Medical Terminology Concepts

Foundational Curriculum:
Cluster 2: Clinical Process
Module 2: Clinical Practice and Documentation
Unit 6: Medical Terminology Concepts
FC-C2M2U6

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Unit Objectives

- Describe the anatomical positions
- Identify the body planes
- Recognize regions of the body
- Identify major body systems
- Identify major organs, bones and muscles
- Identify and expand common medical abbreviations used in health information and technology
- Identify and expand common medical abbreviations used in clinical documentation

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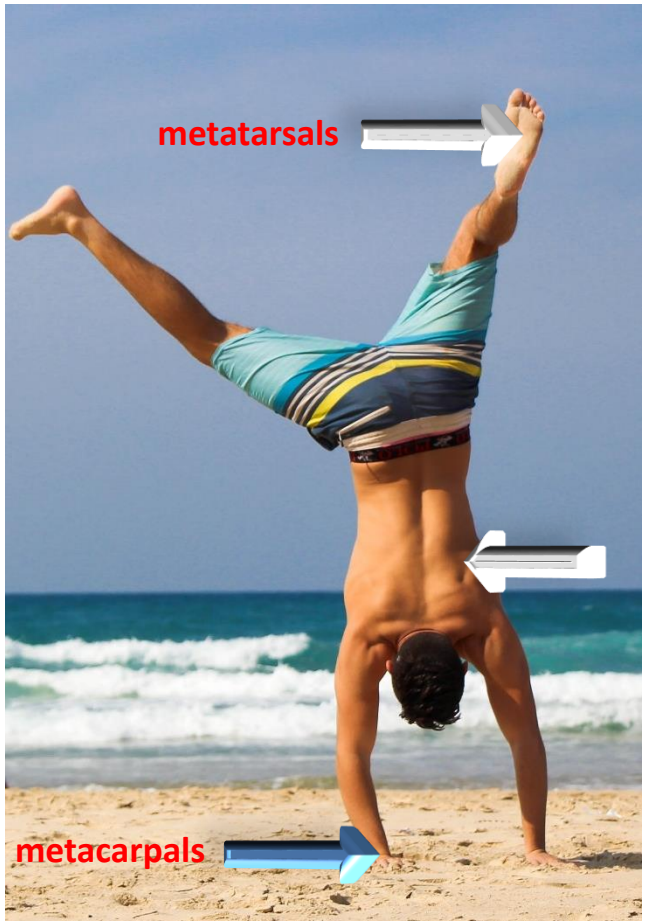
The Importance of Medical Terminology

- Medical terminology helps to ensure that clinicians, non-clinicians, and other eHealth and health workers will have a consistent language to communicate about body systems and functions
- It transforms clinical documentation, and can change it from **unstructured,** composite information to **structured**, concise, simplified data that can be searched and codified



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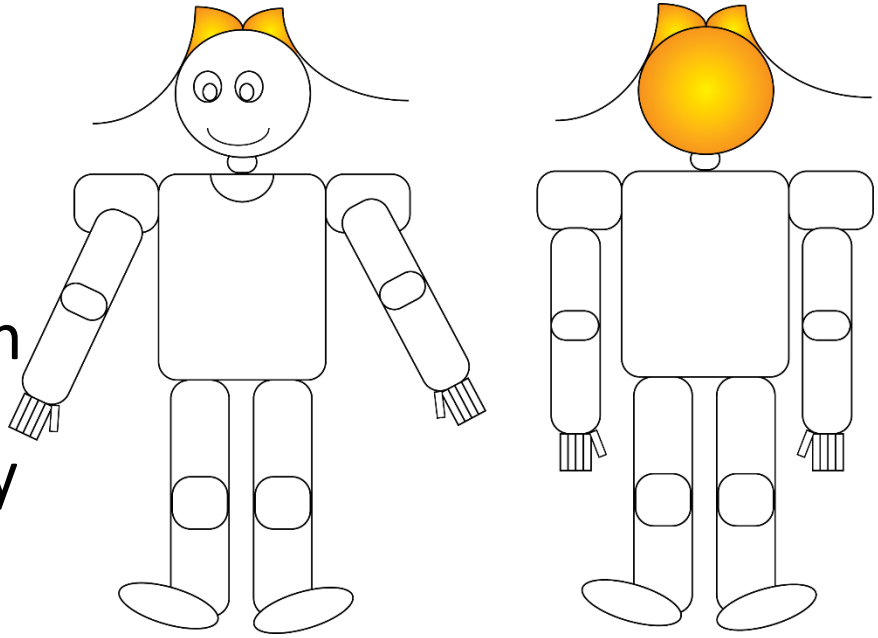
Anatomical Positions/Directions

- In the following slides, you will learn, with the aid of Sally the Cartoon, basic anatomical positions
- The anatomical positions can also be used to name directional terms in anatomy
  - for example, anterior is both a position and a direction
  - medical terms will be indicated in **boldface**



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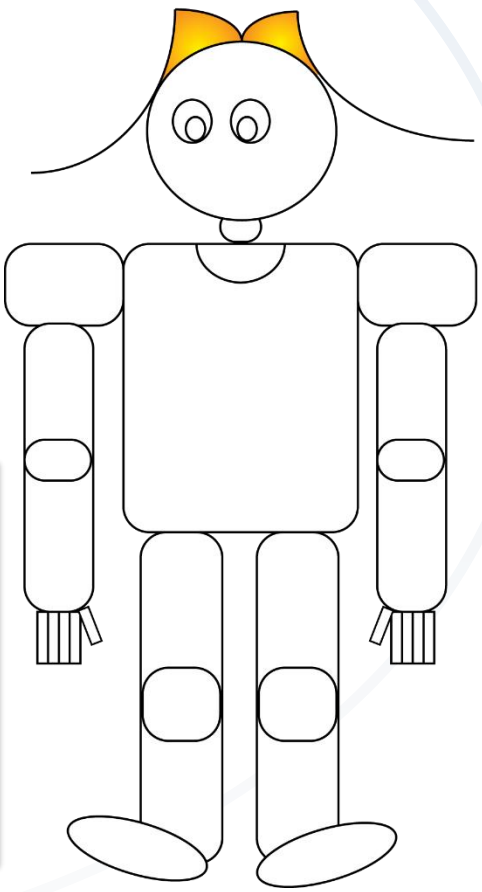
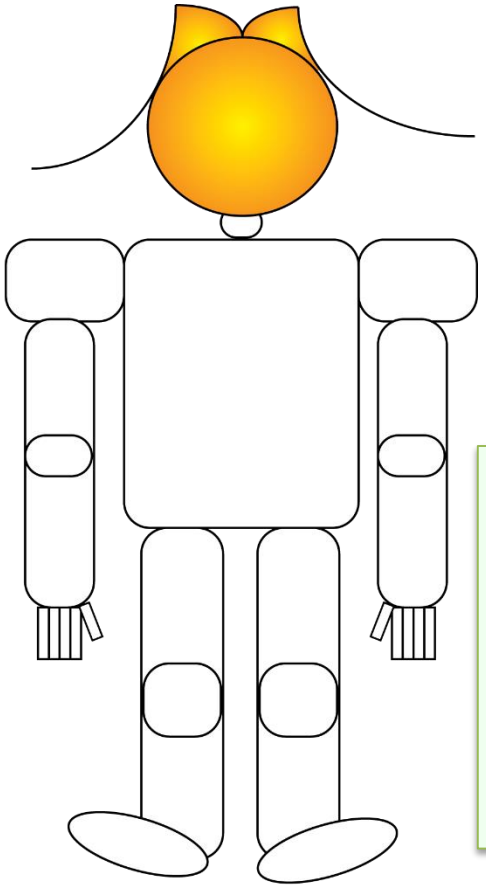
Anatomical Positions/Directions (Cont'd)



