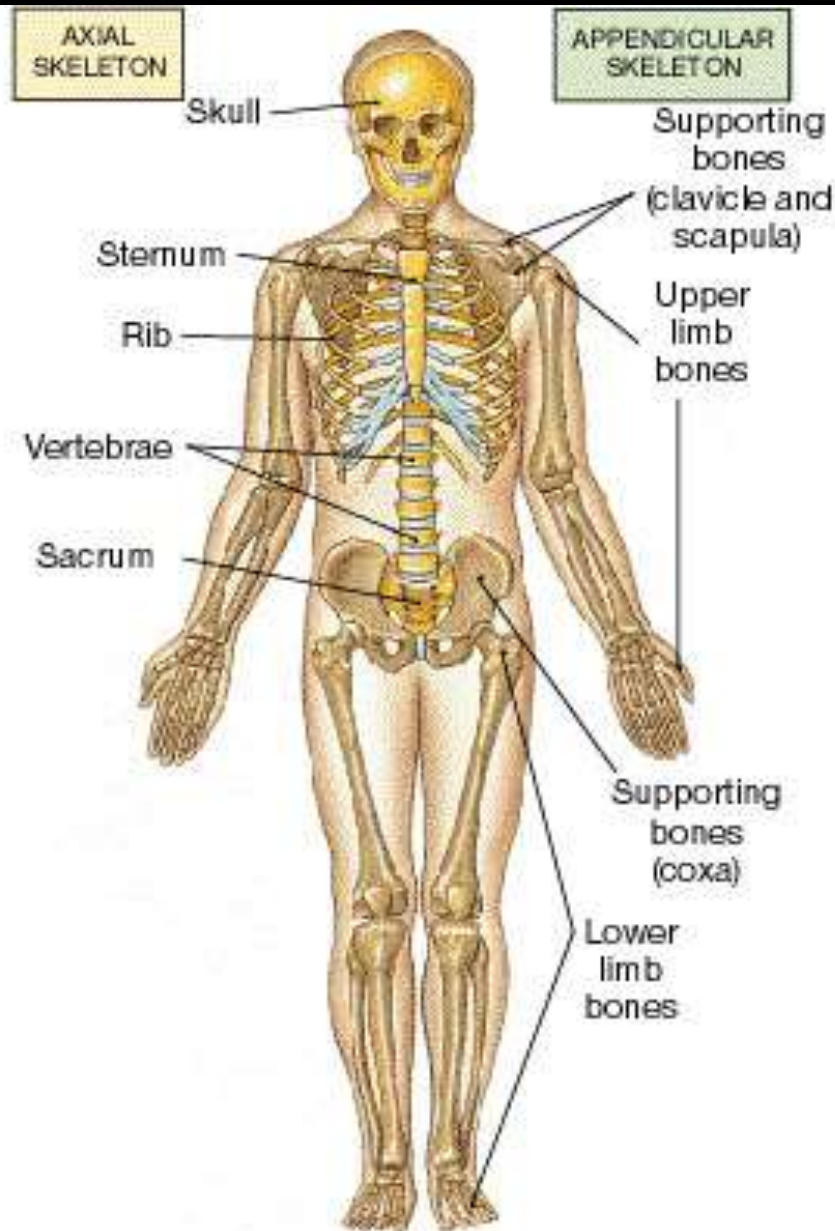


Hair

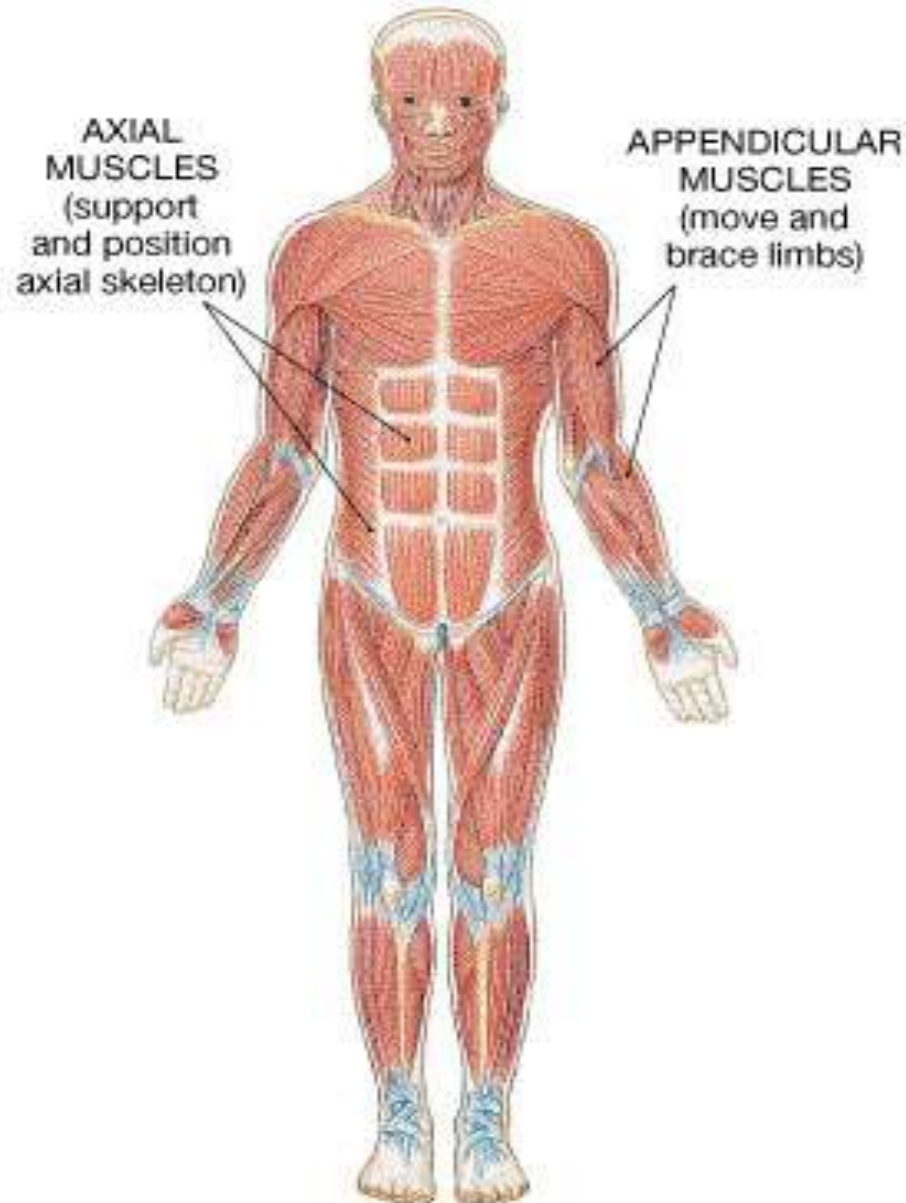
Epidermis and  
associated  
glands

Fingernail

