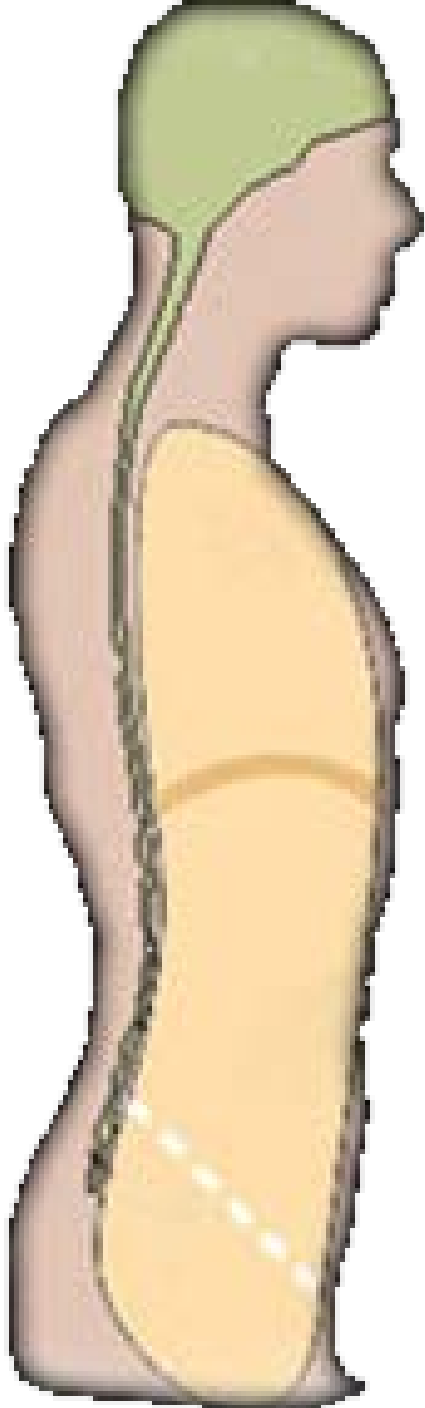


# Anterior Abdominal Wall

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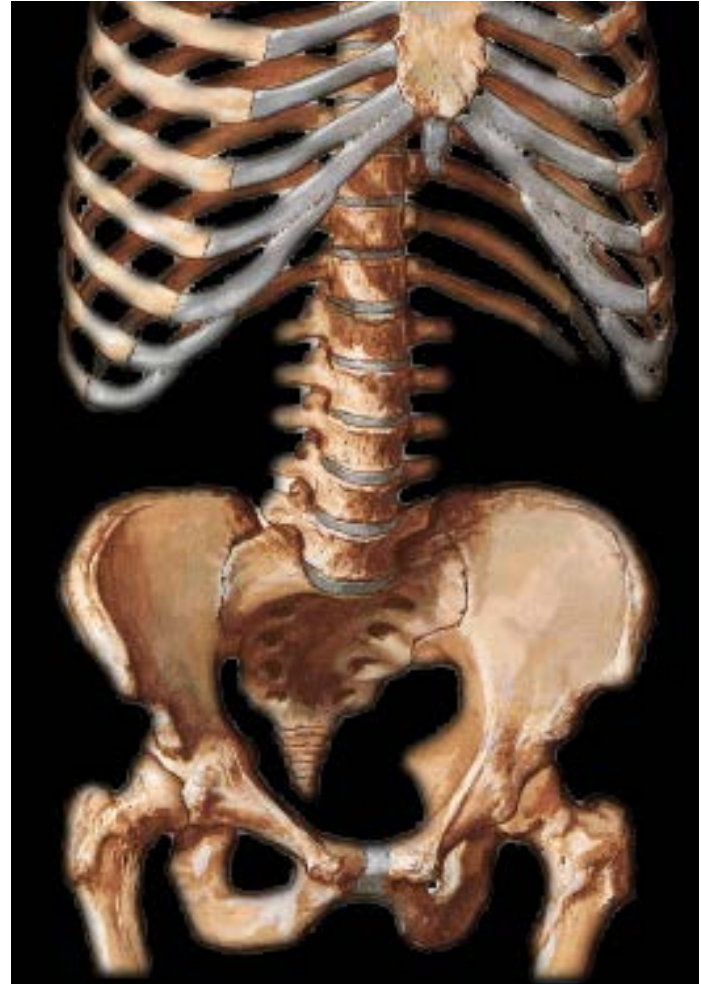