anterior: front, or towards the front of the body



posterior: back, or towards the back of the body

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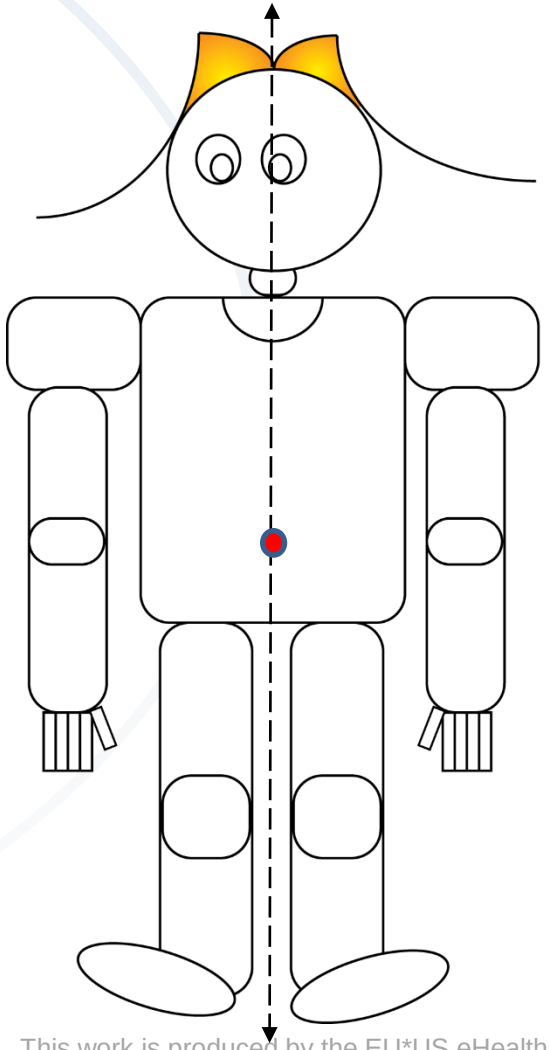
Anatomical Positions/Directions (Cont'd)

midline: an imaginary vertical line that divides the body equally (right down the middle)



- *Example*: The navel, or belly button [**umbilicus**], lies on the **midline** of the abdomen

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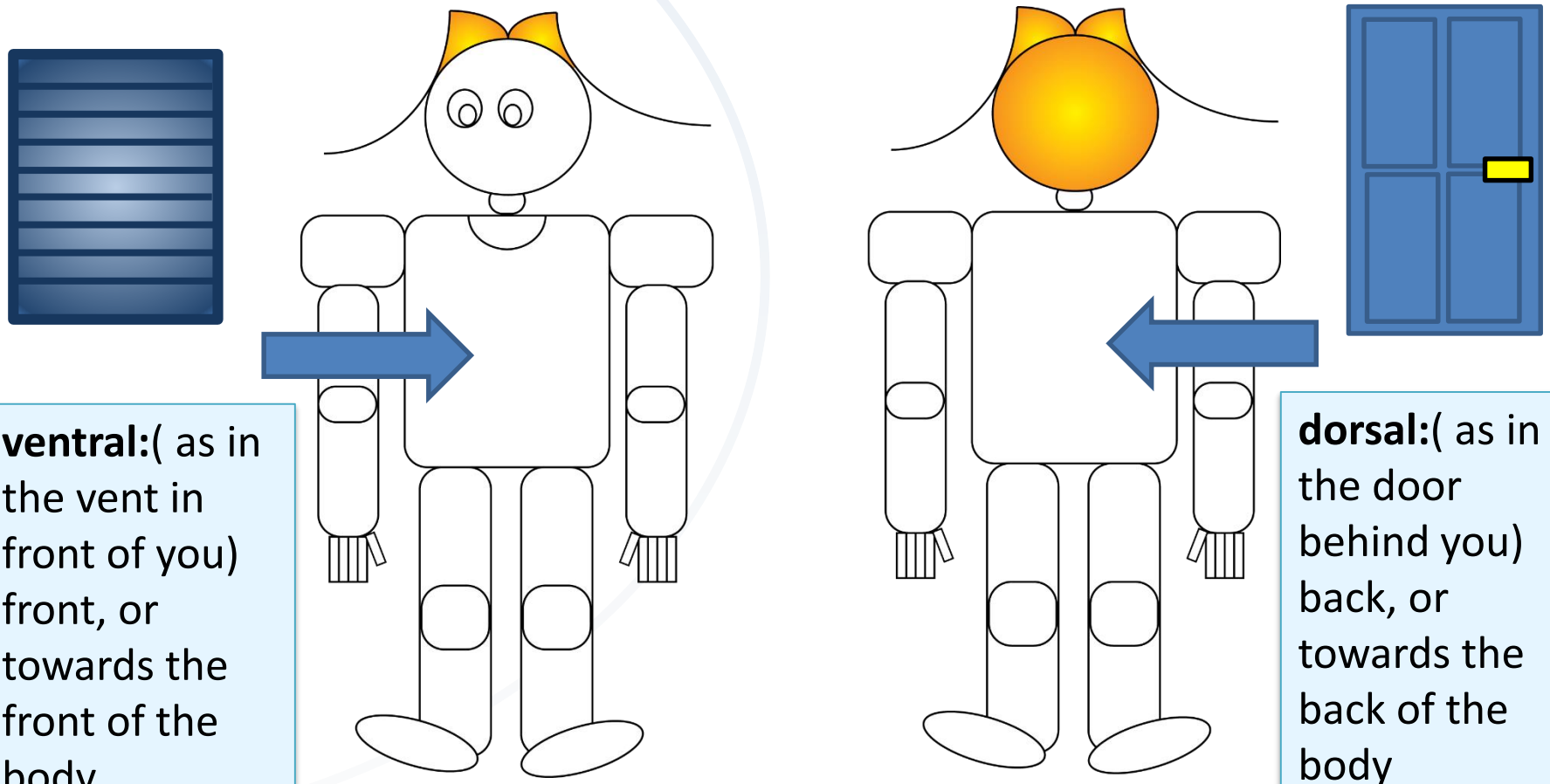
Anatomical Positions/Directions (Cont'd)