# Skeletal System: support, produces

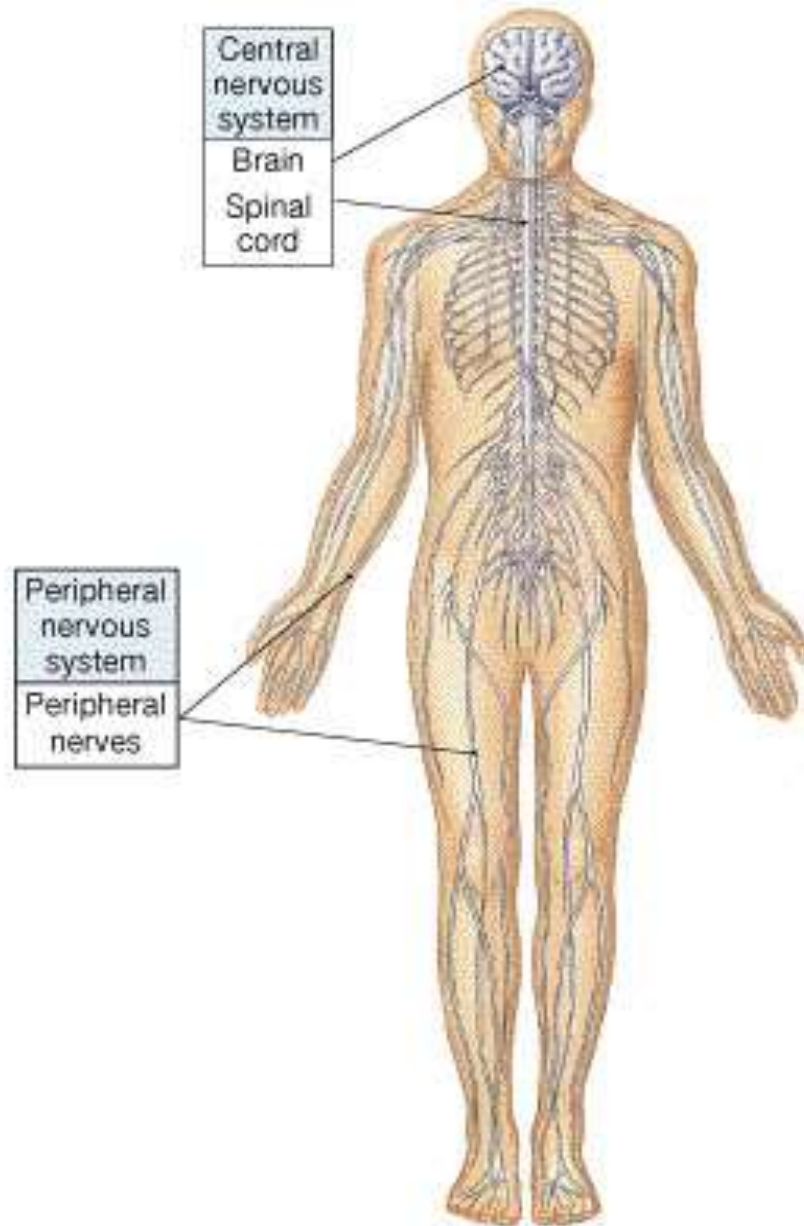


# Muscular System: movement,



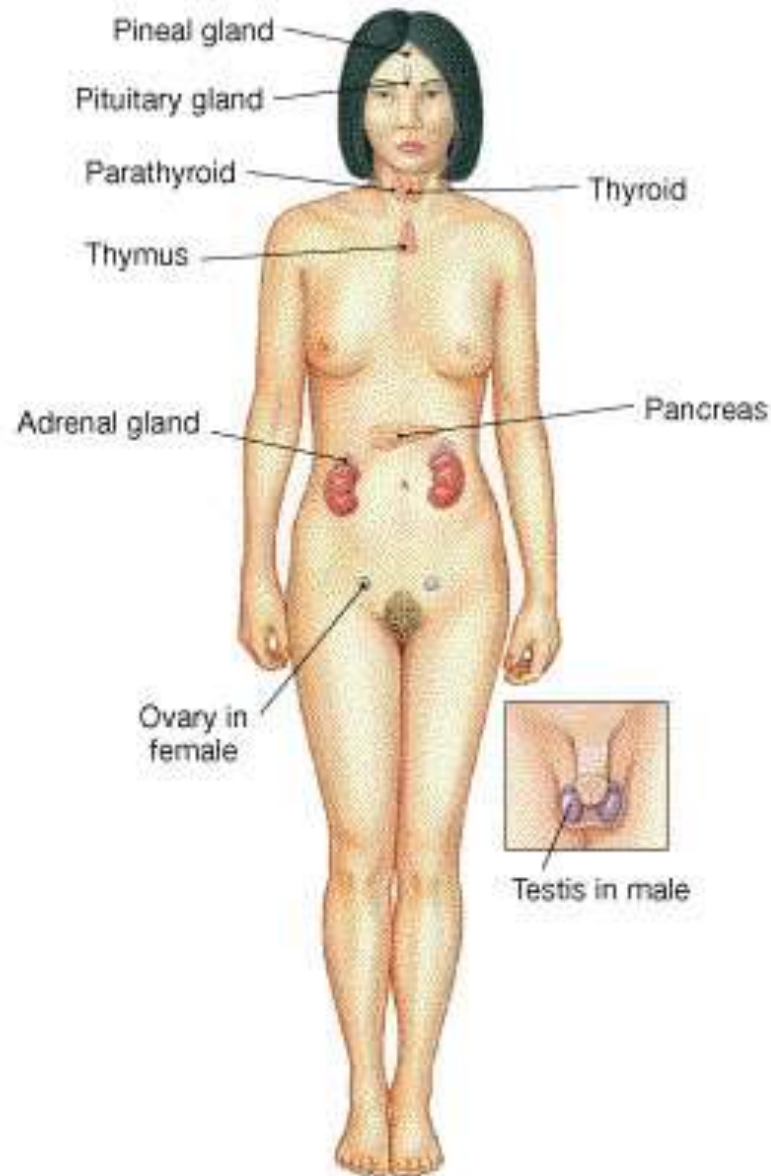