## Abdominopelvic Cavity

- Abdominal Cavity
- Pelvic Cavity

# Abdomen

- Extends from the inferior margin of the thorax to the superior margin of the pelvis and the lower limb



# The abdominal wall

- Two parts
  - i. Bony
  - ii. Muscular

# The skeletal abdominal wall

- Posteriorly: Five lumbar vertebrae and their intervening intervertebral discs
- Inferiorly: The superior expanded parts of the pelvic bones (Iliac wings)
- Superiorly: Bony components of the inferior thoracic wall including the costal margin, rib XII, the end of rib XI and the xiphoid process

# The muscular abdominal wall

Posteriorly:

- Lateral to the vertebral column: Quadratus lumborum, psoas major, and iliacus muscles

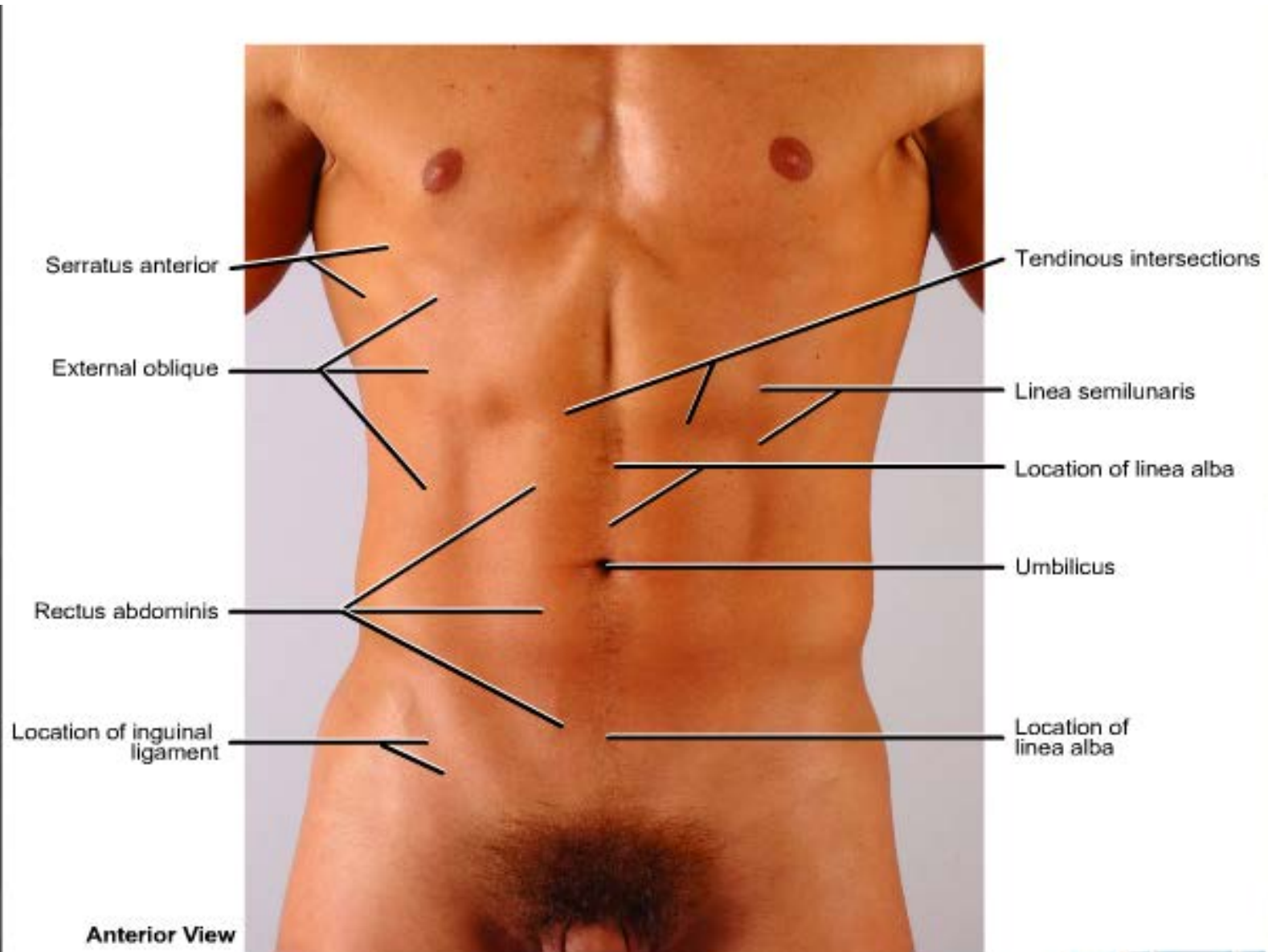
Laterally:

- Transversus abdominis, internal oblique, and external oblique

Anteriorly:

- Rectus abdominis
- The muscles are reinforced by strong fascia and aponeurosis

# Surface Anatomy



# Antrolateral Abdominal Wall

This extended from the thoracic cage to the pelvis and bounded :

– Superiorly

- 7<sup>th</sup> through 10<sup>th</sup> costal cartilages and and xiphoid process

– Inferiorly

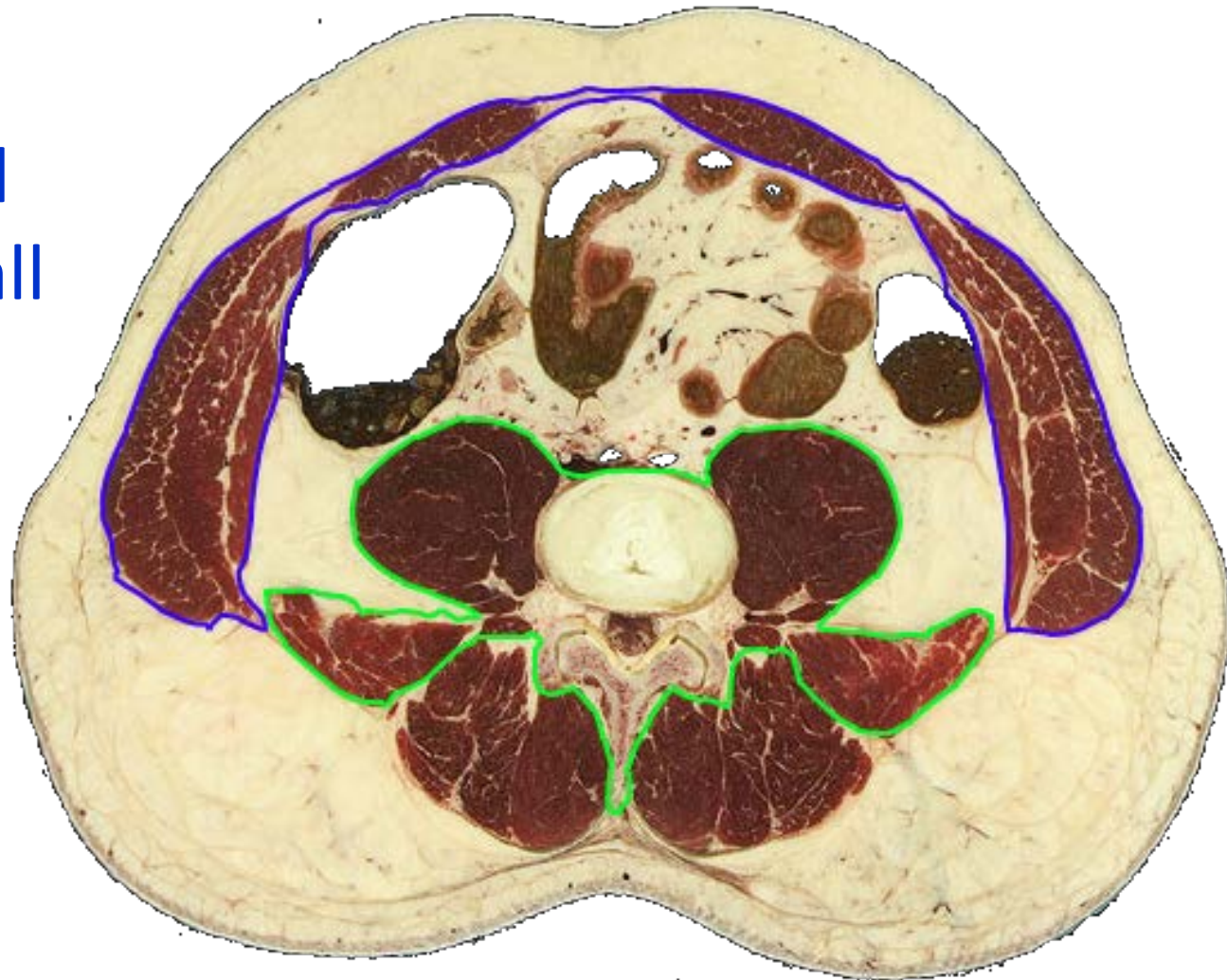
- Inguinal ligaments and the pelvic bones.