ventral:(as in the vent in front of you) front, or towards the front of the body

dorsal:(as in the door behind you) back, or towards the back of the body

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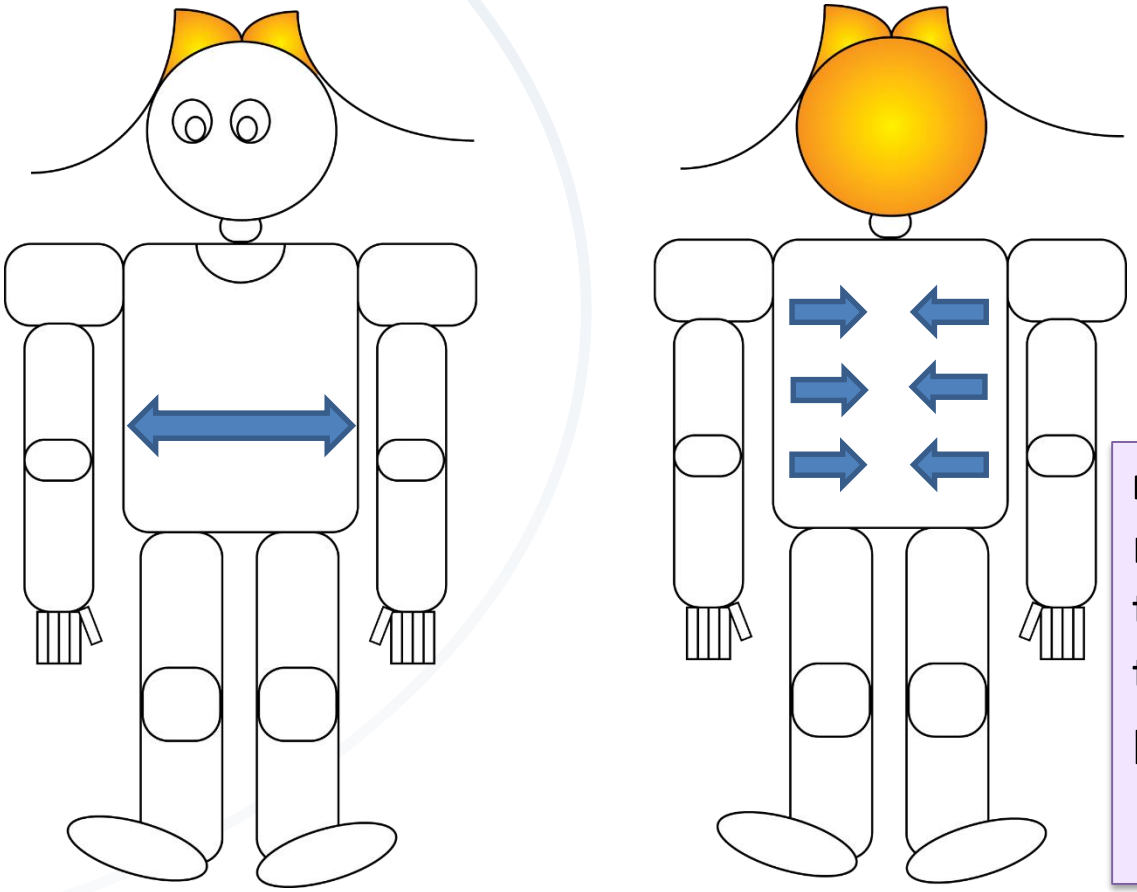
Anatomical Positions/Directions (Cont'd)

lateral: side; towards or on the side of the body or a part of the body



medial/median: middle; towards the middle of the body or a part of the body

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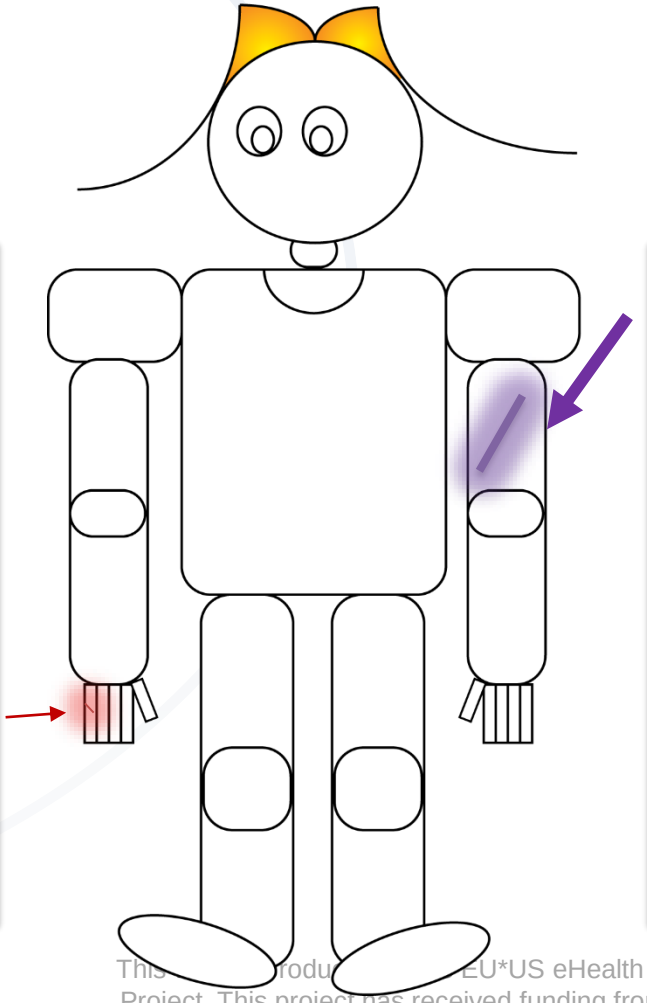
Anatomical Positions/Directions (Cont'd)

superficial: close to the surface of the body; not of significant depth or severity

example: a small 3 mm cut **[laceration]** on the finger **[phalanx]** would likely be superficial



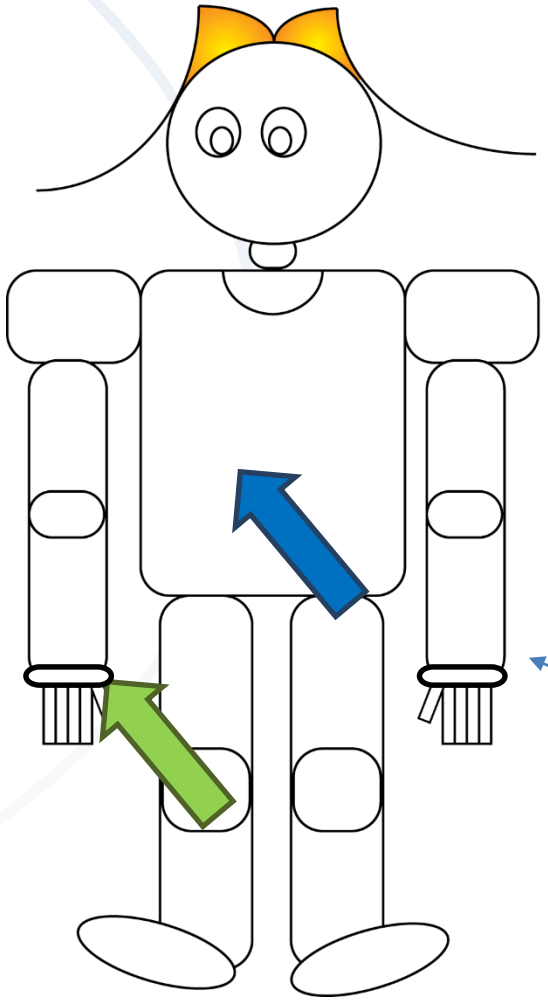
deep: away from the surface of the body; in the interior of the body structures

example: a large 4 cm laceration that penetrates the skin through to the arm bone **[humerus]** would be deep

This [illegible] produ[illegible] EU*US eHealth Work Project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 727552 EUUSEHEALTHWORK

Anatomical Positions/Directions (Cont'd)

The following positions are comparisons of positions between one original part to another



distal: located away from the center of the body or from the point of attachment

(example: the wrist **[carpus]** is distal to the trunk, or torso **[thorax and abdomen]**)

distal end of arm

note: the distal end of an extremity or bone is the end located farthest from the center of the body