# Nervous System: control center for

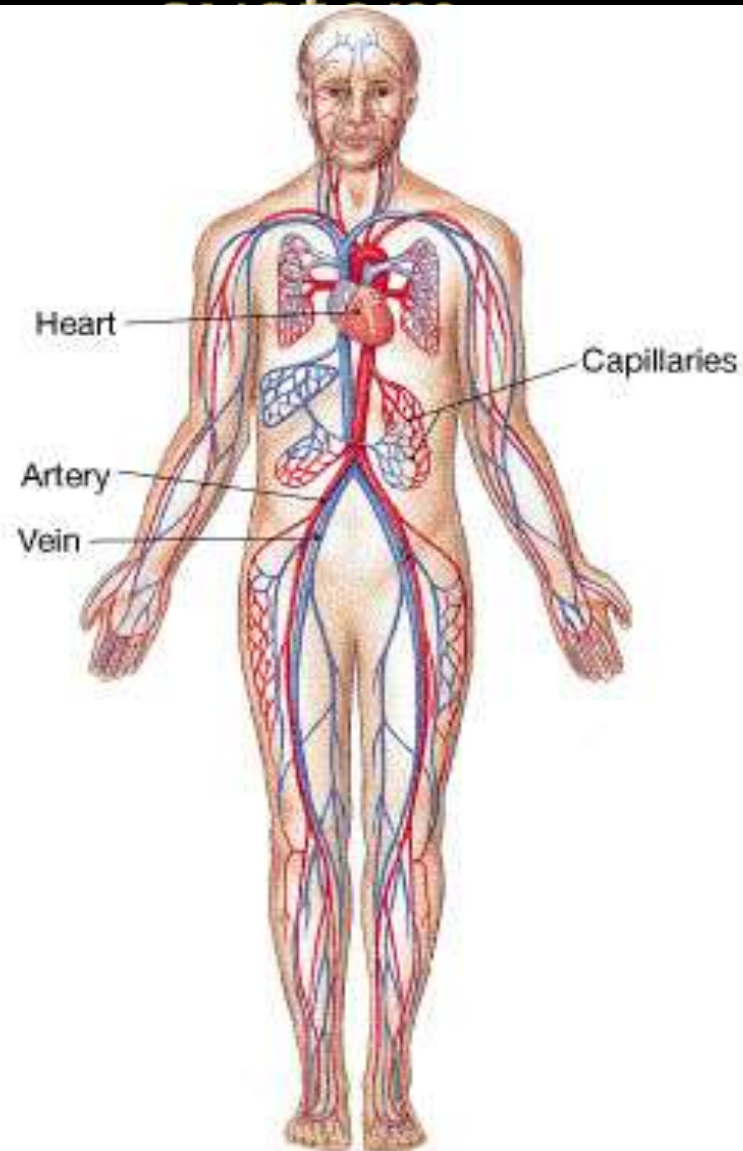




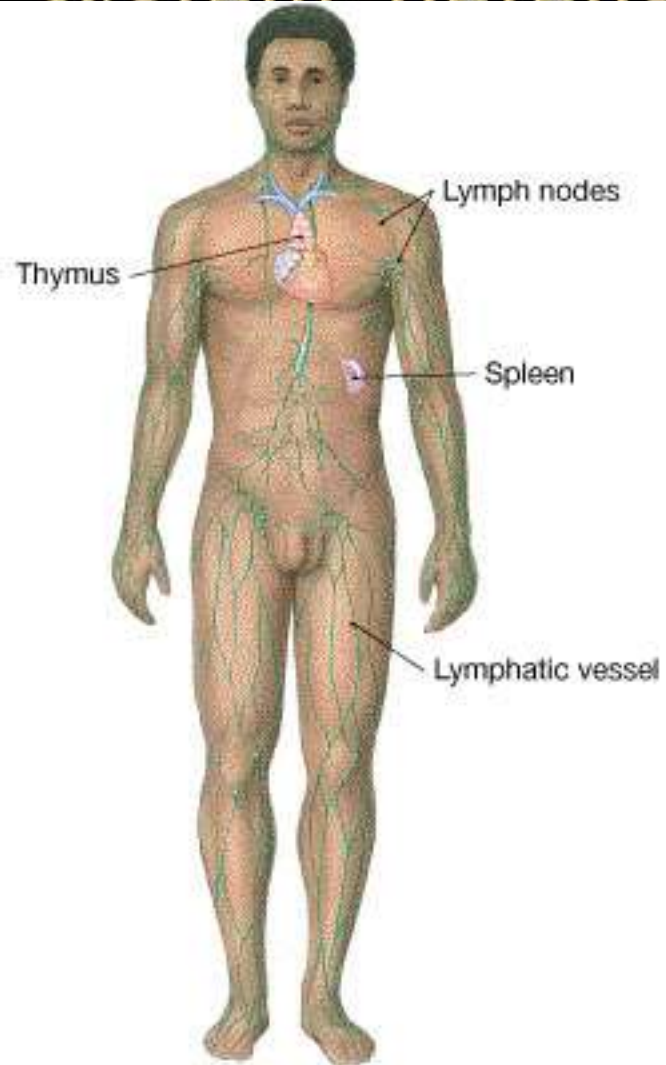
# Endocrine System: directs long term changes



