

PHARM 1203 - ANATOMY

LECTURE I

The Human Body: An Orientation

Overview of Anatomy and Physiology

- **Anatomy: The study of structure**
- **Subdivisions:**
 - Gross or macroscopic (e.g., regional, surface, and systemic anatomy)
 - Microscopic (e.g., cytology and histology)
 - Developmental (e.g., embryology)

Overview of Anatomy and Physiology

- **Essential tools for the study of anatomy:**
 - Mastery of anatomical terminology
 - Observation
 - Manipulation
 - Palpation
 - Auscultation

Overview of Anatomy and Physiology

- **Physiology: The study of function at many levels**
 - Subdivisions are based on organ systems (e.g., renal or cardiovascular physiology)

Overview of Anatomy and Physiology

- **Essential tools for the study of physiology:**
 - Ability to focus at many levels (from systemic to cellular and molecular)
 - Basic physical principles (e.g., electrical currents, pressure, and movement)
 - Basic chemical principles

Principle of Complementarity

- **Anatomy and physiology are inseparable.**
 - Function always reflects structure
 - What a structure can do depends on its specific form

Levels of Structural Organization

- **Chemical:** atoms and molecules
- **Cellular:** cells and their organelles
- **Tissue:** groups of similar cells
- **Organ:** contains two or more types of tissues
- **Organ system:** organs that work closely together
- **Organismal:** all organ systems

Overview of Organ Systems

- Note major organs and functions of the 11 organ systems (Fig. 1.3)

Organ Systems Interrelationships

- All cells depend on organ systems to meet their survival needs
- Organ systems work cooperatively to perform necessary life functions

The Human Body: An Orientation

Anatomical Position

- **Standard anatomical body position:**
 - Body erect
 - Feet slightly apart
 - Palms facing forward

Regional Terms

- **Two major divisions of body:**
 - Axial
 - Appendicular
- **Regional terms designate specific areas**

Body Planes

- **Plane:** Flat surface along which body or structure is cut for anatomical study

Body Planes

- **Sagittal plane**
 - Divides body vertically into right and left parts
 - Produces a sagittal section

- **Midsagittal (median) plane**
 - Lies on midline
- **Parasagittal plane**
 - Not on midline

Body Planes

- **Frontal (coronal) plane**
 - Divides body vertically into anterior and posterior parts
- **Transverse (horizontal) plane**
 - Divides body horizontally into superior and inferior parts
 - Produces a cross section
- **Oblique section**
 - Cuts made diagonally

Anatomical Variability

- **Over 90% of all anatomical structures match textbook descriptions, but:**
 - Nerves or blood vessels may be somewhat out of place
 - Small muscles may be missing

Body Cavities

- **Dorsal cavity**
 - Protects nervous system
- **Two subdivisions:**
 - **Cranial cavity**
 - **Encases brain**
 - **Vertebral cavity**
 - **Encases spinal cord**

Body Cavities

- **Ventral cavity**
 - Houses internal organs (viscera)
 - **Two subdivisions (separated by diaphragm):**
 - **Thoracic cavity**
 - **Abdominopelvic cavity**

Ventral Body Cavities

- **Thoracic cavity subdivisions:**

- **Two pleural cavities**
 - **Each houses a lung**
- **Mediastinum**
 - **Contains pericardial cavity**
 - **Surrounds thoracic organs**
- **Pericardial cavity**
 - **Encloses heart**

Ventral Body Cavities

- **Abdominopelvic cavity subdivisions:**
 - **Abdominal cavity**
 - **Contains stomach, intestines, spleen, and liver**
 - **Pelvic cavity**
 - **Contains urinary bladder, reproductive organs, and rectum**

Serous Membrane (Serosa)

- **Thin, double-layered membrane separated by serous fluid**
 - **Parietal serosa lines internal body walls**
 - **Visceral serosa covers the internal organs**

Abdominopelvic Regions

- **Nine divisions used primarily by anatomists**

Abdominopelvic Quadrants

- **Divisions used primarily by medical personnel**

Other Body Cavities

- **Oral and digestive cavities**
- **Nasal cavity**
- **Orbital cavities**
- **Middle ear cavities**
- **Synovial cavities**