

Abdomen



Surface
anatomy and
structure of
anterior
abdominal
wall.by
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Important link

[Anterior Abdominal Wall: Structure & Layers, Dr Adel Bondok Making Anatomy Easy - YouTube](#)

[Anatomy of anterior abdominal wall - dissection - Bing video](#)

Learning outcome

At the end of the lecture we must understand the following :

Abdominal land mark and surface anatomy:

Abdominal nine regions

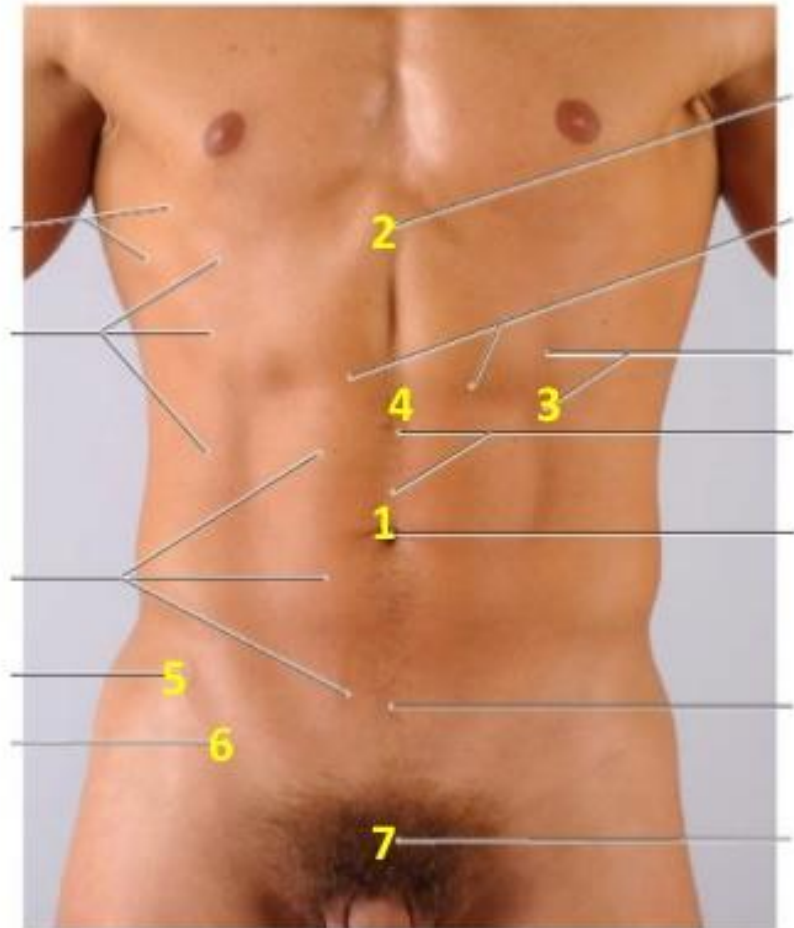
Imaginary plains divides the abdomens

Basic anatomy

Surface anatomy

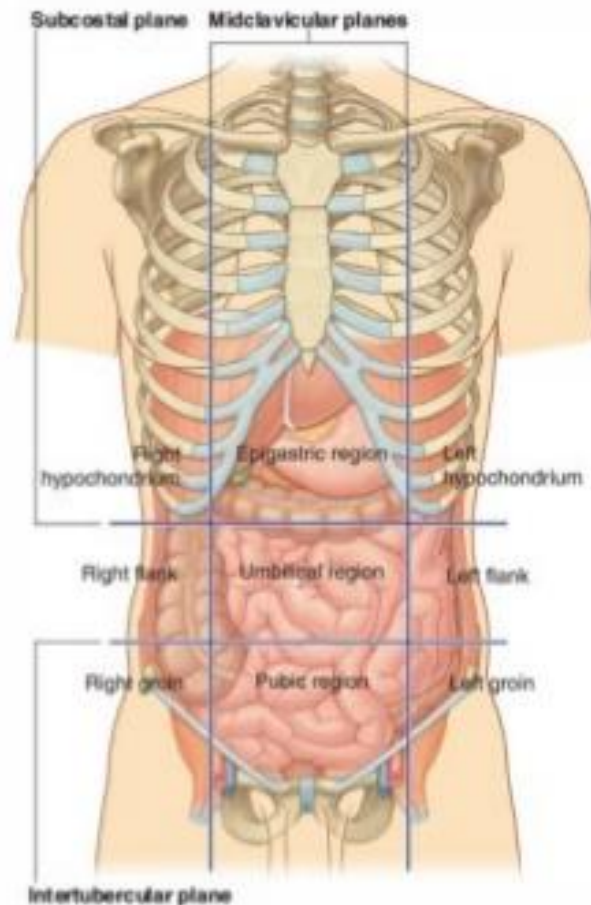
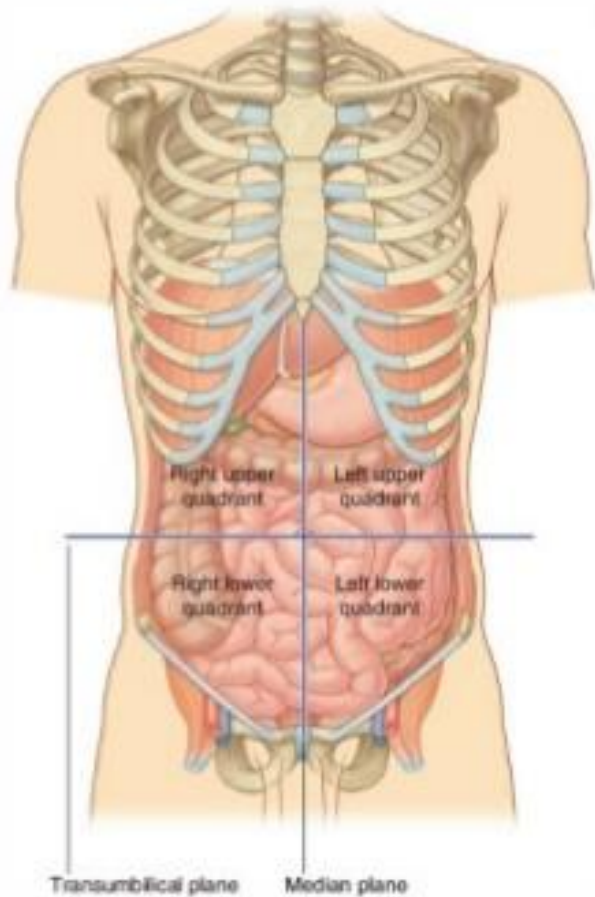
Surface anatomy of abdomen