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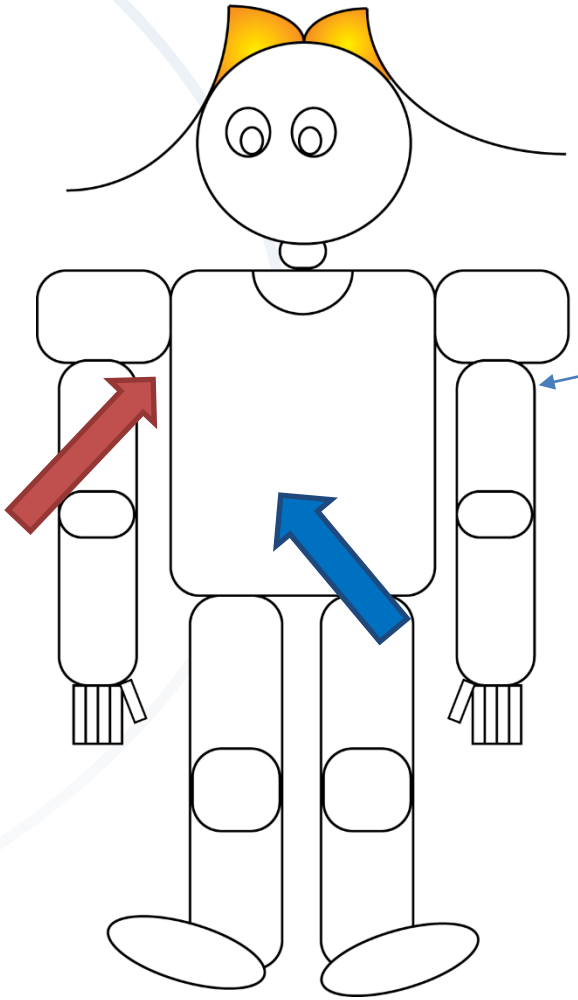
Anatomical Positions/Directions (Cont'd)

proximal: located in close proximity to the center of the body or point of attachment

(example: the armpit **[axilla]** is proximal to the **thorax**)



proximal end of arm

note: the proximal end of an extremity or bone is the end located nearest to the center of the body

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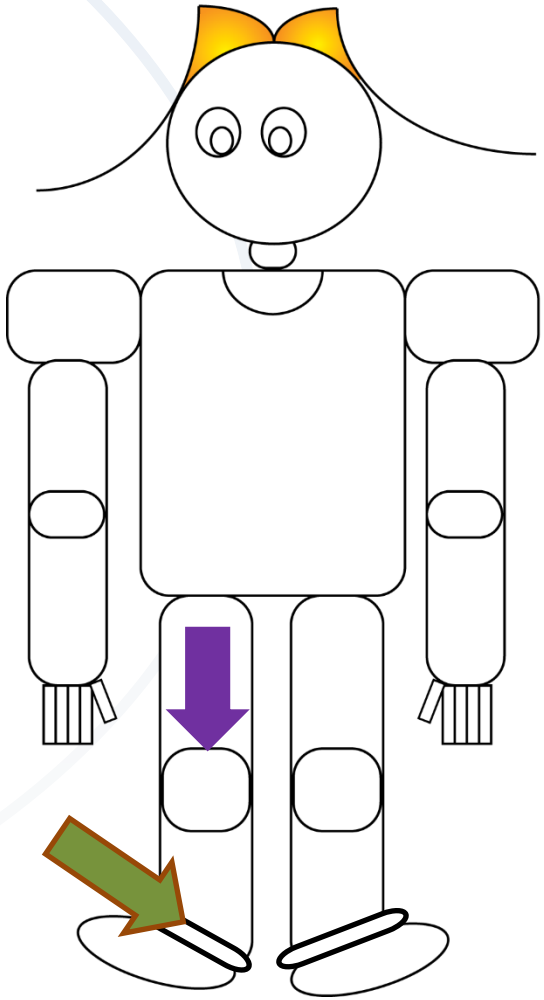
Anatomical Positions/Directions (Cont'd)

superior: situated above, or higher than, another body part



- example: the kneecap [**patella**] is superior to the ankle [**tarsus**]

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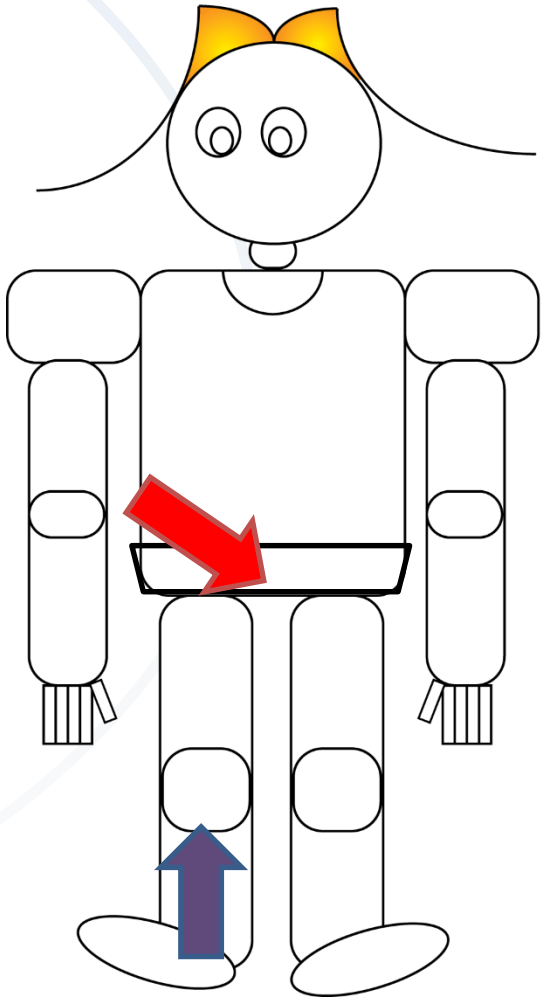
Anatomical Positions/Directions (Cont'd)

inferior: situated below, or lower than, another body part



- In this example, the kneecap [**patella**] is inferior to the hip bone [**pelvis**]

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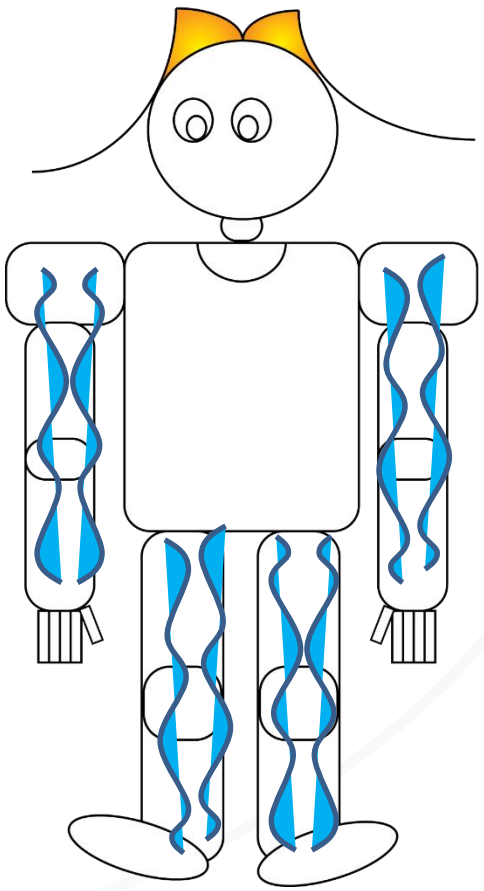
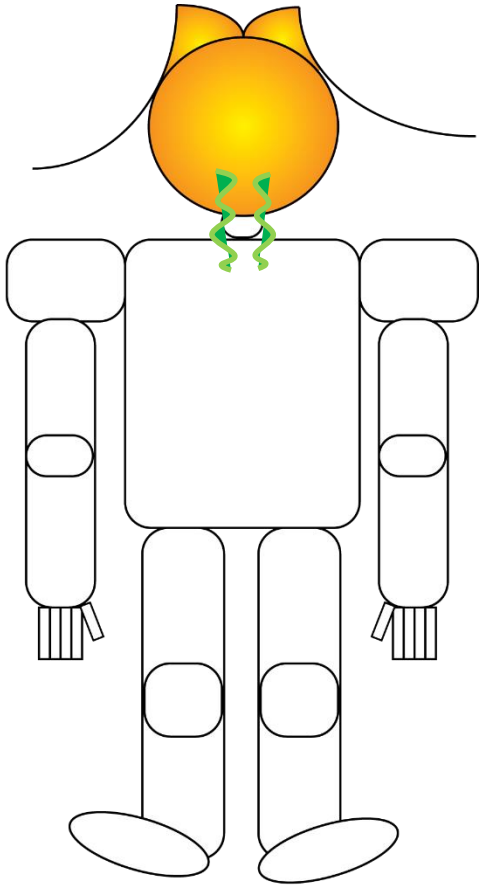
Anatomical Positions/Directions (Cont'd)

peripheral: away from the center





- Example: The peripheral nerves travel down the arms and legs, and the central nerves are **concentrated** in the brain and travel down the spinal column

