

- Anatomy:

Is the study of the various structures of the human body and the relationship of these structures to each other.

*Anatomy disciplines:-

Discipline	Definition	Method Used
1- Gross Anatomy	Study of body structures without using magnifying instruments (with the eyes).	Dissection (cutting) of <u>cadavers</u> . جثہ کا تشريح
2- Histology	Study of cells and tissues with the aid of a magnifying instrument – the microscope.	Microscopy
3- Radiographic Anatomy	Study body structures by using imaging techniques.	X-Ray. CT-Scan. Ultrasound. MRI.....

Discipline	Definition	Method Used
4-Embryology	Study of human development	Imaging and dissection
5-Cytology (branch of histology)	Study of cells	Microscopy
6-Surface Anatomy	Study of surface markings of the internal organs	Inspection and palpation
7-Sectional Anatomy	Study of structures through body sections	Dissection and imaging

How anatomy study

Regional anatomy

systemic anatomy

Study all the
structure present
in a specific region
of the body.

Study of all the
structures that form a
specific system in the
body.

Structural levels of organization:

- The human body can be seen to be organized at 6 levels. These levels range from the simplest and smallest to the most complex and largest.

• These levels are: (Fig.4)

1) **Chemical:** This is the simplest level. It includes the atoms which are the building blocks of all matter. The most important atoms in the human body are oxygen, carbon, hydrogen, and nitrogen. Two or more atoms unite to form molecules that could be small like water or large like DNA.

2) **Cellular:** Cells are the simplest structural and functional units of the body. Cells are formed of various molecules.

- 3) **Tissue level:** Several cells come together with some other materials surrounding them to form the various tissues of the body. A certain type of tissue performs a certain function. There are four basic body tissues: *epithelial*, *connective*, *muscular* and *nervous*.
عصبى ⇒ عصبى خلافاً عظام عصبى
- 4) **Organ level:** An organ is formed of several types of tissues. It has a specific shape and performs a specified function.
- 5) **System level:** A system consists of several organs that act together to perform certain functions. Example: the digestive system is formed of all the organs that help in the digestion and absorption of food.
- 6) **Organism level:** Each organism is formed of several systems that work together to ensure the survival of the organism.

* الفرق بين Prone و Supine

- supine ⇒ (face up) مستلقي على ظهر الوجه للأعلى

- prone ⇒ (face down) مستلقي على بطنه الوجه للأسفل

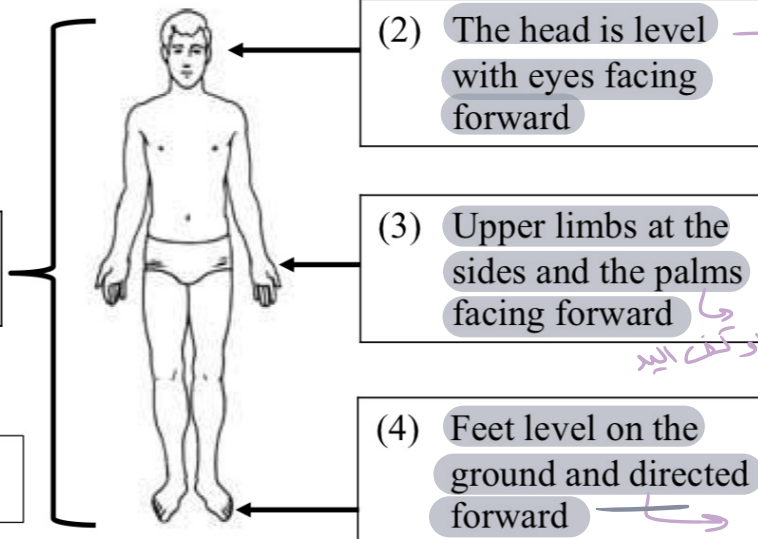
Anatomical Position:

- In order to understand the position of a structure and the positional relationship between structures, a position of reference must be used. This reference position is called the **Standard Anatomical Position**.

In this position:

(1) The subject stands erect

Fig.6: The standard anatomical position.