1. Umbilicus
2. Xiphoid process
3. Lina emilunaris
4. Lina alba
5. Anterior superior iliac spine (ASIS)
6. Inguinal ligament
7. Pubic symphysis



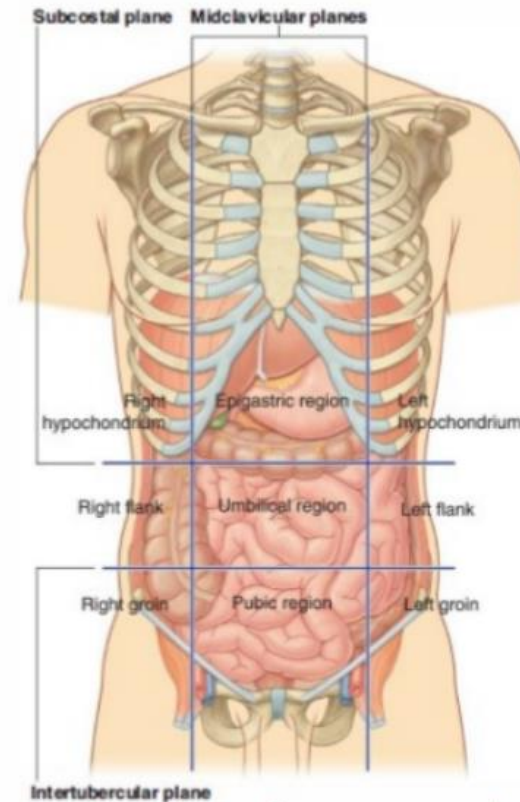
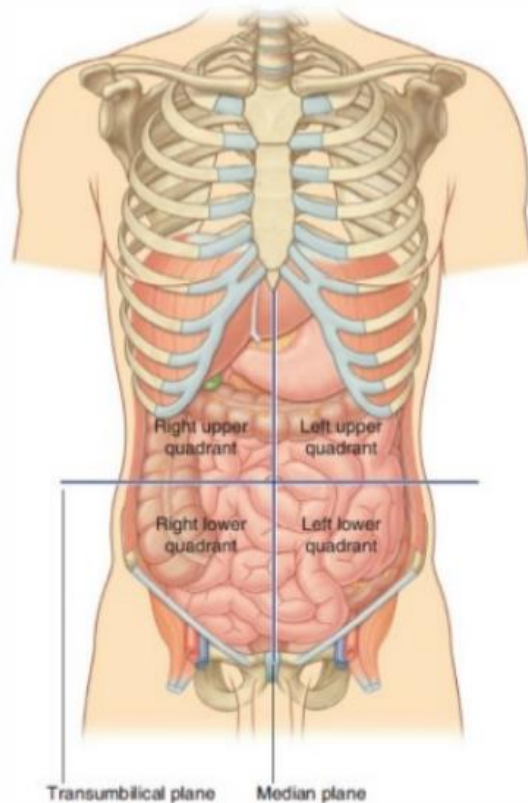
Quadrants of the abdomen

- Abdomen is divided either as four quadrants pattern or six quadrants pattern



Abdominal quadrants

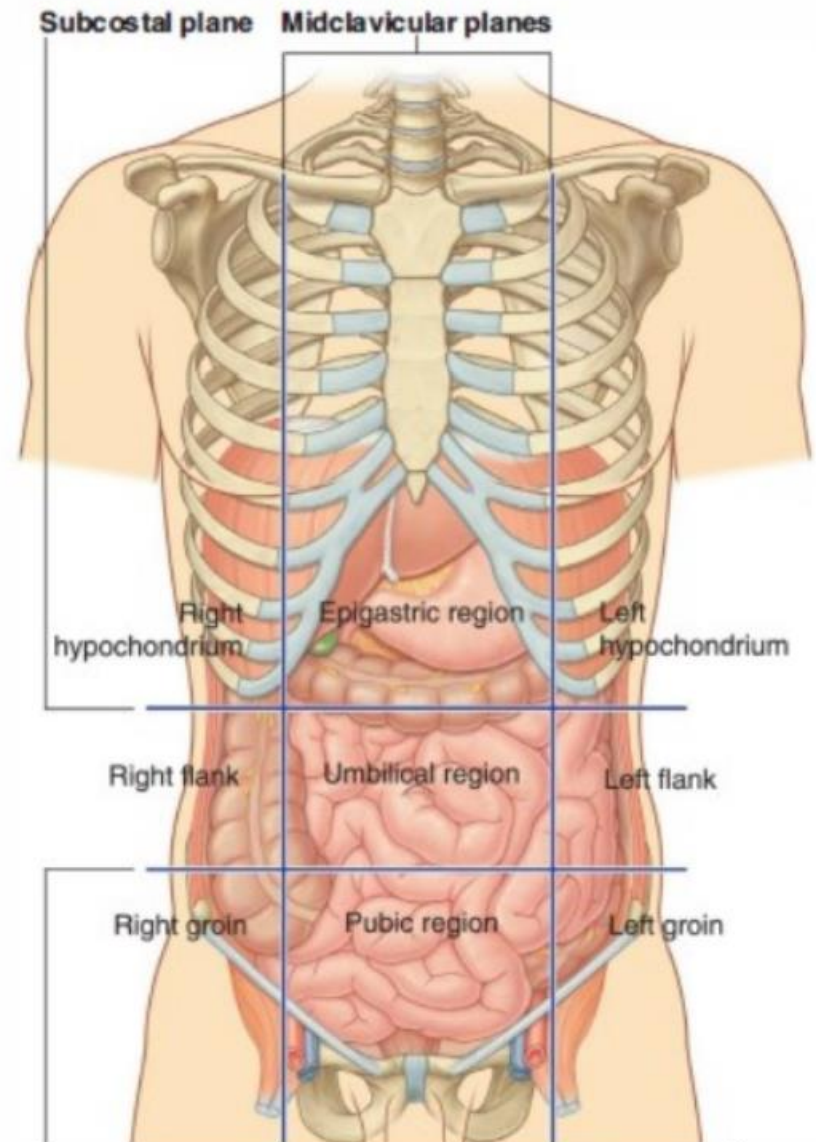
- Midline and transabdominal plane divided the abdomen into 4 quadrants
- Subcostal, intertubercular and 2 midclavicular planes divide the abdomen into 9 quadrants



- Transpyloric plane may be used instead of subcostal plane !!