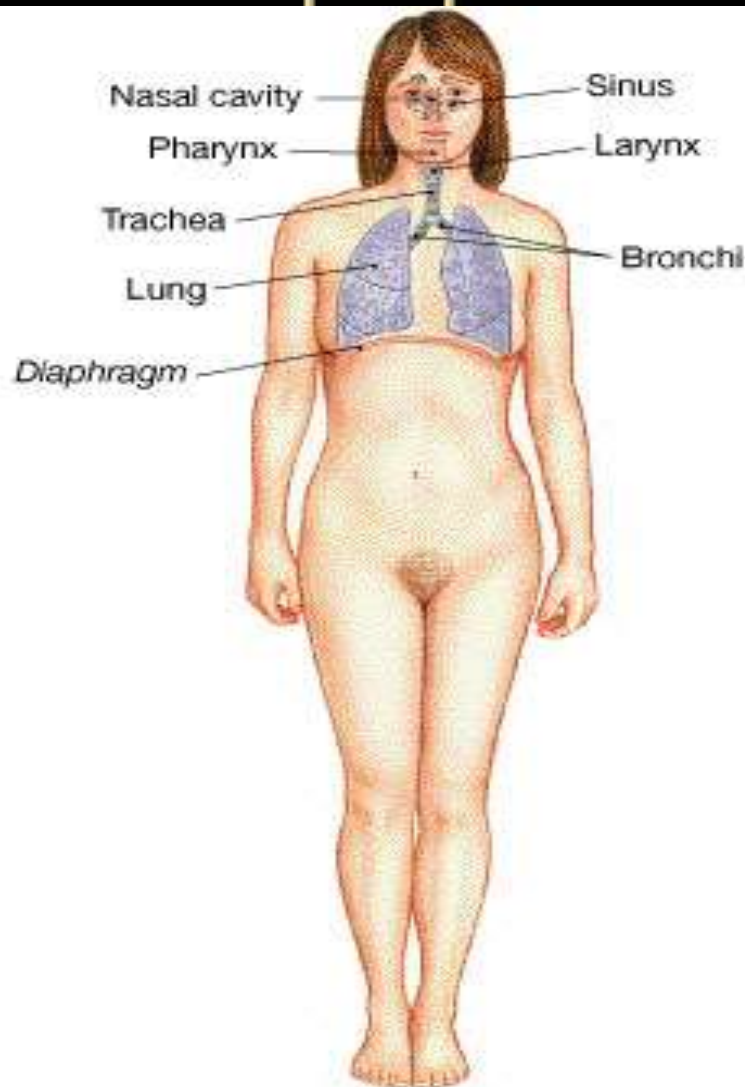
# Cardiovascular System: transportation



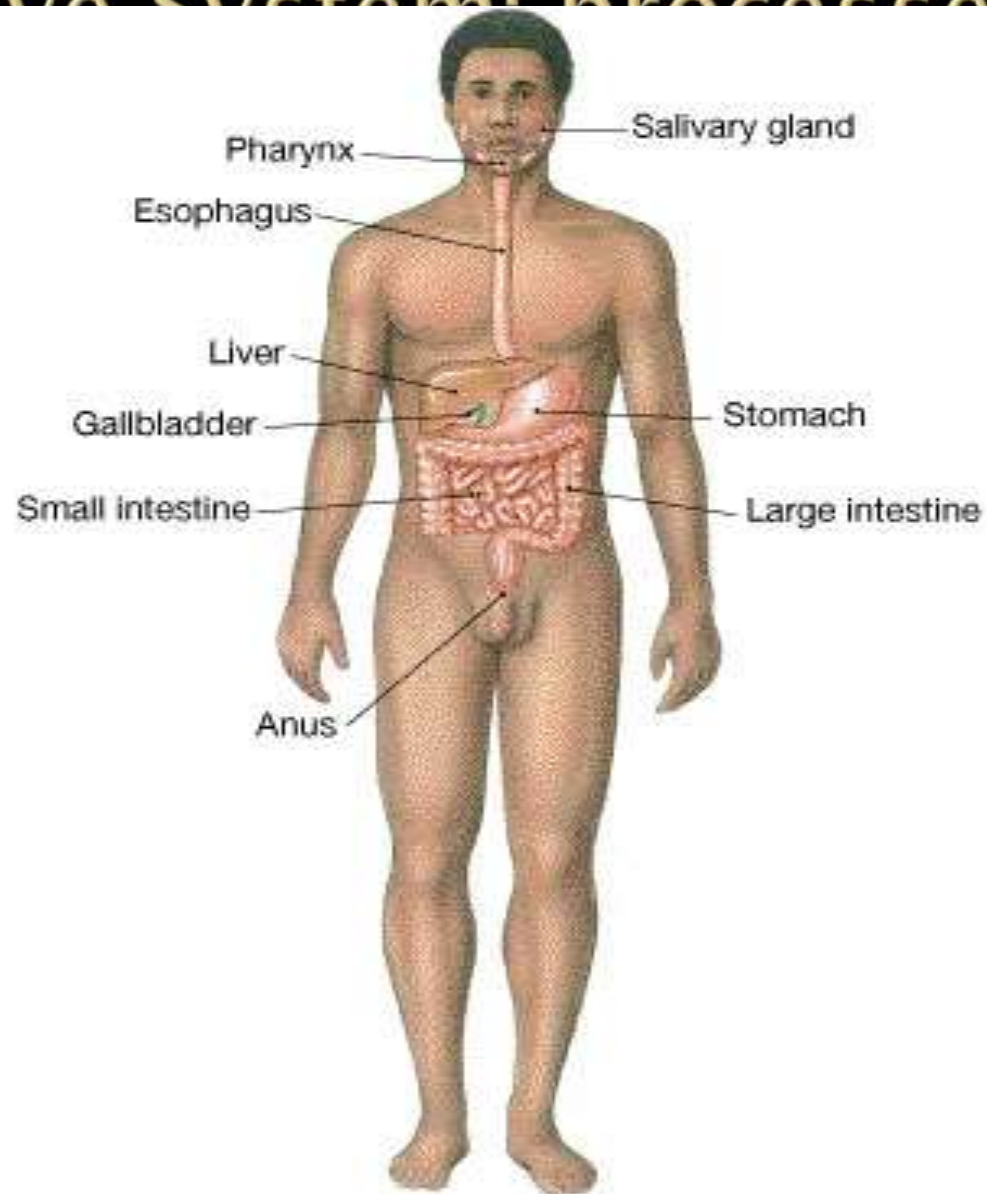
# Lymphatic System: defense system



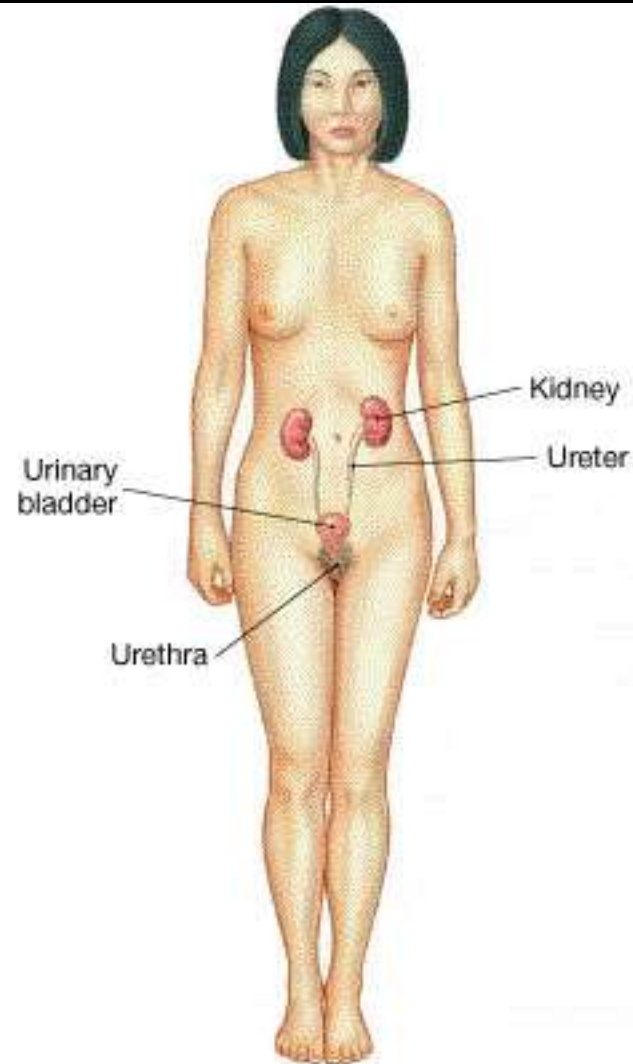
# Respiratory System: delivers air to



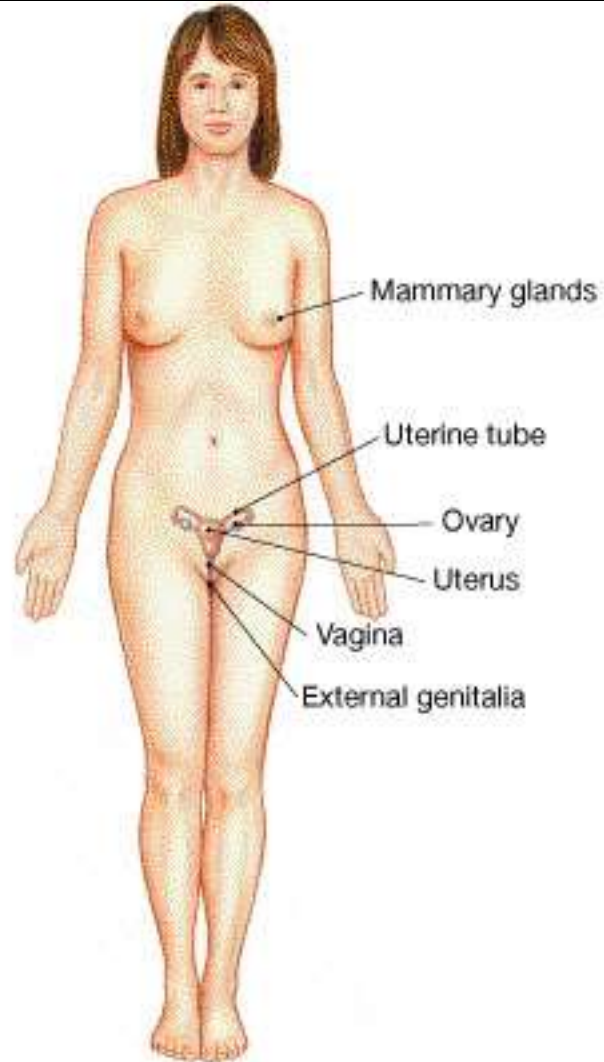