Body Positions: Positions used in Examinations and Surgical Procedures

supine: lying flat, face upwards

dorsal recumbent: lying on back, knees flexed, feet flat on examination surface

prone: lying flat, face downwards

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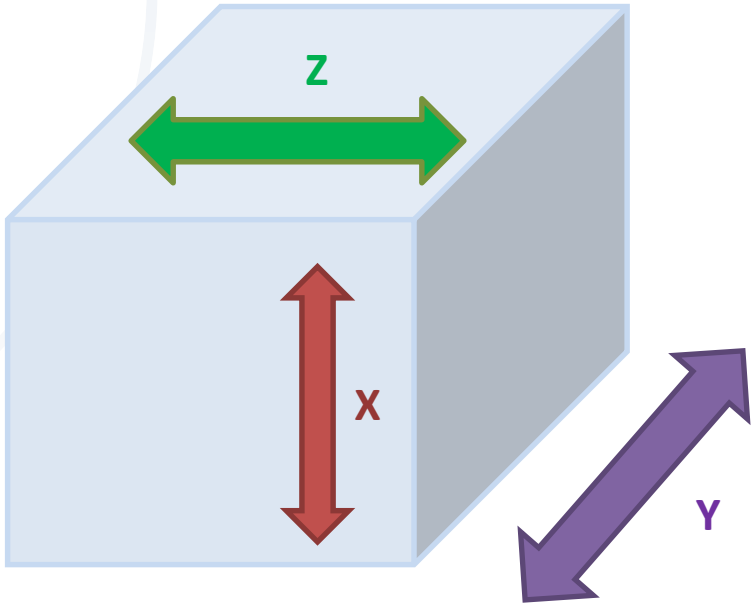
Body Planes

- Body planes are parts of the body, cut into sections, and reexamined in terms of height, width and depth
- These planes are:
  - **Frontal** or **coronal plane:** height **X**
  - **Sagittal** or **median plane:** depth **Y**
  - **Transverse** or **horizontal plane:** width **Z**



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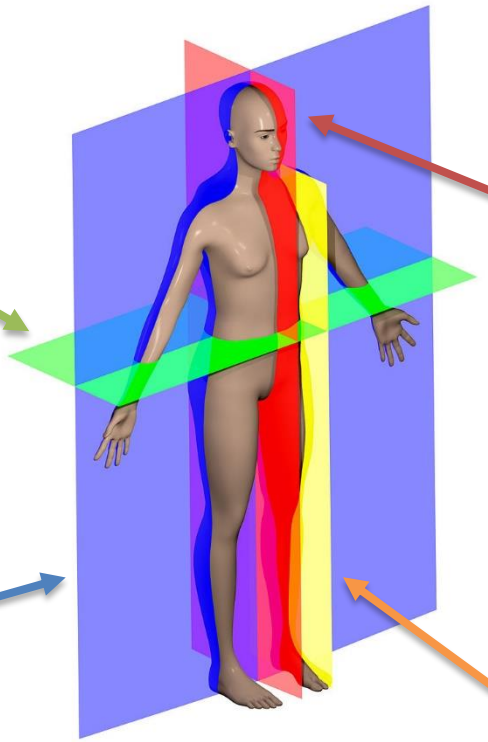
Body Planes (Cont'd)

Transverse, axial or horizontal plane: The transverse (or as axial or horizontal) plane is the X-Z plane, parallel to the ground, and separates the superior from the inferior, or the head from the feet.

Frontal, lateral or coronal plane: This plane is a Y-X plane that lies perpendicular to the ground, which separates the anterior from the posterior, the front from the back, and the ventral from the dorsal.



Medial, sagittal or anteroposterior plane: This is an Y-Z plane, which lies perpendicular to the ground and separates the left from right. The midsagittal plane is the specific sagittal plane that is exactly in the middle of the body. The **midsagittal** plane or **median** plane is in the midline; i.e. it would pass through midline structures such as the ***umbilicus*** or ***vertebrae***

Parasagittal plane: All other sagittal planes, such as the one that passes through the foot, leg, ***pelvis***, ***thorax*** and ***clavicle***, are referred to as parasagittal planes. They are all parallel to the sagittal plane. Median can also refer to the midsagittal plane of other structures, such as a finger, or ***phalange***.

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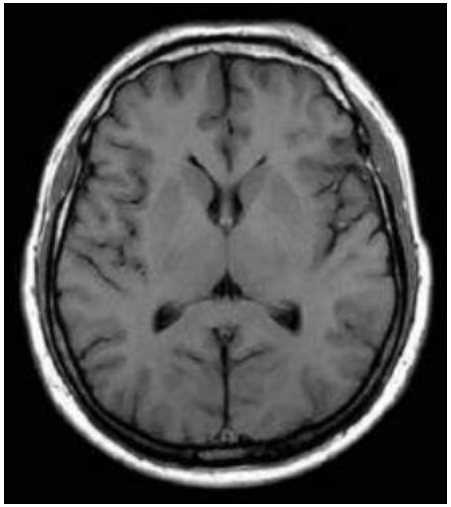
Body Planes (Cont'd)



The brain on MRI seen in the transverse plane

The brain on MRI seen in the sagittal plane

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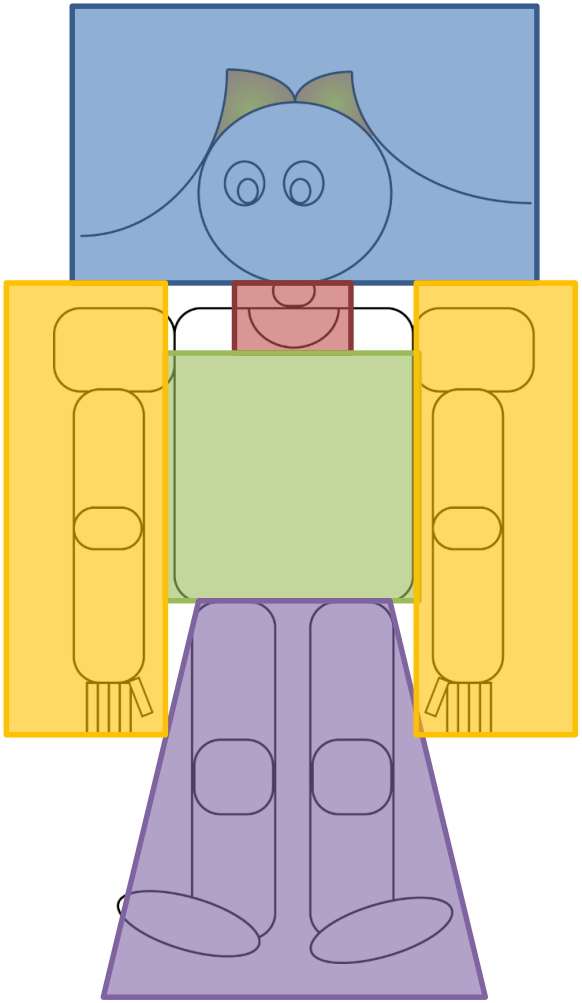
Regions of the Body