Nine-quadrants of abdomen

1. right & left hypochondrium (2)
2. epigastric (1)
3. right & left flank (2)
4. umbilicus (1)
5. right and left groin (2)
6. pubic (1)



Basic anatomy

Abdomen : area between diaphragm above and pelvic inlet below.

Between: xiphoid process (level of 9th costal cartilage) above to pubic symphysis (level of coccyx) below.

content reach up to T8 in midline, and to 5th rib in midclavicular line.


Costal margin:

Midclavicular line : L1, (9th costal cartilage)

Mid axillary: L3 , (11th rb)

Costo-diaphragmatic recess

- ***Posteriorly : upper border of L1(crosses 12th rib).***
- ***Mid-axillary: at 10th rib, at L3 , 4 cm superior to iliac crest.***
- ***Penetrating wounds of chest includes abdominal content.***
- ***Only deep inspiration liver and enlarged spleen can be palpate inferior to costal margin, but hidden in quiet respiration.***



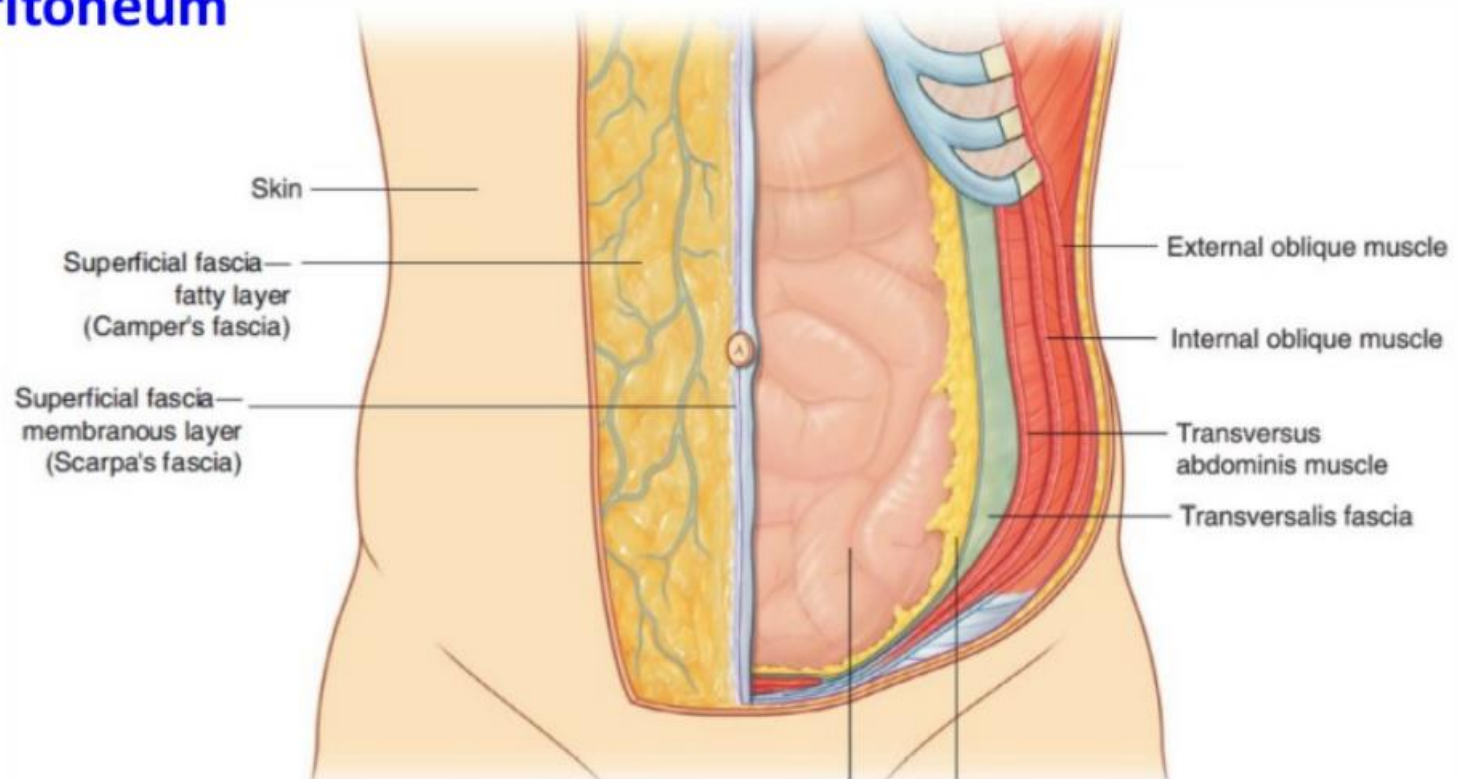
*If you born poor
it's not your mistake,
But if you die poor
it's your mistake.*

- Bill Gates.

