

Chapter 1 Organization of the Body

I. Anatomy and Physiology

A. *Anatomy - Study of structure of an organism and relationships to its parts*

1. Dissection is the main technique used to isolate structures for study

B. *Physiology - Study of the function of body parts, organizational level and the type of organisms studied*

II. Levels of Organization

A. *Chemical → Organelle → Cell → Tissue → Organ → Organ System → Organism*

III. Body Cavities (fig. 1-5)

A. Ventral cavity

1. Thoracic cavity

2. Abdominopelvic cavity

- B . Dorsal Cavity

1. Cranial Cavity

2. Spinal Cavity

- IV. Anatomical Position (Fig 1-4) -
Standing Erect, Thumbs out

- A. *Abdomen - Four quadrants
(equal) based on patient - their
right or left (fig 1-8)*

1. Right Upper Quadrant

2. Right Lower Quadrant

3. Left Upper Quadrant

4. Left Lower Quadrant

- B. *Abdomino Pelvic Cavity -
Nine regions (Fig 1-7)*

1. Right hypochondriac

2. Epigastric

3. Left Hypochondriac
4. Right Lumbar
5. Umbilical
6. Left Lumbar
7. Right Iliac
8. Hypogastric
9. Left Iliac

V. Terms Used in Describing Body Structure

A. *Table 1-3, P 14*

B. *Directional Terms*

1. Anterior (Front) - Ventral
2. Posterior (Back) - Dorsal
3. Superior - Above
4. Inferior - Below
5. Lateral - Outside
6. Medial - Toward the Middle
7. Proximal - Close (in relation to trunk)
8. Distal - Distant (in relation to trunk)

VI. Body Planes and Sections (*Fig 1-9*)

- A. *Sagittal / Midsagittal - lengthwise front-to-back*
- B. *Frontal / Coronal - lengthwise side-to-side*
- C. *Transverse / Horizontal - crosswise, divides into upper and lower*

VII. Homeostasis

- A. *Describes the Balance that Occurs in the Body*
- B. Normal Range (or Range of Normal) = Set Point or Set Range
 - 1. Body can self regulate (ex: Body temp = 37° C / 98.6° F)

VIII. Homeostatic Control Mechanism

- A. *Process of maintaining or restoring what we need to*

function normally under changing external conditions

1. Metabolism - Sum of chemical reactions
2. Feedback Control Loop - Complex communication control system within the body that allows for self-regulation. Some examples are:
 - a. Blood
 - b. Carbon Dioxide levels
 - c. Temperature
 - d. Heart Rate
 - e. Sleep Cycles
 - f. Thirst
3. Negative Feedback - Inhibitory, opposes change
 - a. changes in glucose level

b.maintaining body
temperarature

4. Positive Feedback -
Stimulatory, reinforces
changes (can be deadly)

IX. Human Body Needs

A. *Water*

1. Acts as solvent
2. Regulates Temperature
3. Metabolic activity

B. *Oxygen*

1. Production of Energy

C. *Heat*

1. Homeostatic Factor / Enzymes

D. *Food*

1. Energy
2. Molecules to build with

E. *Pressure*

1. Blood Pressure

2. Atmospheric Pressure