- The body is divided into five major regions that are visible from an external point of view:
  - head (blue)
  - neck (red)
  - torso/thorax (green)
  - superior extremities (arms, hands, etc.) (orange)
  - inferior extremities (legs, feet, etc.) (purple)



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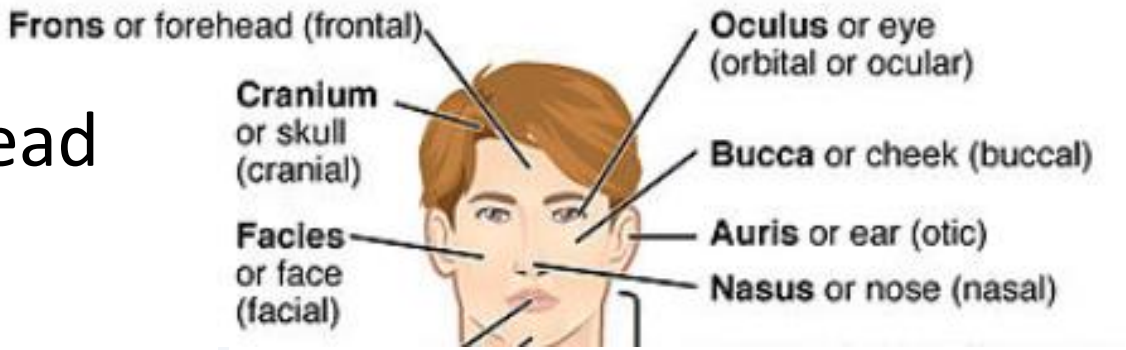
Regions of the Body (Cont'd)

- Regions of the head include:
  - **cranium** (skull)
  - **frons** (forehead)
  - **facies** (face)
  - **oculus** (eye)
  - **bucca** (cheek)
  - **auris** (ear)
  - **nasus** (nose)



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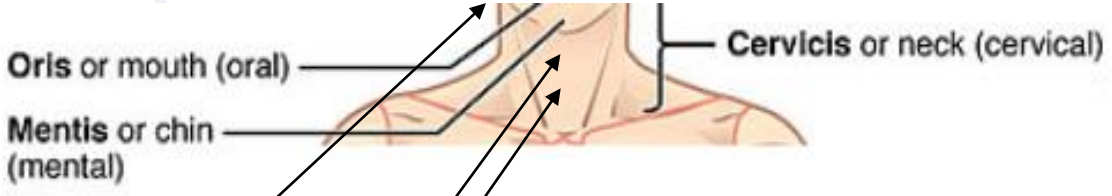
Regions of the Body (Cont'd)

- The neck region includes:
  - **cervicis** (neck)
  - **oris** (mouth)
  - **mandible** (lower jaw)
  - **mentis** (chin)
  - **cricoid ring** of the **larynx** (voice box)
  - **laryngeal prominence** (Adam's apple, predominant in males)



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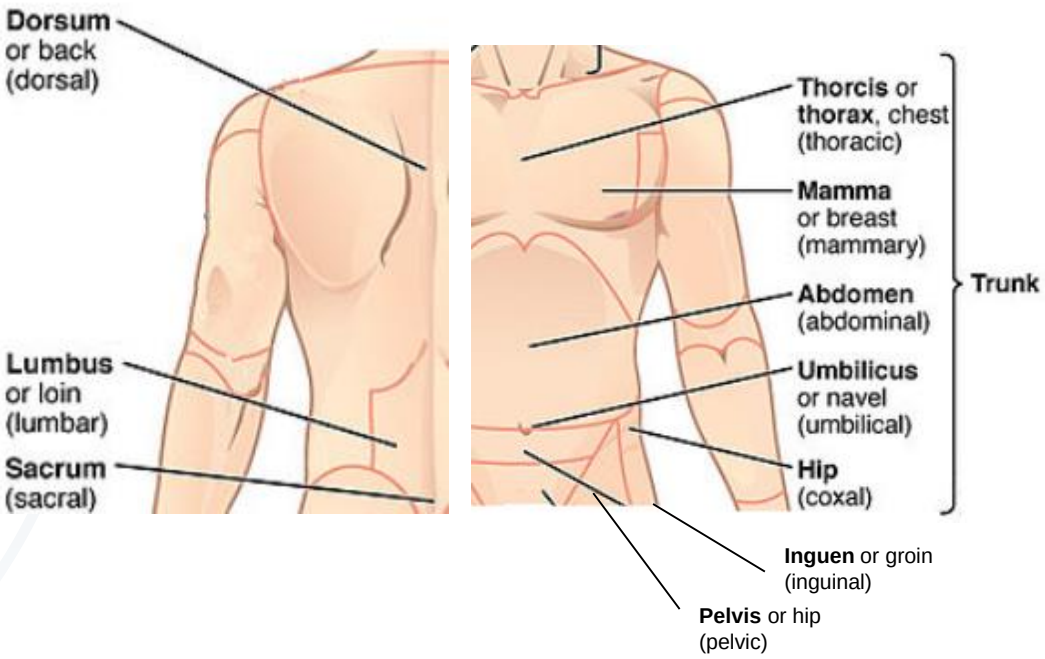
Regions of the Body (Cont'd)

- The posterior torso region includes:
  - **dorsum** (mid back region)
  - **lumbus** (low back region)
  - **sacrum** (lowest back region)
- The anterior torso region includes:
  - **thorax** (chest)
  - **mamma/mammary glands** (breasts)
  - **abdomen** (belly)
  - **umbilicus** (belly button/navel)
  - **pelvis** (hip) (anterior and posterior torso)



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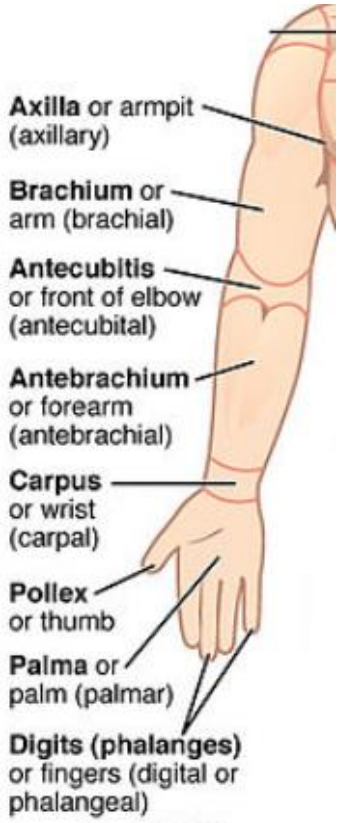
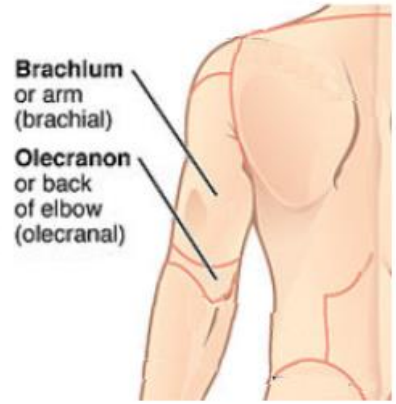
Regions of the Body (Cont'd)

- The superior extremities region includes:
  - anterior
    - **axilla** (armpit)
    - **brachium** (arm)
    - **antecubitus** (front of elbow)
    - **carpus** (wrist)
    - **palma** (palm/hand)
    - **phalanges** (fingers)
      - **pollex** (thumb)
  - posterior
    - **olecranon** (back of elbow)