رئيس تنفيذي لشركة Microsoft في عام 2006

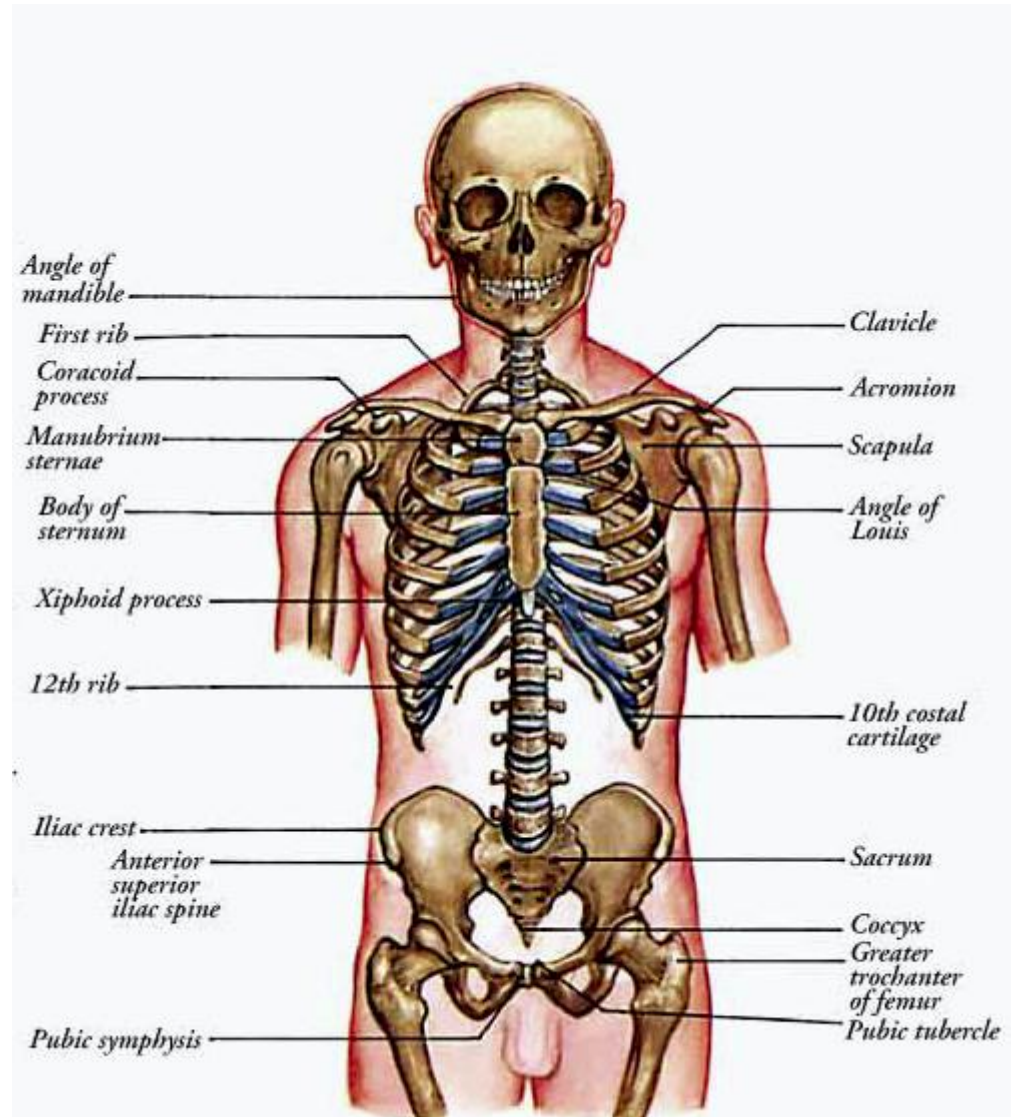
Abdominal wall

- 1. Skin
- 2. Superficial fascia (subcutaneous)
- 3. Muscles & associated deep fascia
- 4. Extraperitoneal fascia
- 5. Parietal peritoneum