# Digestive System: processes food



# Urinary System: excretes waste, water

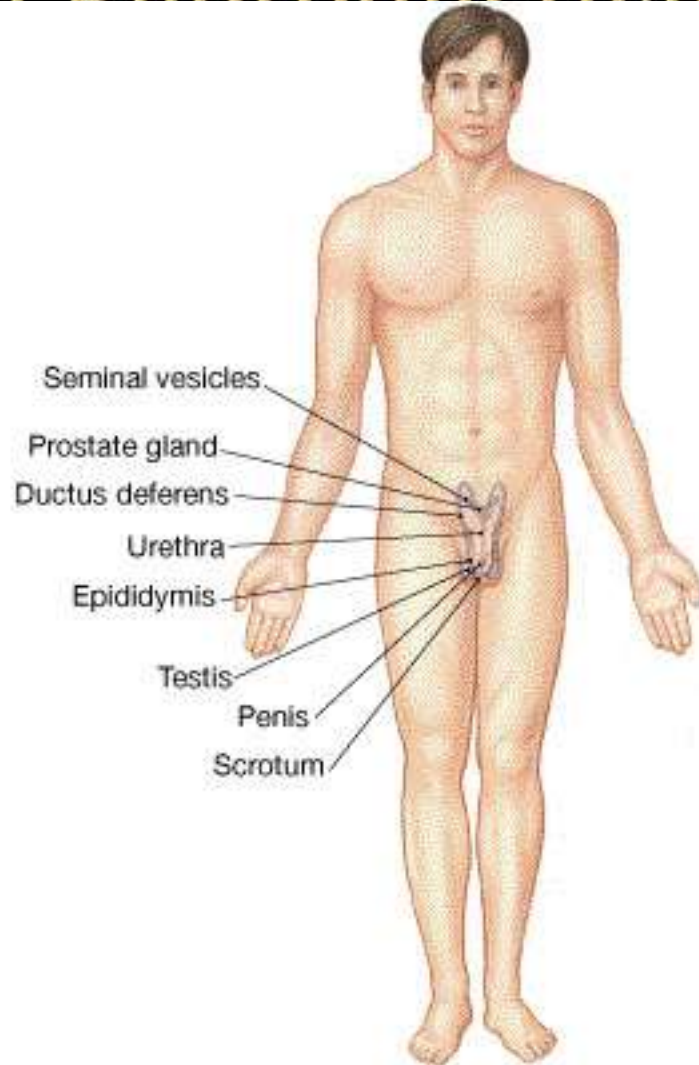


# Female Reproductive System:





# Male Reproductive System



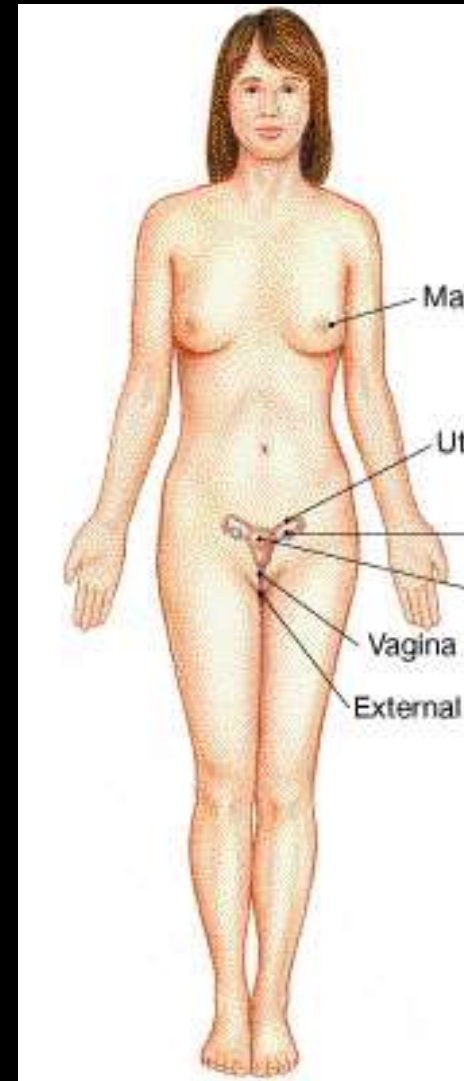


# THE LANGUAGE OF ANATOMY

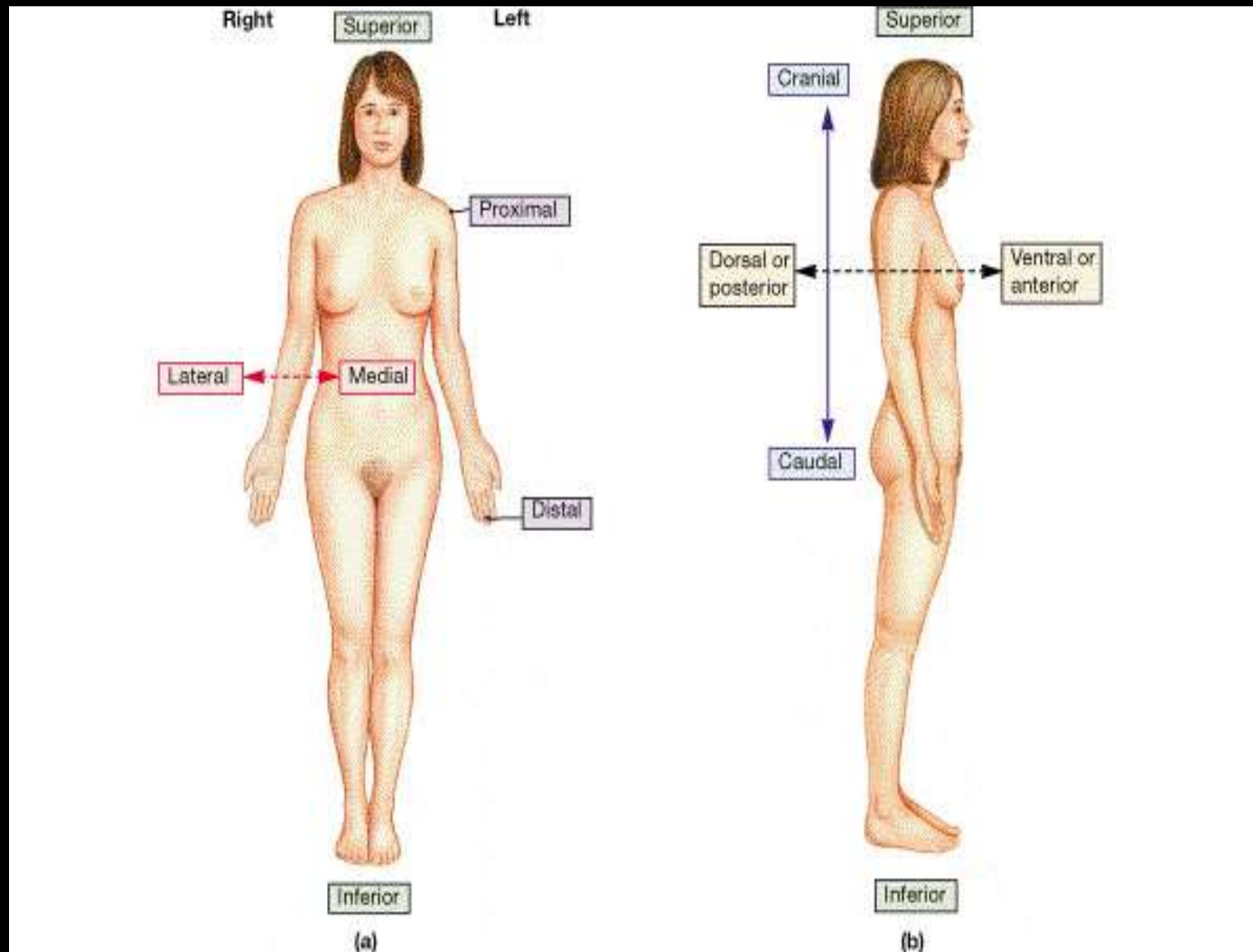
Descriptive Terms Used in  
Superficial Anatomy

# Anatomical Position

- ▣ Illustrations will show human form in standard anatomical position
  - Standing up
  - Facing forward
  - Palms forward
  - Supine- face up
  - Prone- face down
  - All descriptions of body regions/ parts will assume a standard anatomical position.