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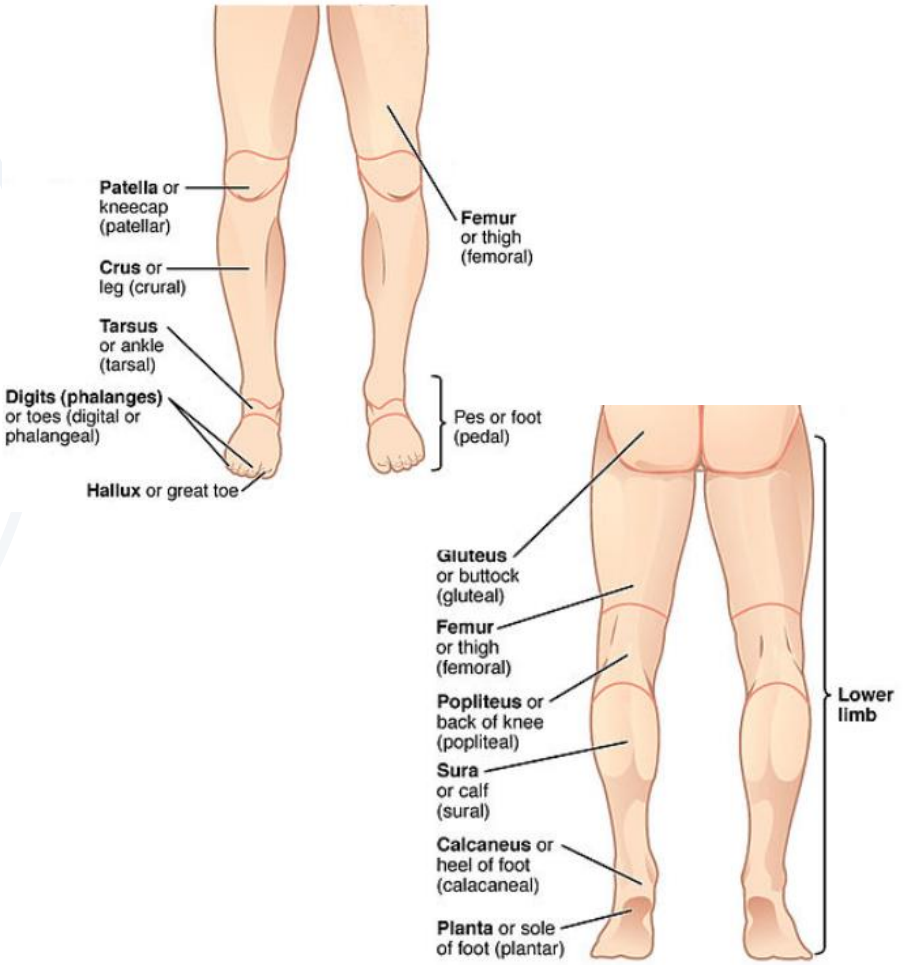
Regions of the Body (Cont'd)

- The inferior extremities region includes:
  - anterior:
    - **femur** (thigh)
    - **patella** (kneecap)
    - **crus** (leg)
    - **tarsus** (ankle)
    - **pes** (foot)
    - **phalanges** (toes)
      - **hallux** (great toe)
  - posterior:
    - **gluteus** (buttock)
    - **popliteus** (back of knee)
    - **sura** (calf)
    - **calcaneus** (heel)
    - **planta** (sole of foot)



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Major Body Systems and their Functions

- **Cardiovascular/Circulatory:** Circulates blood around the body via the heart, arteries and veins, delivering oxygen and nutrients to organs and cells, and carrying their waste products away
- **Gastrointestinal/Digestive/Excretory:** Comprises the mechanical and chemical processes that provide nutrients via the mouth, esophagus, stomach and intestines. Eliminates waste from the body
- **Endocrine:** Provides chemical communications within the body using hormones
- **Integumentary/Exocrine:** Skin, hair, nails, sweat and other exocrine glands
- **Lymphatic/Immune:** Comprises a network of lymphatic vessels that carry a clear fluid called lymph. Defends the body against pathogenic viruses that may endanger the body
- **Muscular:** Enables the body to move using muscles
- **Nervous:** Collects and processes information from the senses via nerves and the brain. Tells the muscles to contract to cause physical actions
- **Renal/Urinary:** The system that uses the kidneys to filter blood
- **Reproductive:** The system that includes the glands and organs required for producing children
- **Respiratory:** The lungs and the trachea that bring air into the body
- **Skeletal:** Bones supporting the body and its organs

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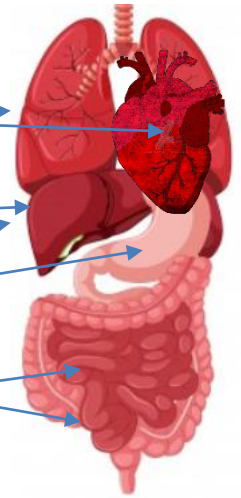
Major Organs

- The major organs work in conjunction with the major body systems. The skin (**integument**) is actually the largest organ in the body. The major internal organs of the body (found mostly within the torso) are:
  - brain (**cerebrum**) (located within the cranium)
  - heart (**cardium**)
  - lungs (**pulmonae**)
  - liver (**hepar**)
  - bladder (**vesica urinaria**)
  - kidneys (**ren/nephros**)
  - stomach (**gaster**)
  - intestines (**entera**)
    - Some other internal organs include the esophagus, gallbladder, pancreas, spleen, diaphragm, uterus, ovaries and testes
    - The sensory organs, located within the head, are the eyes, the ears, the tongue and the nose



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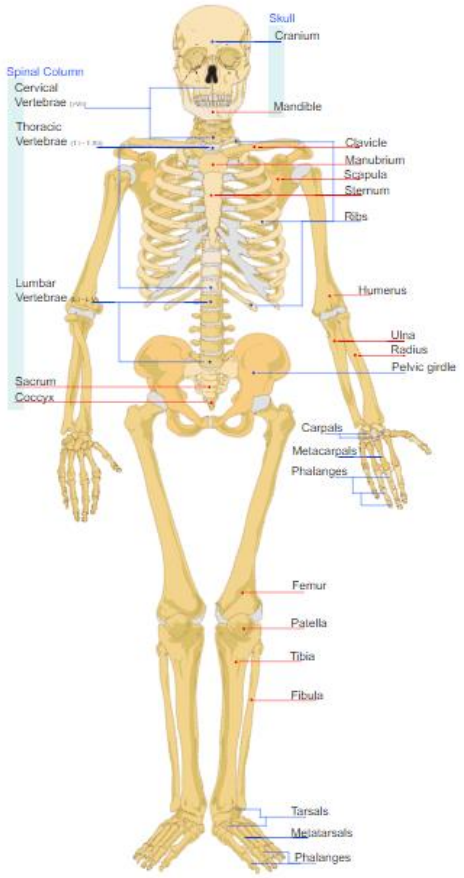
Major Bones

The major bones are found in each of the body regions:

- head
  - cranium
  - mandible
- neck
  - cervical vertebrae
- thorax
  - vertebrae
    - lumbar and sacral vertebrae, and the coccyx
  - clavicle
  - manubrium
  - scapula
  - sternum
  - ribs
  - pelvic girdle
- superior extremities
  - humerus
  - ulna
  - radius
  - carpals
  - metacarpals
  - phalanges
- inferior extremities
  - femur (the largest bone in the body)
  - patella
  - tibia
  - fibula
  - tarsals
  - metatarsals
  - phalanges