Bones

- Lower ribs and costal cartilages
- Lumbar vertebrae
- Sacrum
- Hip bone

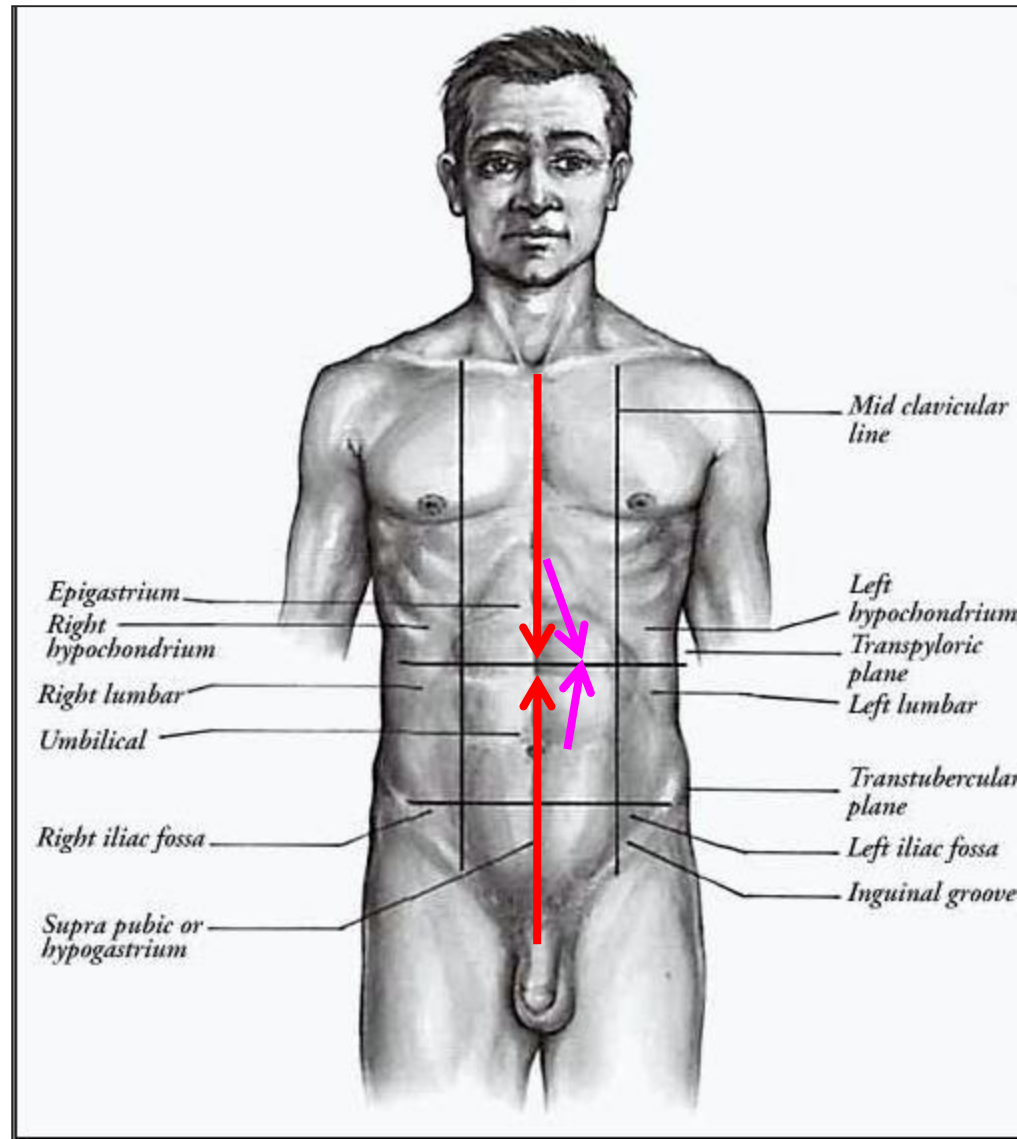


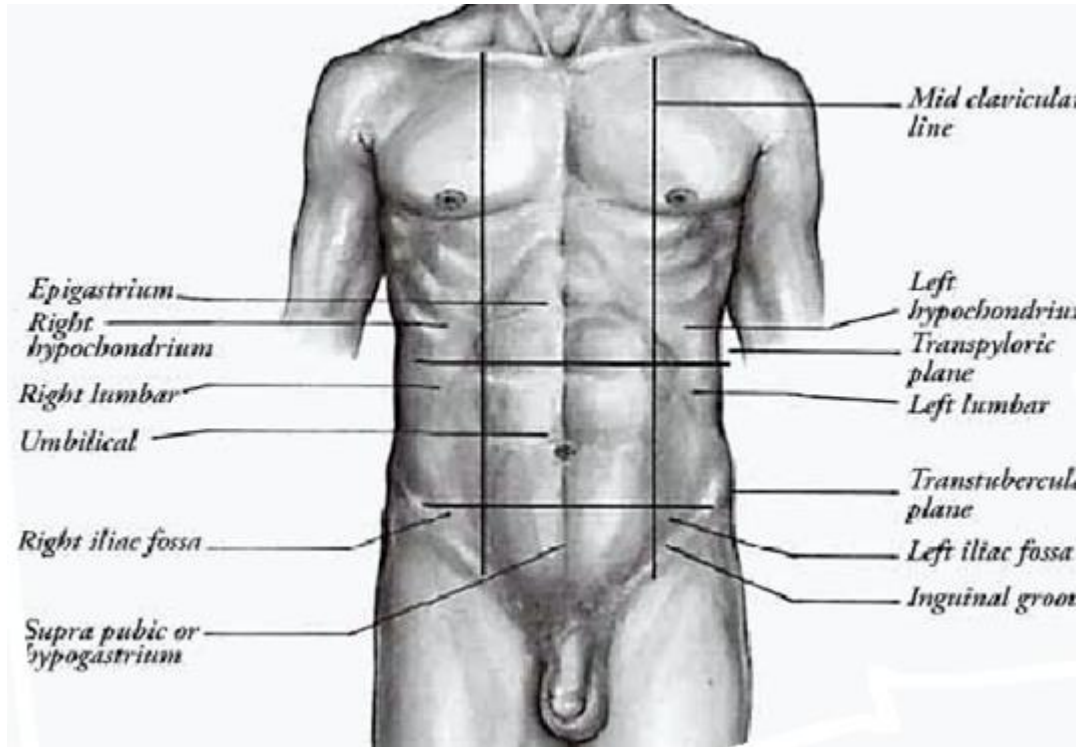
- **Surface marking of anterior abdominal wall**
- **Umbilicus**
 - L3-4
 - aorta bifurcates about 2 cm distal to it.
- **Linea Alba**
- The median groove: can be seen by flexing the trunk.
- It is wide and obvious above the umbilicus but is almost linear and invisible below this level.

- **Linea Semilunaris**
- lateral margin of the rectus sheath,
- Inferiorly, it rises from the pubic tubercle, then passes upwards and outwards to reach the costal margin at the level of the tip of the **ninth costal cartilage**
- **On the right side, this marks the usual position of the fundus of the gallbladder.**

surface anatomy

Midclavicular line
Transpyloric plane: L1
Trans tubercular plane: L5
2 Midclavicular line:
mid point of clavicle and mid
point of inguinal
ligaments





❑ The two vertical lines:

Mid clavicular lines on either side.

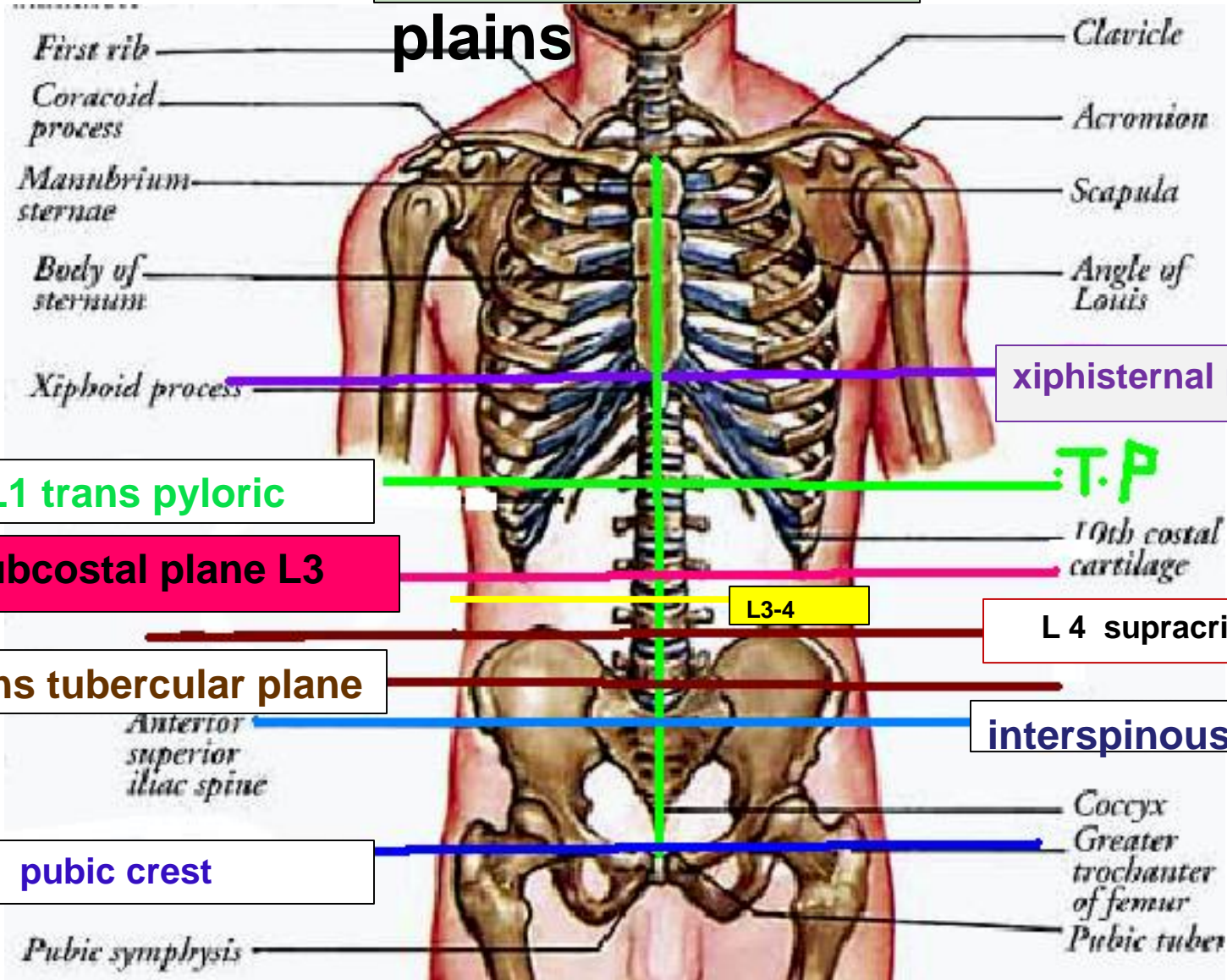
❑ Two horizontal lines: transpyloric and the transtuberular planes.