The wall consists of skin, subcutaneous tissues (fat), muscles, deep fascia and parietal peritoneum.



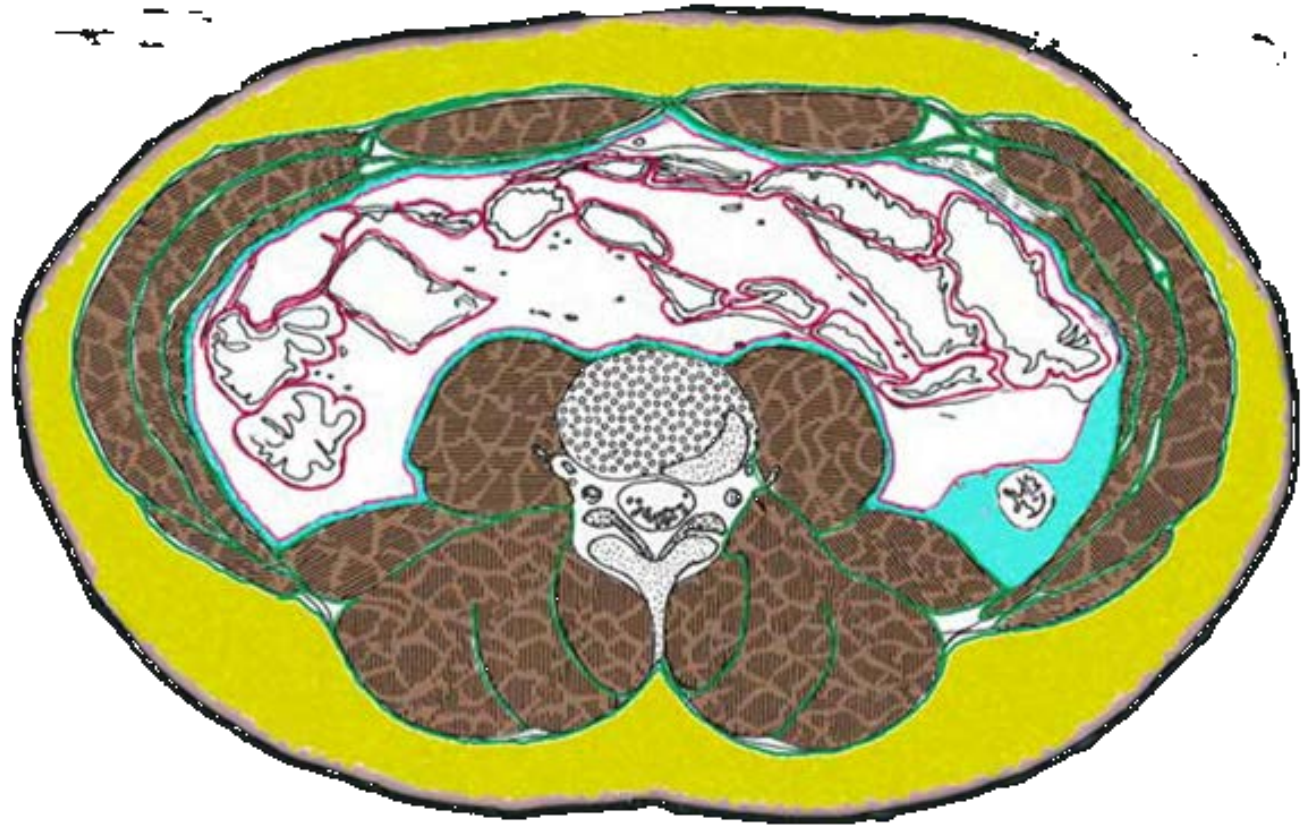
# Abdominal wall

Anterolateral  
abdominal wall