# Directional Terms- used to related two areas/ regions or injuries to each other

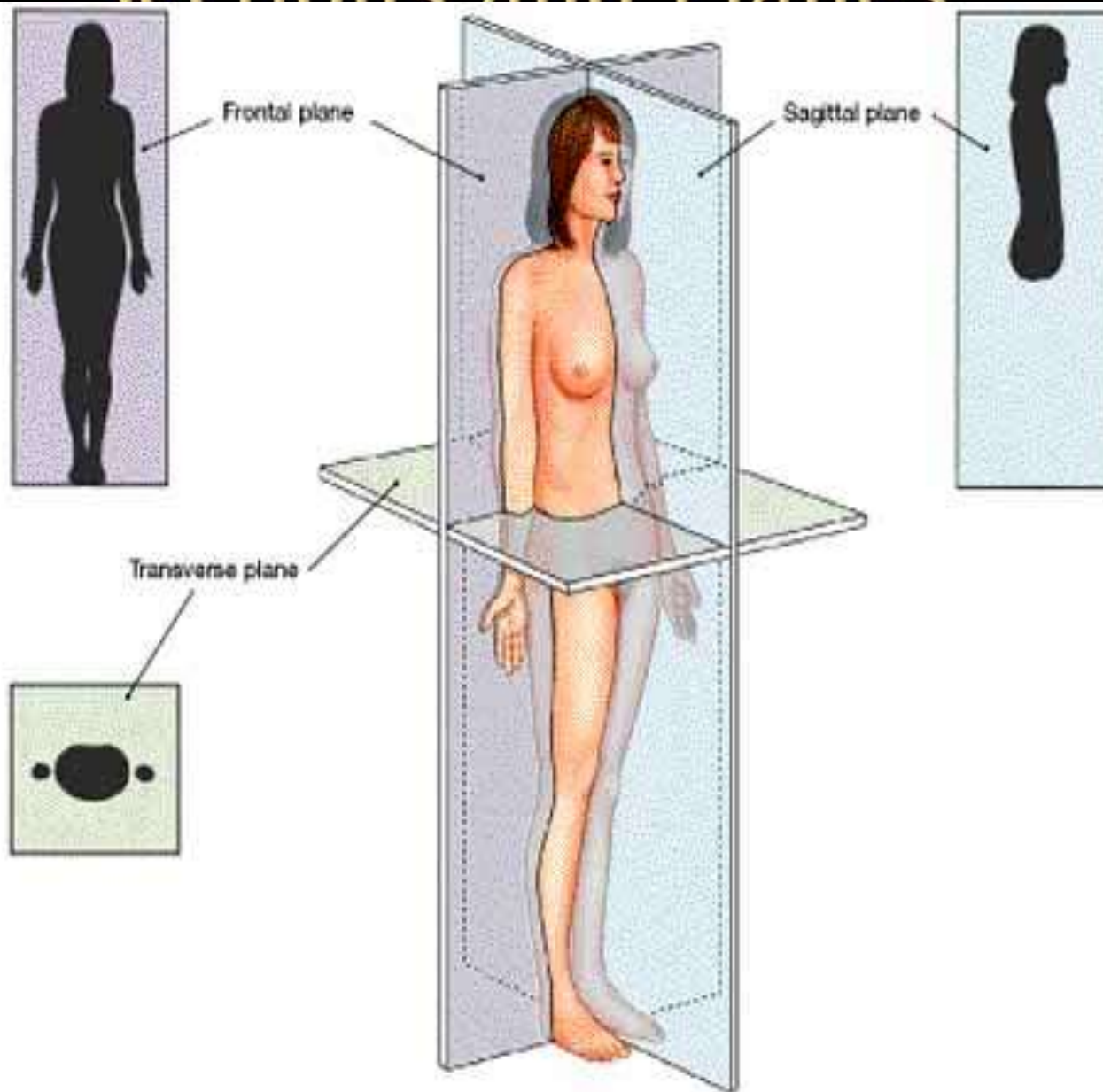


# Body Planes

There are **three** body planes:

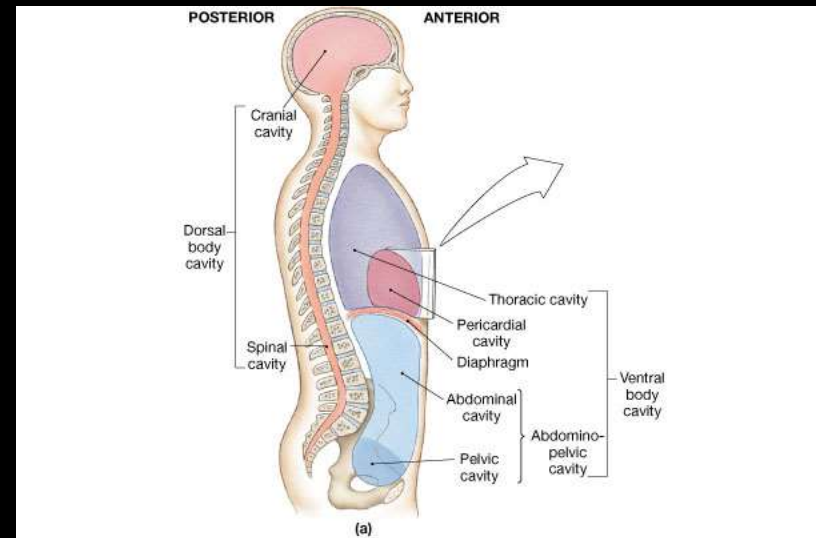
- a) **Transverse or Horizontal**- divides the body into a top and bottom.
- b) **Mid-Sagittal or Median**- divides the body into an equal right and left side.
- c) **Frontal or Coronal**- divides the body into a front and a back side.

# Sections and Planes



# Body Cavities

- ▣ Body is divided into cavities that contain organs
- ▣ Protect Organs from shocks and bumps
- ▣ Allow organs to expand and contract without damaging tissues underneath.



# Body Cavities

There are **two main** body cavities:

**Ventral: (Belly)** Which is subdivided into.....

a) **Abdominopelvic**- which consists of the abdominal and pelvic regions, and contains the digestive and reproductive organs.

b) **Thoracic**- which is the upper torso or chest region, and contains the heart and lungs.