• The nine regions thus formed are:

- Epigastrium
- Hypochondrium
- Umbilical region

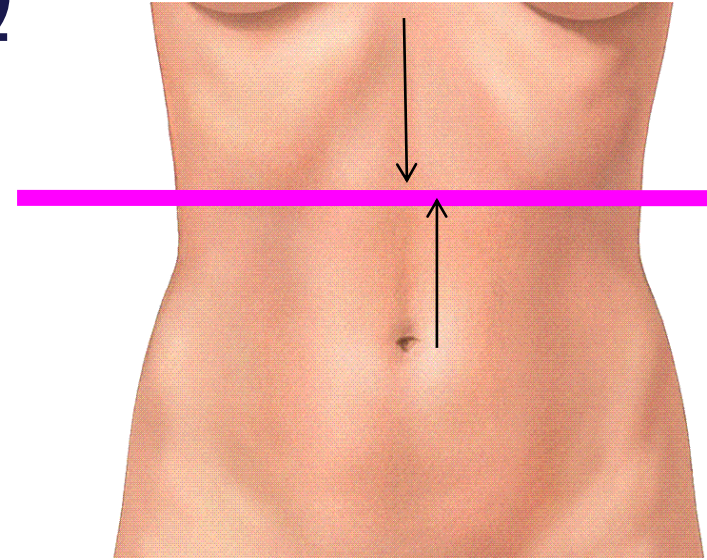
- the right and left lumbar region
- the hypogastrum (or suprapubic region)
- the right and left iliac fossa.

Horizontal plains

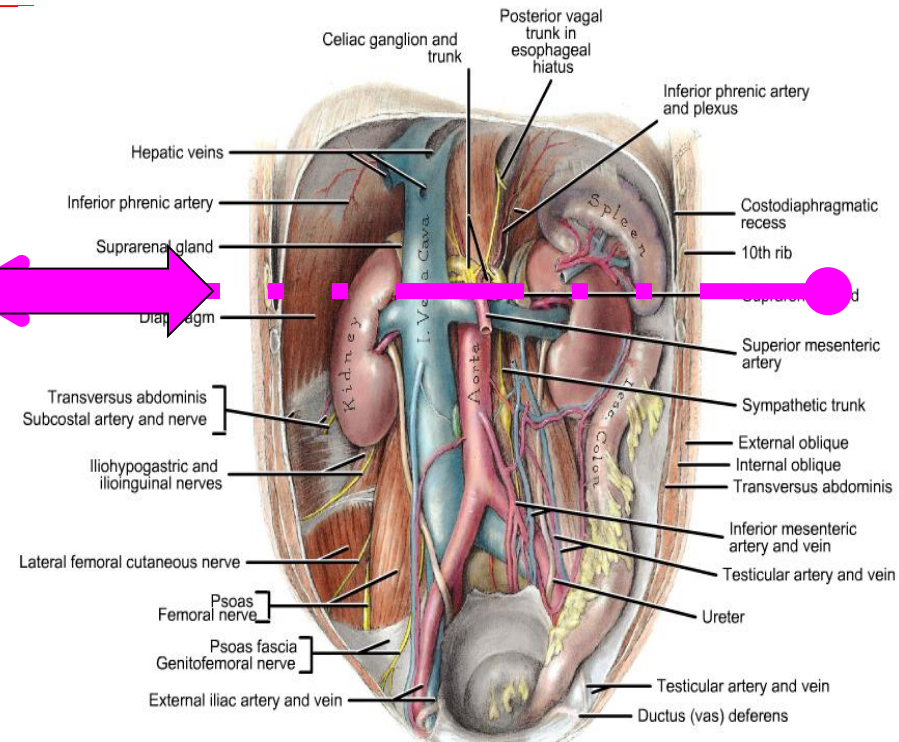


❖ Transpyloric plane:(of Addison)

- **Midpoint: suprasternal notch-symphysis pubis**
- **Midway: umbilicus -inferior end of sternum, or at midpoint: umbilicus and xiphoid**
- **Hand's breadth of the subject below the xiphisternal joint.**
- **At tip of 9th rib**