Posterior  
abdominal wall

# LAYERS

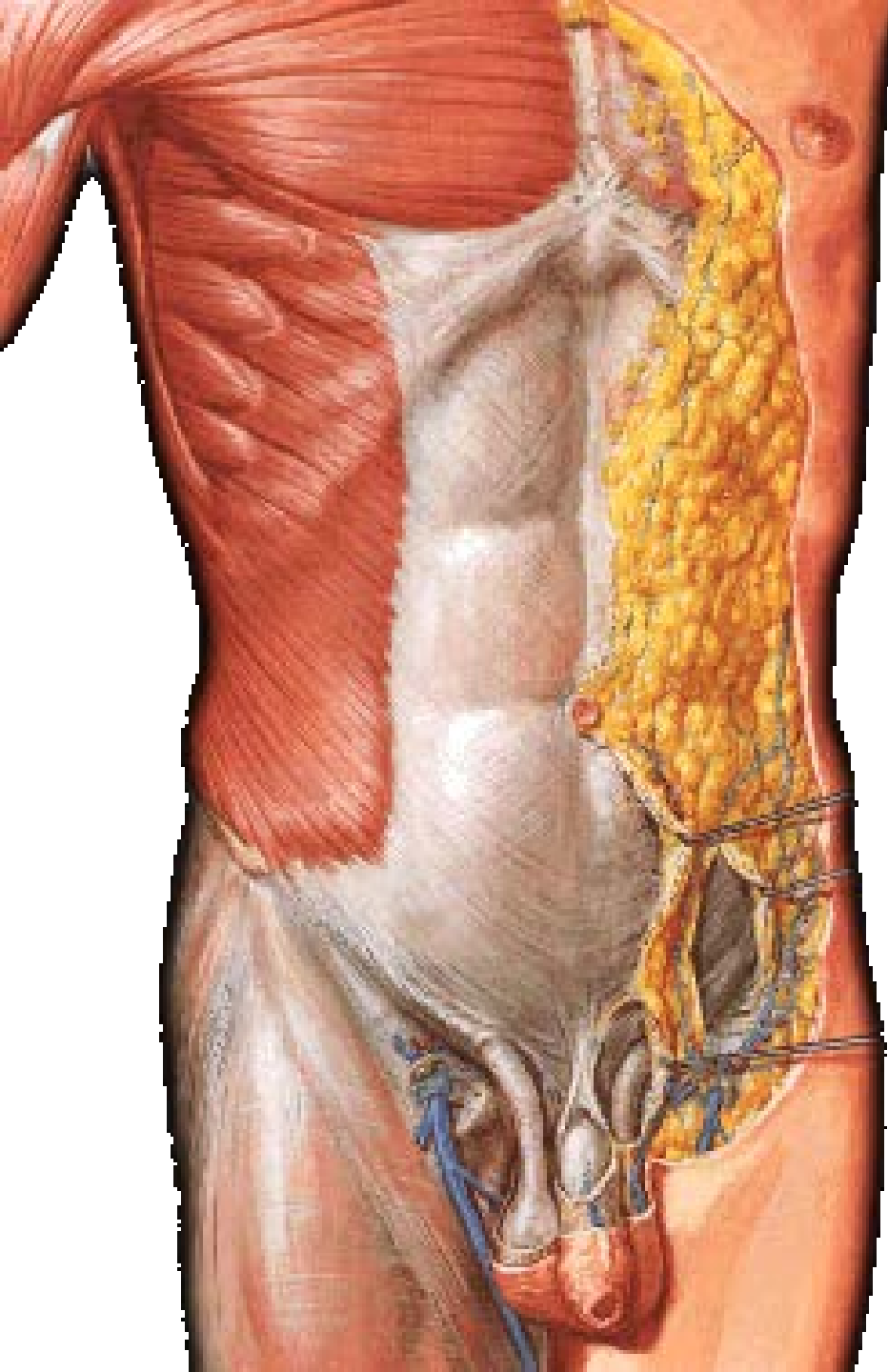


- Skin
- Superficial fascia
- Deep fascia
- Muscles
- Transversalis fascia
- Extraperitoneal fascia
- Peritoneum