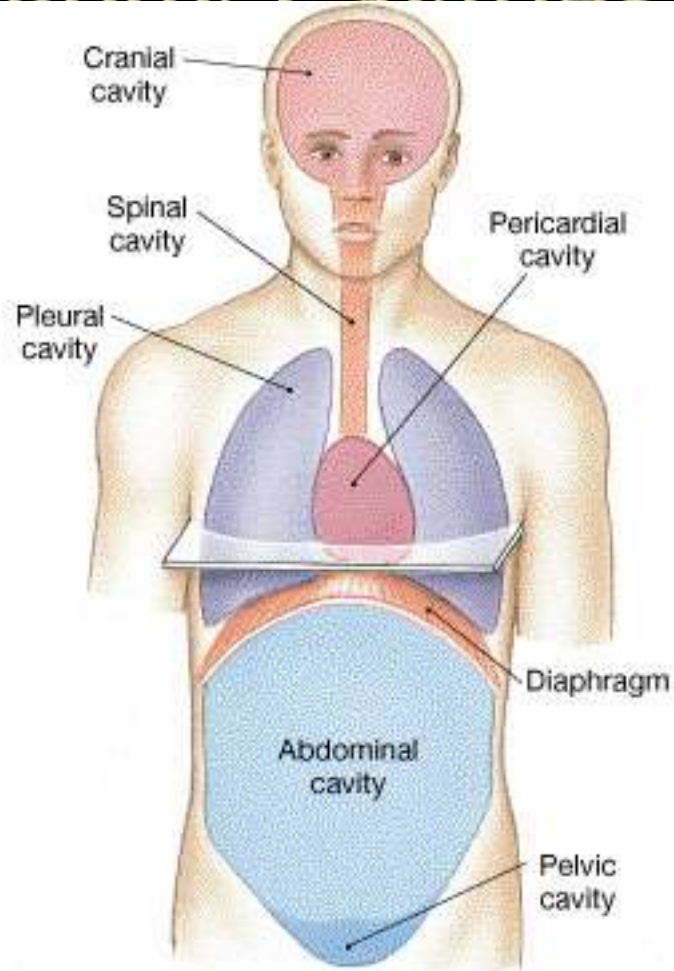
**Dorsal: (Back)** Which is subdivided into.....

a) **Cranial**- which contains the head and includes the brain.

b) **Vertebral**- which includes the spinal column.



# Body Cavities



(c)



# Abdominopelvic Quadrants – Method 1 (4 areas)

## Right Upper Quadrant (RUQ):

Right lobe of liver, gallbladder, right kidney, portions of stomach, small and large intestine

## Left Upper Quadrant (LUQ):

Left lobe of liver, stomach, pancreas, left kidney, spleen, portions of large intestine

## Right Lower Quadrant (RLQ):

Cecum, vermiform appendix, portions of small intestine, reproductive organs (right ovary in female and right spermatic cord in male), right ureter

## Left Lower Quadrant (LLQ):

Most of small intestine, portions of large intestine, left ureter, reproductive organs (left ovary in female and left spermatic cord in male)

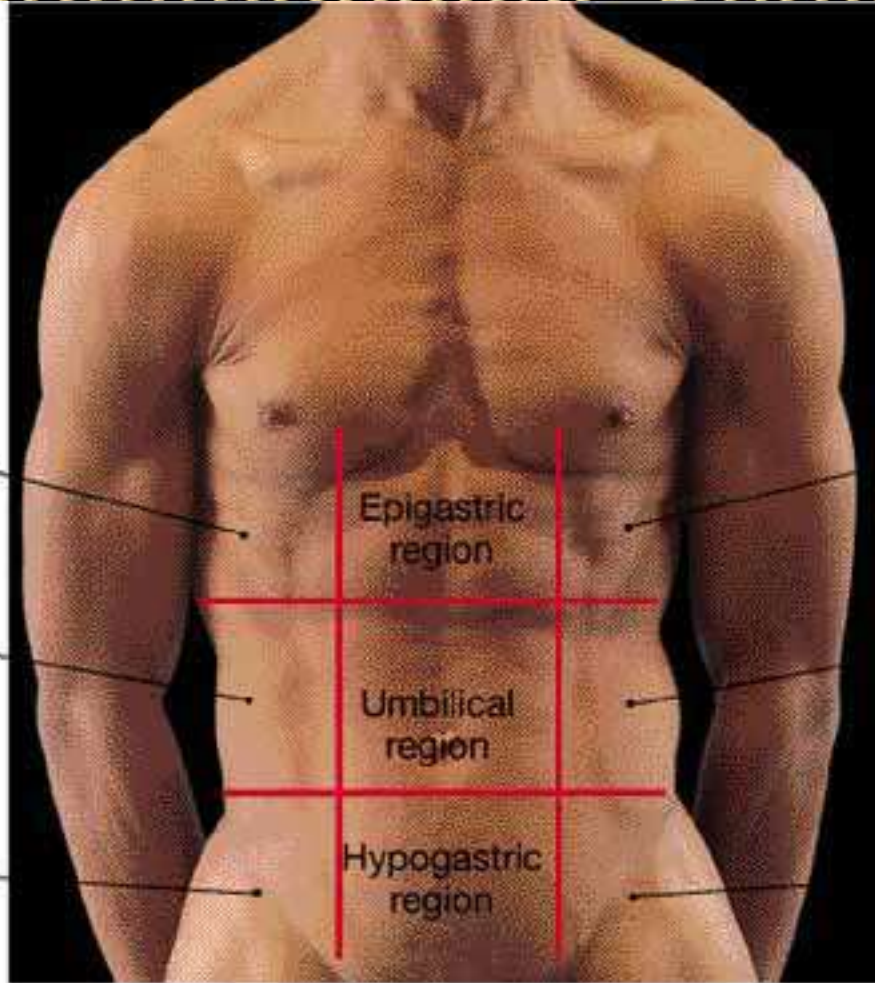
(a)

# Abdominopelvic Regions

Right  
hypochondriac  
region

Right  
lumbar  
region

Right  
inguinal  
region



Epigastric  
region

Umbilical  
region

Hypogastric  
region

Left  
hypochondriac  
region

Left  
lumbar  
region

Left  
inguinal  
region

(b)

# Anatomical regions

- ▣ Used to describe areas of the human body- typically these areas have a specific function.
  - ▣ **Cephalic: head**
  - ▣ **Cervical: neck**
  - ▣ **Thoracic: chest**
  - ▣ **Abdominal: abdomen**
  - ▣ **Inguinal: groin**
  - ▣ **Lumbar: lower back**
  - ▣ **Brachial: arm**
  - ▣ **Femoral: thigh**
  - ▣ **Pedal: foot**
  - ▣ **Axillary: armpit**
  - ▣ **Manual: hand**
  - ▣ **Abdominopelvic areas**
    - 2 methods used to describe