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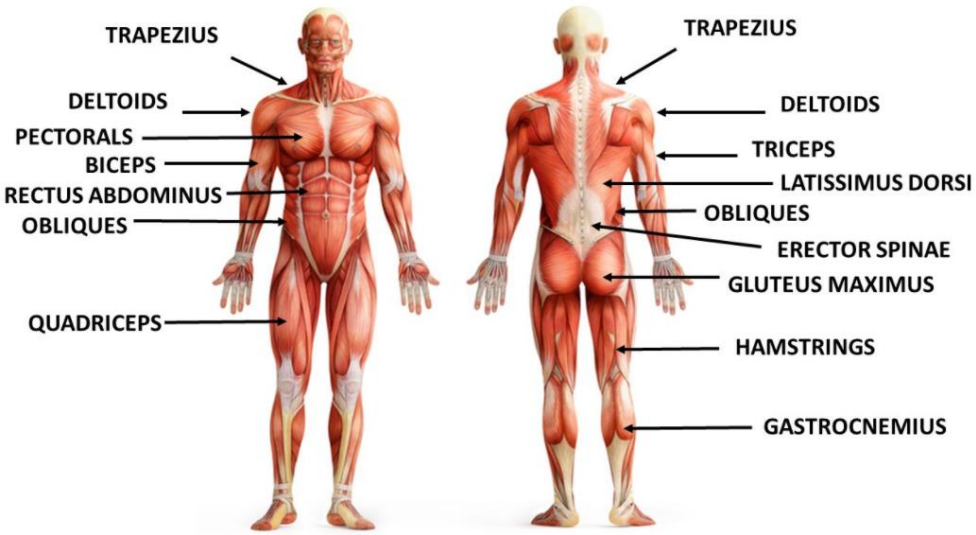
Major Muscles

- The major muscle groups, from the superior to the anterior of the body, include:
  - torso:
    - trapezius
    - pectorals
    - latissimus dorsi
    - rectus abdominus
    - obliques
    - erector spinae
  - superior extremities
    - deltoids
    - triceps
    - biceps
  - inferior extremities
    - gluteus maximus
    - quadriceps
    - hamstrings
    - gastrocnemius



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Common Medical Abbreviations Used in HIT

Following are some common English abbreviations used in eHealth, along with their expanded words. You should become familiar with any common eHealth abbreviations that may be used in your local language and region, as well as policies that govern their usage.

- CDA – clinical document architecture
- CCD – continuity of care document
- CDS – clinical decision support
- CPOE- computerized provider order entry
- DRG – diagnostic related group(s)
- Dx – diagnosis
- EHR – electronic health record
- EMA – European Medicines Agency
- EMR – electronic medical record
- eRx – electronic prescription
- FDA – Food and Drug Administration (US)
- HCI - human-computer (machine) interaction
- HIE – health information exchange
- HIM – health information management
- HIT – health information technology
- HPIP – History, Physical Exam, Impression and Plan
- Hx – history
- ICD – international classification of diseases
- ICT – information and communications technology
- IS – information systems
- ISO - International Organization for Standardization
- IT – information technology
- ITIL - Information Technology Infrastructure Library
- PACS – picture archiving and communications system
- PHI – protected health information
- PHR – patient health record
- Rx – prescription/pharmacy
- LOINC - Logical Observation Identifiers Names and Codes
- MPI – Master Patient Index
- SNOMED-CT – Systemized Nomenclature of Medicine – Clinical Terms
- SOAP – Subjective, Objective, Assessment and Plan
- Tx – treatment
- WHO – World Health Organization

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Common Medical Abbreviations Used in Clinical Documentation

Following are some common English abbreviations used in clinical documentation, along with their expanded words. You should become familiar with any common clinical documentation abbreviations that may be used in your local language and region, as well as policies that govern their usage.

ac/a.c.: before meals
ad lib: at will, as desired
ASAP: as soon as possible
bid/b.i.d.: twice a day
BP: blood pressure
cap: capsule
°C: degrees Celsius
CC: chief complaint
c/o: complains of
C02: carbon dioxide
CPR: cardiopulmonary resuscitation
CXR: chest x-ray
d/c: discontinue or discharge
ECG or EKG: electrocardiogram
EBL: estimated blood loss
ED/ER: emergency department/emergency room
°F: degrees Fahrenheit
fb: foreign body
fx: fracture
HEENT: head, eyes, ears, nose and throat
HR: heart rate
hs/h.s.: hour of sleep (bedtime)
I & O: intake and output

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Common Medical Abbreviations Used in Clinical Documentation (cont'd)

IV: intravenous
IM: intramuscular
NPO: nothing by mouth
O2: oxygen
od/o.d.: right eye
os/o.s.: left eye
ou/o.u.: both eyes
post-op: postoperative (after surgery)
pre-op: preoperative (before surgery)
po/p.o.: by mouth
pt: patient
prn/p.r.n.: as needed
pc/p.c.: after meals

qd/q.d.: every day
qh/q.h.: every hour
qid/q.i.d.: four times a day
qod/q.o.d.: every other day
ROS: Review of Systems
sc/sq: subcutaneous
s: without
s/s: signs and symptoms
stat: immediately
SOB: short of breath
tab: tablet
TPR: temperature, pulse, respiration
vs: vital signs

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Unit Review Checklist

- ❑ Described the anatomical positions
- ❑ Defined the body planes
- ❑ Identified regions of the body
- ❑ Identified major body systems
- ❑ Identified major organs, bones and muscles
- ❑ Identified and expanded common medical abbreviations used in health information and technology (EL03)
- ❑ Identified and expanded common medical abbreviations used in clinical documentation (EB05)

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Unit Review Exercises/Activities

1. Are the lumbar vertebrae superior or inferior to the coccyx?
2. In which region is the heart contained?
3. In which extremities are the humerus located?
4. Where are the gastrocnemius muscles?
   a. When lying in the recumbent dorsal position, do these muscles touch the examining table?
5. Which view of a chest x-ray would show a front to back view of all the ribs and spine, an anterior-posterior view, or a lateral view?
   a. Is this view taken on the sagittal or frontal plane?
6. Is the wrist located at the distal or proximal end of the radius?
7. What is the largest organ?
8. What does the abbreviation b.i.d. stand for?

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Unit Exam

1. Which of the following terms means the same as posterior?
   a. dorsal
   b. top
   c. front
   d. midline
2. Which of the following statements is true?
   a. The lateral side of the abdomen is located near the umbilicus
   b. The patella lies in the midline of the superior extremity
   c. The anterior side of your body is also its frontal or ventral side
   d. A large superficial cut would be on the interior of the body

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Unit Exam (cont'd)

3. On which plane or view of the MRI would you see a profile (side view) of the nose?
   a. Frontal plane or view
   b. Transverse plane or view
   c. Sagittal plane or view
   d. Parasagittal plane or view

4. The thorax includes which of the following body parts?
   a. cervicis, oris, mandible and mentis
   b. mamma/mammary glands, abdomen, umbilicus and pelvis
   c. brachium, antecubitus, carpus and palma
   d. crus, tarsus, pes and phalanges

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Unit Exam (cont'd)

5. "Comprises the mechanical and chemical processes that provide nutrients, and eliminates waste from the body" describes which body system:
   a. Cardiac
   b. Endocrine
   c. Exocrine
   d. Excretory
6. Which of the following organs are located in the thorax?
   a. the kidneys
   b. the sensory organs
   c. the cerebrum
   d. the integument

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Unit Exam (cont'd)

7. Phalanges are found in which of the body regions:
   a. In the thorax
   b. In both the superior and inferior extremities
   c. Only in the superior extremities
   d. Only in the inferior extremities
8. Which of the following organs are located in the thorax?
   a. the kidneys
   b. the sensory organs
   c. the cerebrum
   d. the integument

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Unit Exam (cont'd)

9. The quadriceps and hamstrings are located inferior to which bones:
   a. the patella
   b. the humerus, ulna and radius
   c. the femur, tibia and fibula
   d. the metatarsals
10. Which of the following abbreviations stands for "every other day"?
   a. b.i.d.
   b. q.d.
   c. q.h.s.
   d. q.o.d.

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