# Antrolateral Abdominal Wall

## *Fascia & Subcutaneous Tissues*

- The subcutaneous tissues over most of the wall consists of layer of connective tissues that contains a variable amount of fat.
- In the inferior part of the wall , the subcutaneous tissue is composed of two layers
  - Fatty superficial layer (Camper's fascia)
  - Membranous deep layer (Scarpa's fascia)

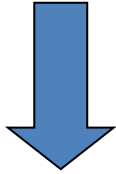


# Superficial fascia

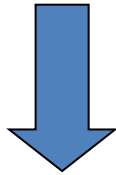
- Camper's fascia
- Scarpa's fascia

# MUSCLES

Anterior Group



Two Vertical Muscles



- Rectus Abdominis
- Pyramidalis

Lateral Group



Three Flat Muscles  
with strong sheet-like  
aponeurosis

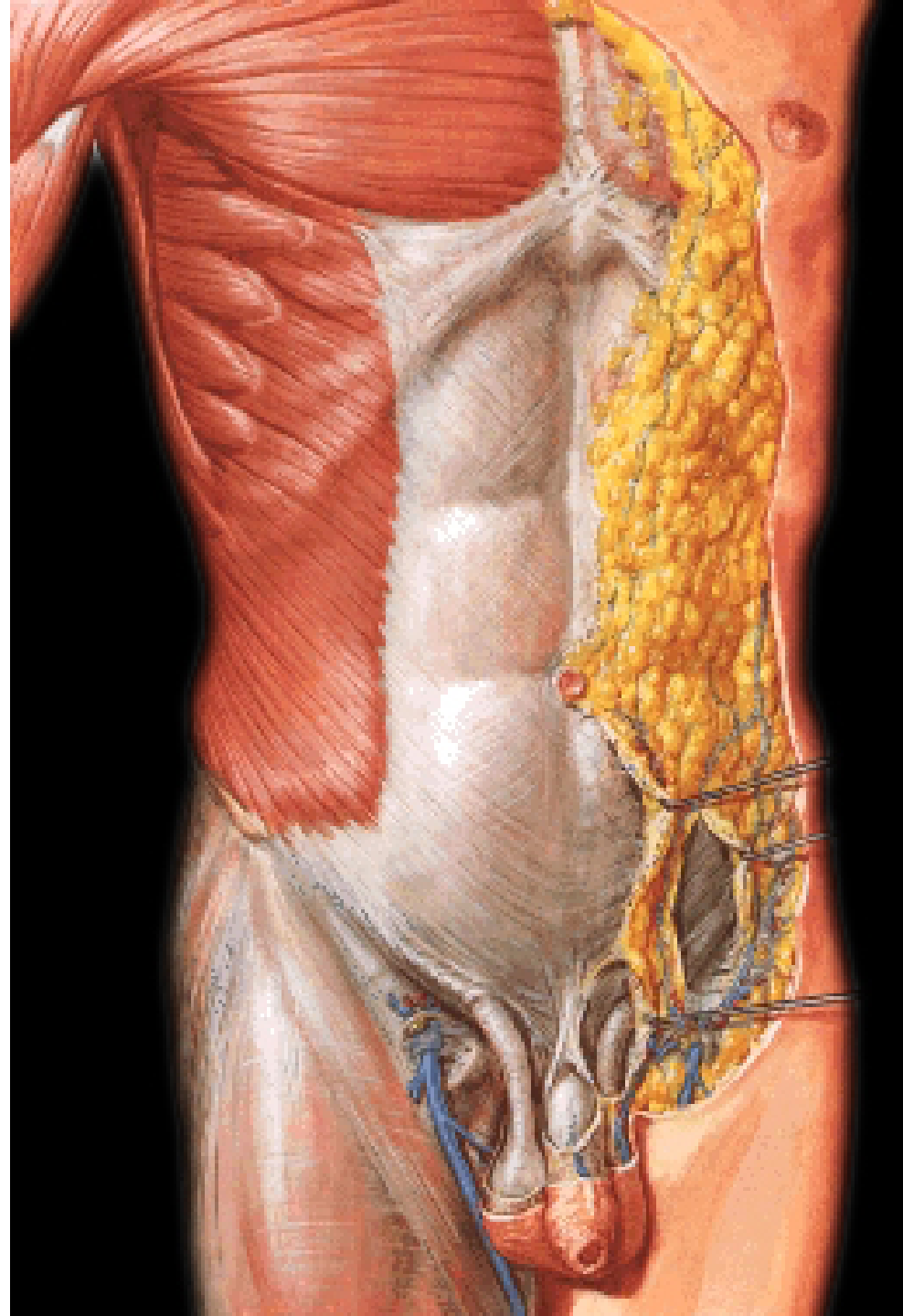


- External Oblique
- Internal Oblique
- Transversus

# External oblique

<b>Origin</b>	<b>Insertion</b>	<b>Innervation</b>	<b>Function</b>