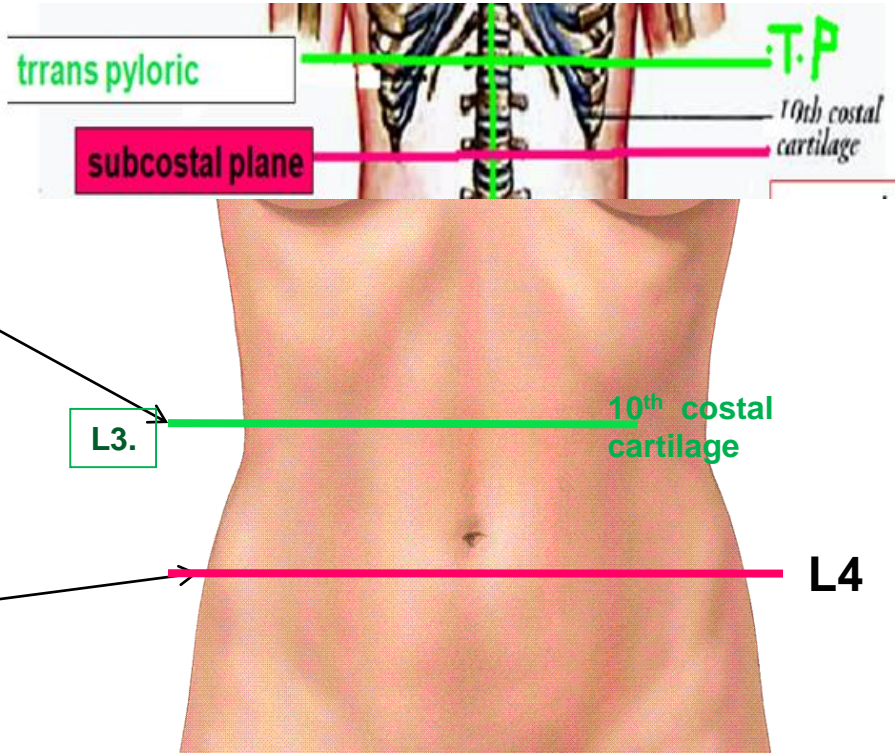
- **Structures at trans pyloric plane are: L1**
- **the hila of both kidneys**
- **the origin of the superior mesenteric artery from the aorta**
- **the termination of the spinal cord**



- **the neck and adjacent body and head of the pancreas**
- **the confluence of the superior mesenteric and splenic veins, forming the hepatic portal vein.**
- **Pylorus, duodeno-jejunal junction, Greater and lesser curvature of stomach**

The subcostal plane

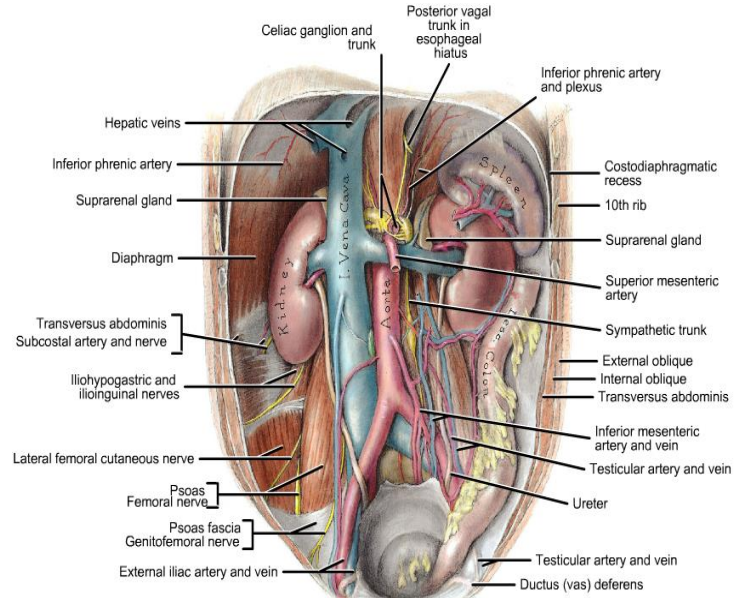
- lower margins of the thoracic cage,
- 10th costal cartilage on each side.
- L3.
- origin of the inferior mesenteric artery
- horizontal (third) part of the duodenum.



The supracristal plane

- crest on each side.
- L4
- bifurcation of the abdominal aorta,
- **landmark in performing lumbar puncture (L4-L5 or L5-S1).**

safely below the termination of the spinal cord.



Trans tubercular plane:

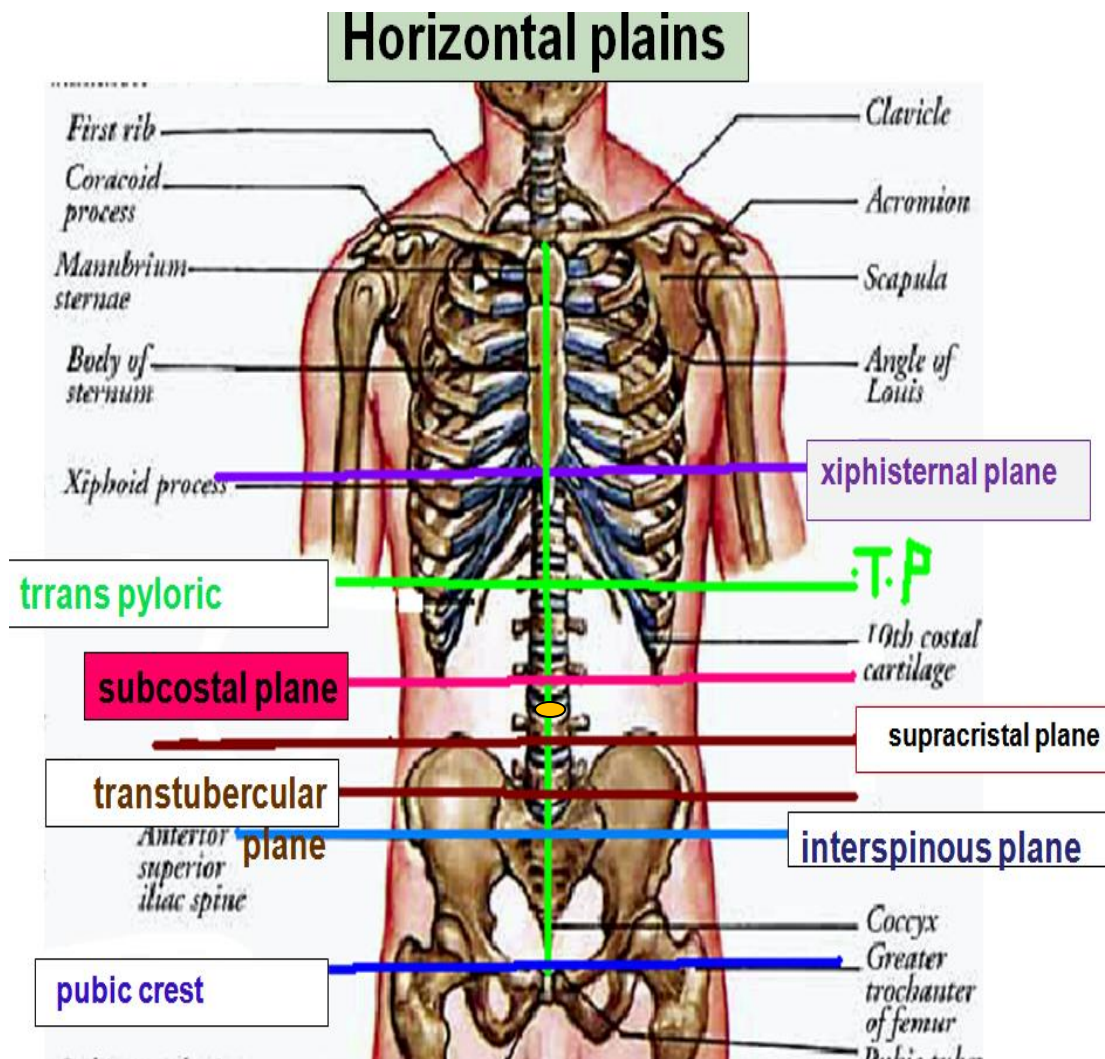
- at tubercles of the iliac crests.
- L5 upper border or is just above, the confluence of the common iliac veins and marks the origin of the inferior vena cava.

