BMS129 – Physiological Sciences 1 Notes

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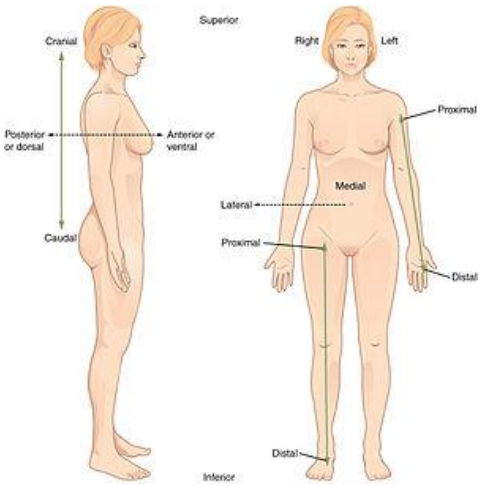
Lecture 1 – Introduction

Anatomical terms:

- Anatomical position -
- Supinated → standing up, palms facing toward the front
- Pronated → hands with palms towards the back

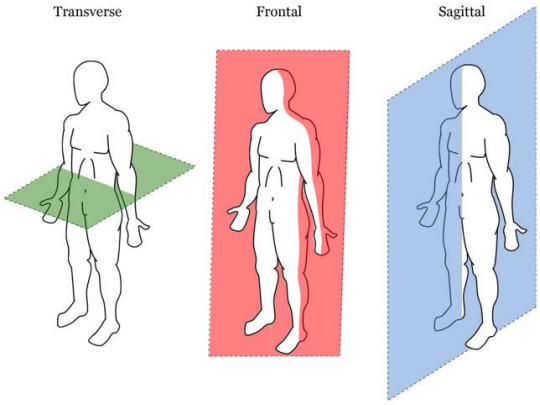


Directions:

- Anterior – to the front
- Posterior – to the back
- Superior – above, towards the head
- Inferior – below, towards the feet
- Lateral – towards the sides
- Medial – towards the midline
- Proximal – towards the head (can also be used to describe organs, don't need to worry about that now)
- Distal – furthest from the head
- Superficial – closer to the skin
- Deep – further away from the skin

Planes:

- Saggital plane → passes vertically through the body, dividing into left and right
- Frontal plane (also called coronal plane) → passes vertically though the body dividing into anterior and posterior
- Transverse plane → horizontal plane that divides superior and inferior portions



The major body cavities

- All lined by serous membranes containing viscera
- Cranial cavity
  - in the head
  - contains the brain
  - lined by the meninges
- Vertebral canal
  - in the spine
  - contains the spinal cord
  - lined by the meninges
- Thoracic cavity
  - in the chest
  - contains the heart and lungs
  - lined with the pericardium and pleura
- Abdominal/Pelvic cavity
  - in the abdomen and down to the pelvis

    - some texts consider these two different, continuous cavities
    - contains the digestive tract and accessory organs, and the female reproductive organs
    - lined with the peritoneum

References ranges:
All ranges stated in this course are for the following people/conditions -

- Male: 22 years old, 70kg, light activity, consumes 2,800 calories/day, 20^{o}C ambient temperature
- Female: 22 years old, 58kg, light activity, consumes 2,000 calories/day, 20^{o}C ambient temperature

Body systems:

- Protection, support and movement
    - Integumentary (skin) system
    - Skeletal system
    - Muscular system
- Internal communication
    - Nervous system
    - Endocrine (hormone) system
- Defence
    - Immune system
- Fluid transport
    - Circulatory system
    - Lymphatic system
- Input and output
    - Respiratory system
    - Urinary system
    - Digestive system
- Reproduction
    - Reproductive system

Lecture 2 – Energy, chemical reactions and organic compounds

There are four primary organic compounds

- carbohydrates
- amino acids
- lipids
- nucleic acids

Carbon is the primary element

- able to form four bonds
- able to form long chains
- able to carry a variety of functional groups

Carbohydrates

- hydrophilic organic molecules
- General formula $(CH_2O)_n$