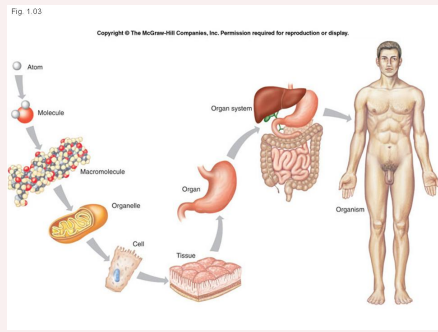


### 1.3: Levels of Organization



### 1.4: Characteristics of Life

Movement	change in position, motion
Responsiveness	sense and react to change
Growth	increase in body size
Reproduction	production in new organisms and new cells
Respiration	obtaining oxygen; removing CO <sub>2</sub> , releasing energy from food
Digestion	breakdown of food
Absorption	passage of substances in body fluids
Circulation	movement of substances in body fluids
Assimilation	changing absorbed substances into chemically different forms
Excretion	removal of wastes products by metabolic reactions

### 1.5: Maintenance of Life

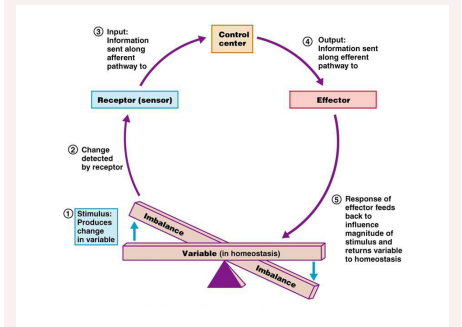
Environmental Factor	How it helps to maintain life
Water	provides the necessary environment for reactions; required for metabolism and transport; regulates body temperature
Food	provides nutrients, supplies energy, supplies raw materials for growth
Oxygen	1/5 of air, use to release energy from nutrients in metabolic reactions
Heat	partly controls rate of metabolic reactions
Pressure	atmospheric - for breathing and gas exchange in the lungs hydrostatic - keeps blood flowing

\*Both the quality and quantity of these factors is important

**Homeostasis:** maintaining a stable internal environment

**Homeostatic Control Mechanisms:**  
monitor aspects of the internal environment and correct as needed  
operate through *positive* and *negative* feedback loops

### Feedback Loops



**Stimulus** - a change in an organ or tissue that causes a reaction

**Receptors** - monitor the environment and detect changes (stimuli)

**Control Center** - tells what a particular value should be (called the set point)

**Effectors** - initiate the response that regulates the conditions of the internal environment

**Return to set point/shut off** - internal conditions return to normal and feedback loop is shut off

### Feedback Mechanisms

Type of Feedback	Description	Examples
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### Feedback Mechanisms (cont)

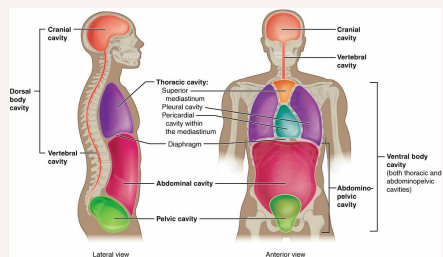
Negative Feedback inhibits stimulus, prevents sudden changes with constant small adjustments, corrects set point **BACK** to normal, most common

- body temperature
- blood pressure
- calcium regulation
- glucose regulation

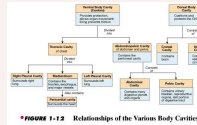
Positive Feedback enhances stimulus, increased the actions of the body away from the set point, temporary, don't require continuous adjustments

- blood clotting
- contractions in child birth

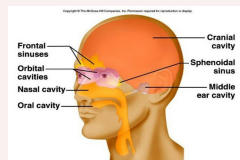
### Body Cavities



### Organs of the Body Cavities



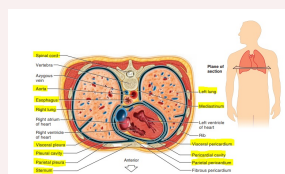
### Cavities within the Head



### Serous Membranes

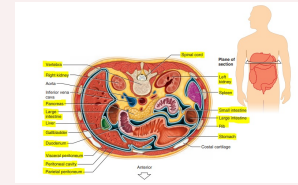
- Line body cavities and cover organs to reduce friction between organs and cavity walls
- made of epithelial tissue and secrete serous fluid to act as a lubricant
  - parietal layer: lines the cavity
  - visceral layer: covers the organ
- serous cavity: space between the layers with serous fluid

### Thoracic Serous Membranes



- Visceral pleura
- Parietal pleura
- Visceral pericardium
- Parietal pericardium

### Abdominopelvic Serous Membranes



- Parietal peritoneum
- Visceral peritoneum

### Terms of Relative Position

- Superior - above
- Inferior - below
- Anterior/ventral - toward the front
- Posterior/dorsal - toward the back
- Medial - toward the midline
- Lateral - away from the midline
- Ipsilateral - same side
- Contralateral - opposite sides
- Proximal - close to point of attachment
- Distal - farther from the point of attachment
- Superficial - close to body surface
- Deep - more internal

### Relative Position

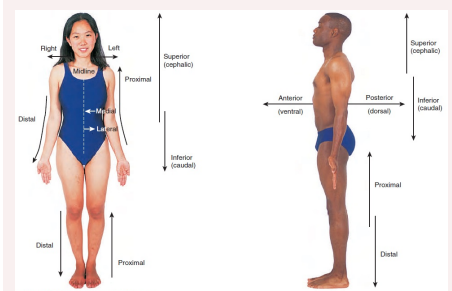
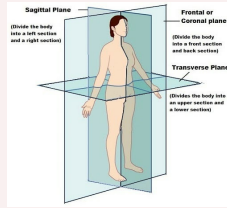
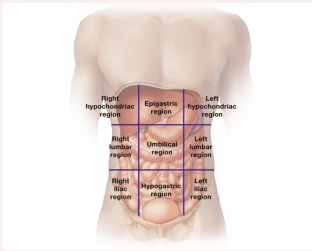


Figure 1.8 Directional Terms  
All directional terms are in relation to the body in the anatomical position: a person standing erect with the face directed forward, the arms hanging to the sides, and the palms of the hands facing forward.

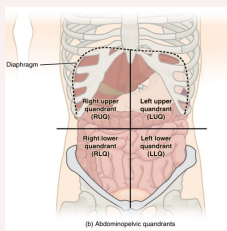
### Body Planes



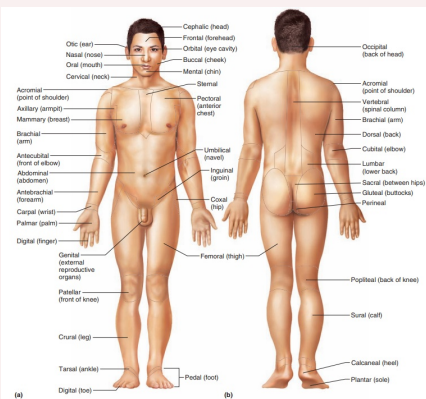
### Abdominopelvic Regions



### Abdominopelvic Quadrants



### Body Regions



By [trebleclef28](https://cheatography.com/trebleclef28/)

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Page 3 of 3.

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