



جامعة المستقبل  
AL MUSTAQBAL UNIVERSITY

كلية العلوم  
قسم الانظمة الطبية الذكية

## Lecture: (3)

Subject: **Planes system organization**

Level: First

Lecturer: MSc. Mustafa Yousif

# Organization of the Human Body

---

- Chemicals combine to form...
  - Cells, similar cells combine to form...
  - Tissues, two or more tissues combine to form an...
  - Organ, two or more work together as an...
  - Organ system, all organ systems work together to support the...
  - Organism
-

# Chemicals

---

- Simplest chemical is an element, 20 are found in the human body.
  - Each element is composed of unique atoms.
  - Atoms combine to form molecules and compounds:
    - Inorganic –
    - Organic –
-

# Chemicals

---

- Molecules & compounds combine to form macromolecules.
  - Organic macromolecules in living organisms:
-

# Cells

---

- Smallest living structural and functional units.
  - Composed of organic macromolecules.
-

# Tissues

---

- Groups of cells with similar structure and function.
  - 4 basic groups:
    - **Epithelial tissue** -
    - **Connective tissue** -
  
    - **Muscle tissue** -
    - **Nerve tissue** -
-

# Organs

---

- 2 or more tissues that combine to form a structure that performs a particular function. Examples -
    - Heart
    - Lungs
    - ????
-



# Organ Systems

---

- ❑ Integumentary system: skin; protects us from chemicals, sun, and pathogens.
  - ❑ Skeletal system: bones and ligaments; protects internal organs, provides framework for muscles, supports the body.
  - ❑ Muscular system: muscles and tendons; moves the skeleton, produces heat, moves blood and food.
-



# Organ Systems

---

- ❑ Nervous system: brain, spinal cord, peripheral nerves, sensory organs; collects and interprets sensory information, regulates body functions.
  - ❑ Endocrine system: glands, produce hormones that regulate body functions.
-

# Organ systems

---

- ❑ Circulatory system: heart, blood vessels and blood; transports oxygen and nutrients to tissues.
  - ❑ Lymphatic system: lymph glands and vessels; destroys pathogens and returns tissue fluid to circulatory system.
-

# Organ Systems

---

- ❑ Respiratory system: lungs, trachea, etc.; exchanges  $O_2$  and  $CO_2$  between the body and the atmosphere.
  - ❑ Digestive system: stomach, intestines, liver, etc.; breaks down food into nutrients and absorbs them into the blood stream.
-

# Organ Systems

---

- ❑ Urinary System: kidneys, urinary bladder, urethra; removes waste products from the blood.
  - ❑ Reproductive system: ovaries, testes, uterus, prostate gland; produces eggs or sperm, female provides site for developing offspring.
-

# Metabolism

---

Sum of all chemical reactions and processes in the body.

Anabolism –

Catabolism –

Causes changes internally and externally. Ex. Digestion can cause an increase in blood glucose, etc.

---



# Homeostasis

---

- A state of relative stability within the body despite changes in the external and internal environment.
  - Maintenance Mechanisms:
    - Negative feedback – blood sugar and temperature regulation.
    - Positive feedback – fever, blood clotting and labor.
-

# Body Cavities and Membranes

---

## □ 2 body cavities cont'd

### ■ Ventral (anterior) Cavity Membranes

#### □ Thoracic cavity:

- Parietal pleura lines the chest wall, visceral pleura covers the lungs
- Visceral pericardium covers the heart and the parietal pericardium lines the sac around the heart.



# Body Cavities and Membranes

---

## □ 2 body cavities cont'd

### ■ Ventral (anterior) Cavity Membranes

#### □ Abdominal cavity:

- The peritoneum is a membrane that lines the abdominal wall and continues into the ...
  - The mesentery covers the outer surfaces of the abdominal organs.
-

