Lec one : Introduction to anatomy and human body , level of organization , anatomical position , body regions and cavities, body planes and sections, directional terms

What is anatomy?

Anatomy includes those structures that can be seen grossly (without the aid of magnification) and microscopically (with the aid of magnification).

* Gross or macroscopic anatomy-that is, the study of structures that can be seen without using a microscopic.
* Microscopic anatomy also called histology is the study of cells and tissues using a microscope

Anatomy forms the basis for the practice of medicine. Anatomy leads the physician toward an understanding of patient's disease, whether he or she is carrying out a physical examination or using the most advanced imaging techniques.

How can gross anatomy be studied?

The term anatomy is derived from the Greek word temnein meaning to cut

Anatomy can be studied as Regional or Systemic approach

With a regional approach, each region of the body is studied separately and all aspects of that region are studied at the same time. For example, if the thorax is to be studied, all of its structures are examined

• In contrast, in a systemic approach, each system of the body is studied and followed throughout the entire body. For example, a study of the cardiovascular system, also nervous system including brain , spinal cords ,and all nerves .

**The anatomical position**

The anatomical position is the standard reference position of the body used to describe the location of structures .

The body is in the anatomical position when standing upright with feet together, hands by the side and face looking forward. The mouth is closed and the facial expression is neutral.

**Anatomical planes**

Three major groups of planes pass through the body in the anatomical position

1. Coronal planes are oriented vertically and divide the body into anterior and posterior parts.
2. Sagittal planes also are oriented vertically but are at right angles to the coronal planes and divide the body into right and left parts. The plane that passes through the center of the body dividing it into equal right and left halves is termed the median sagittal plane.
3. Transverse, horizontal, or axial planes divide the body into superior and inferior parts.

**Terms to describe location :** Three major pairs of terms are used to describe the location of structures relative to the body as a whole or to other structures.

1. Anterior (ventral) and posterior (dorsal)
2. Medial and lateral,
3. Superior and inferior

1. Anterior (or ventral) and posterior (or dorsal)

describe the position of structures relative to the "front and back of the body .

. For example, the nose is an anterior (ventral) structure, whereas the vertebral column is a posterior (dorsal) structure.

Medial and lateral describe the position of structures 2.

relative to the median sagittal plane and the sides of the body. The nose is in the median sagittal plane and is medial to the eyes, which are in turn medial to the external ears.

3. Superior and inferior describe structures in reference to the vertical axis of the body. For example, the head is superior to the shoulders and the knee joint is inferior to the hip joint.

**Other terms used to describe positions include proximal**

**and distal, cranial and caudal, and rostral**

**Proximal and distal are** used with reference to being closer to or farther from a structure's origin, particulary in the limbs.. For example, the hand is distal to the elbow joint. The glenohumeral joint is proximal to the elbow joint.

**Cranial (toward the head) and caudal (toward the tail)**

are sometimes used instead of superior and inferior respectively.

**Rostral is used**, particularly in the head, to describe the position of a structure with reference to the nose. For example, the forebrain is rostral to the hindbrain

**Superficial and deep**

Two other terms used to describe the position of structures

in the body are superficial and deep. **These terms are used to describe the relative positions of two structures with respect to the surface of the body. For example, the sternum is superficial to the heart, and the stomach is deep** **to the abdominal wall**