الرأس مستقيم والعينان

تتجهان للأمام

راحتي
اليدين

موجبة

Anatomical Planes:

1- Sagittal plane

2- Coronal plane

3- Transvers plane

* divides the body into

* divides the body

* divides the body

right and left

into front and Back
portion.

into upper and lower
parts -

Sagittal plane

mid sagittal (median plane)

1 - equal halves.

2 - passes through the midline.

Para Sagittal plane

1 - unequal parts.

Directional Terms in Anatomy:

① Anterior: front

Posterior: back

② Superior: towards the head

Inferior: towards the feet.

③ lateral: farther from midline

medial: nearer to the midline

median: median plane of the body

④ proximal: nearer to the

origin of a structure.

Distal: farther from the

origin of a structure

⑤ Ipsilateral: same side

contralateral: opposite side

⑥ superficial: closer

to or on surface.

Deep: Away from
the surface.

⑧ Cranial (cephalic): Relating to the skull.

caudal: Relating to the tail.

⑨ Ventral: towards the belly
← بطن

Dorsal: towards the back
← ظهر

8, 9

mostly used in embryology and animals.

Abdominopelvic Regions:

منطقة البطن والحوض

- The abdomen and pelvis are divided into regions to facilitate the description of the position of various organs.
- Two methods are used: the 4-quadrant method and the 9-region method.
- In the 4-quadrant method, two lines are used to divide the abdomen into 4 quadrants. These lines are the **midsagittal line** and the **transverse umbilical line** (pass through the umbilicus). These lines meet at the umbilicus.

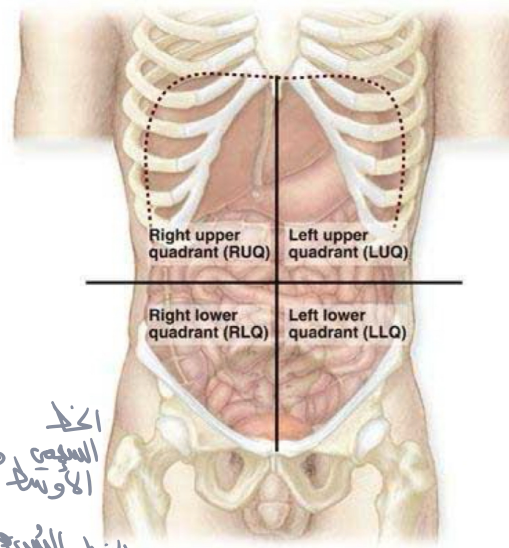


Fig.11: The 4 quadrants of the abdomen.

الخط السويدي
الخط العيني

السرة

- In the 9-region method, 2 vertical and 2 transverse lines divide the abdomen into 9 regions.
- The upper transverse (**subcostal**) line is drawn just inferior to the ribcage. The lower transverse (**transtuberular**) line intersects the right and left iliac tubercles.
- The two vertical lines are the right and left **midclavicular** lines. These pass through the middle of the right and left clavicles.

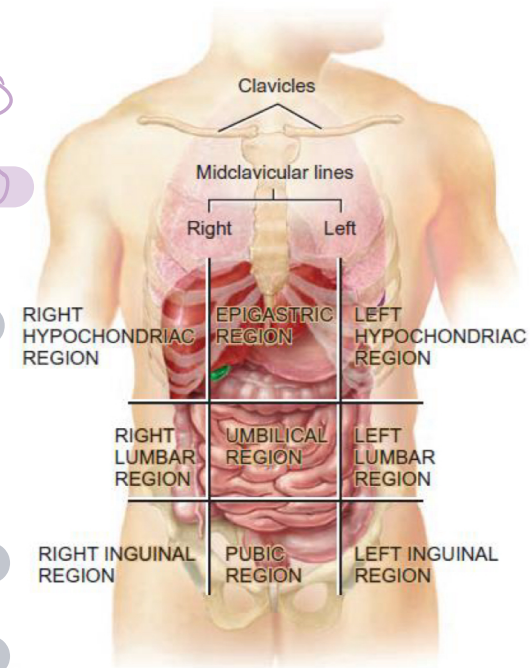


Fig.12: The 9 regions

القوس الصدرية