

# The Study of Human Anatomy

## Chapter 1 Chapter Outline

An overview of Anatomy:

- a) Define anatomy and physiology
- b) learn subdivisions of anatomy
- c) methods of study
- d) organ systems
- e) levels of structural organization

Gross Anatomy: anatomical position; anatomical terminology, body cavities, 9 regions and 4 quadrants of abdomen,

Microscopic Anatomy: preparation and examination of slides with a light microscope

### An Overview of Anatomy

**Anatomy** is the study of Structure or form of body and body parts and their relationships to one another. (*anatome* = dissection). Morphology Morphe = form, logos = study

**Physiology** is the study of Function of body and body parts.

Structure supports function. For example, the cornea of eye is transparent and curved. It allows light to pass through and focuses it as image.

### Anatomy

Major subdivisions of anatomy

**Gross Anatomy** is the study of body surface, regions, and sections. It studies organs and their relationship to one another.

**Microscopic Anatomy** studies the cells and tissues. Cytology is the study of cells and Histology is the study of tissues.

Systemic and Regional Anatomy

### Methods of study

**Inspection** is to look keenly on body surface or parts. Nails, eyes, tongue, injury marks.

**Palpation** means feeling a structure with hands. Pulse.

**Auscultation** means listening to natural sound made by the body. Heart or lung sounds with stethoscope.

**Dissection** is cutting open the internal organs

Exploratory Surgery of past is now replaced by imaging techniques – radiography (X-rays), sonography (Ultrasound scanning), CT scan and MRI

X-rays are invasive, can cause mutations; MRI is noninvasive.

### Levels of Organization

Smaller entities interact with one another and form bigger entities that can perform additional functions.

**Atoms → Molecules → Cells → Tissues → Organs → Organ-systems → Body**

### 11 Organ-Systems of Body

Learn the parts and main functions of each system.

Integumentary System

Skeletal System

Muscular System

Nervous System

Endocrine System

Cardiovascular System

Lymphatic System

Respiratory System

Digestive System

Urinary System

Reproductive System

### Systemic versus Regional Anatomy

**Systemic Anatomy:** Students in allied health or undergraduate courses study separately each organ-system. For example, skeletal system, muscular system.

**Regional Anatomy:** Professionals or students at graduate levels study anatomy of everything in one region of body. For example, muscles, nerves, skull, brain, eyes, ears in head or cephalic region.

## Recap 1 Chapter 1

1. ----- is study of structure of internal and external parts & their relationships.
2. Physiology is the study of ----- of body and its parts.
3. ----- is the study of body surface, regions, and sections.
4. ----- is the study of tissues and ----- is the study of cells.
5. Molecules → cells → -----
6. organs → ----- → body
7. ----- system has skin, glands, nails and hair.
8. Respiratory system has -----, -----, and ----- organs.
9. ----- system has thyroid, adrenals, pituitary glands in it.
10. Urinary system has -----, -----, and ----- parts.
11. Professional or students at graduate level study -----anatomy.

## The Language of Anatomy

### Anatomical Position

Standing, arms at sides with palms facing forward, feet close or slightly apart

Lying face up in anatomical position – Supine

Lying face down in anatomical position - Prone

### Body regions

Head, Neck, Thorax, abdomen, pelvis and limbs

Body regions covered in fig. 1.12

Orientation and directional terms Table 1.1

Anterior = Ventral / Posterior = Dorsal

Superior / Inferior, medial / lateral, proximal / distal

Superficial / deep, ipsilateral / contralateral

### Main Body Cavities

**Dorsal Cavity** – Brain and Spinal Cord lie in dorsal cavity.

**Ventral Cavity** – Diaphragm, a muscular partition, divides ventral cavity into Thoracic Cavity and Abdominopelvic cavity.

### Membranes Lining Cavities

**Mucous Membranes:** line cavities that open to the outside. For example, inner membrane of stomach, lungs (respiratory and digestive cavities).

**Serous Membranes:** line cavities that do not open to outside. For example, pleural cavities around lungs, pericardial cavity around heart.

### 9 Regions and 4 Quadrants of Abdomen

2 methods to divide abdomen and pelvis regions

9 Abdominopelvic regions

4 Abdominopelvic Quadrants

## Recap 2 Chap 1

1. ----- is a longitudinal section dividing the body into 2 unequal left and right parts.
2. ----- is present in pelvic cavity and ---- in pleural cavity.
3. Stomach is lined by ----membrane outside and --- membrane inside.
4. Wrist is ---- region in anatomy and ---- is brachial region.
5. Backside of neck is --- region in anatomy and shoulder is --- region.
6. Stomach is present in --- quadrant and bladder in hypogastric region.
7. Lips are --- to chin and ---- to cheeks.
8. Hand is ---- to arm and elbow is ---- to wrist.
9. Muscles are --- to bone and ---- to skin.
10. Trachea and esophagus are present in ----- cavity.