Interspinous plane

- anterior superior spines.
- lumbosacral disc, or sacral promontory, or just below, depending on the degree of lumbar lordosis, sacral inclination and curvature.

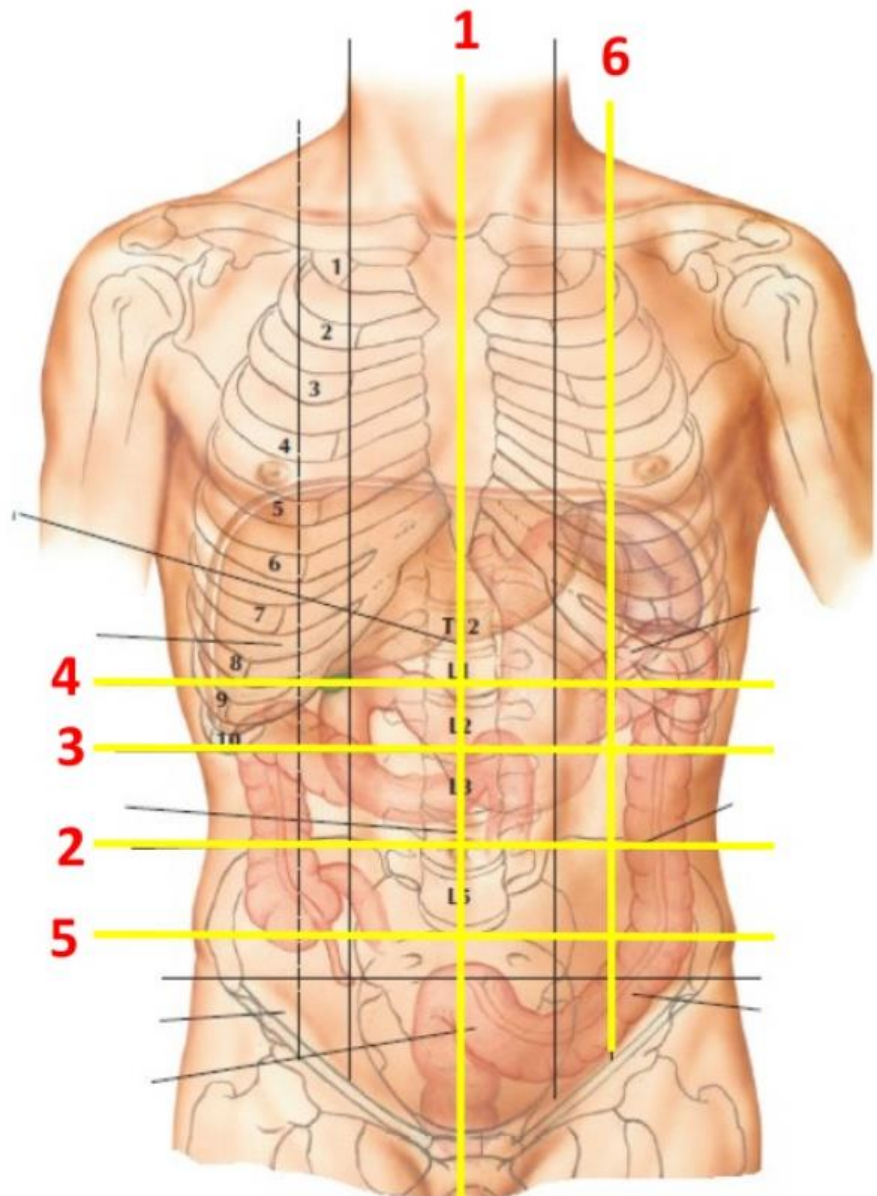
Plane of the pubic crest

- Inferior end of the sacrum or part of the coccyx, again, depending on the degree of lumbar lordosis, sacral inclination and curvature.



Planes used to estimate abdominal structures

- 1) **midline plane**
- 2) **transumbilical plane** : pass between the Intervertebral disk (IVD) between **L3-L4 vertebrae**
- 3) **Subcostal plane** : at the costal cartilage of X rib .. And pass through the body of **L3 vertebrae**
- 4) **transpyloric plane** : at midline between the jugular notch & pupic symphysis .. Cross the costal margin at rib IX ...
- 5) **intertubercular plane** : pass through the tubercles of iliac crest, it pass also through **L4 vertebra** ..
- 6) **midclavicular plane** : pass through mid clavicle above and between in the mid-point between anterior superior iliac spine and pupic symphysis



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