Muscular slips from the outer surfaces of the lower eight ribs (ribs 5-12)	Lateral lip of iliac crest; aponeurosis ending in midline raphe (linea alba)	Anterior rami of lower six thoracic spinal nerves (T7 to T12)	Compresses abdominal contents; both muscles flex trunk; each muscle bends trunk to same side, turning anterior part of abdomen to opposite side

# External Oblique



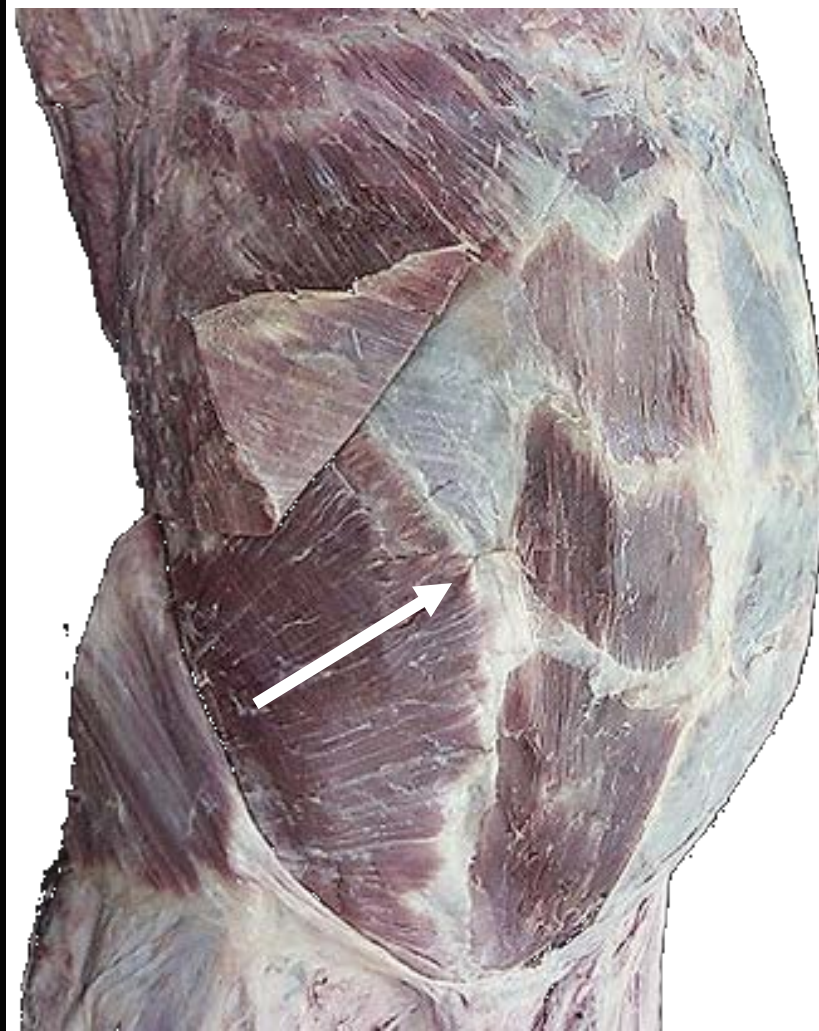
# Internal oblique

<b>Origin</b>	<b>Insertion</b>	<b>Innervation</b>	<b>Function</b>
Thoracolumbar fascia; iliac crest between insertion of external oblique and insertion of transversus abdominis; lateral two-thirds of inguinal ligament	Inferior border of the lower three or four ribs; aponeurosis ending in linea alba; pubic crest and pectineal line	Anterior rami of lower six thoracic spinal nerves (T7 to T12) and L1	See External Oblique





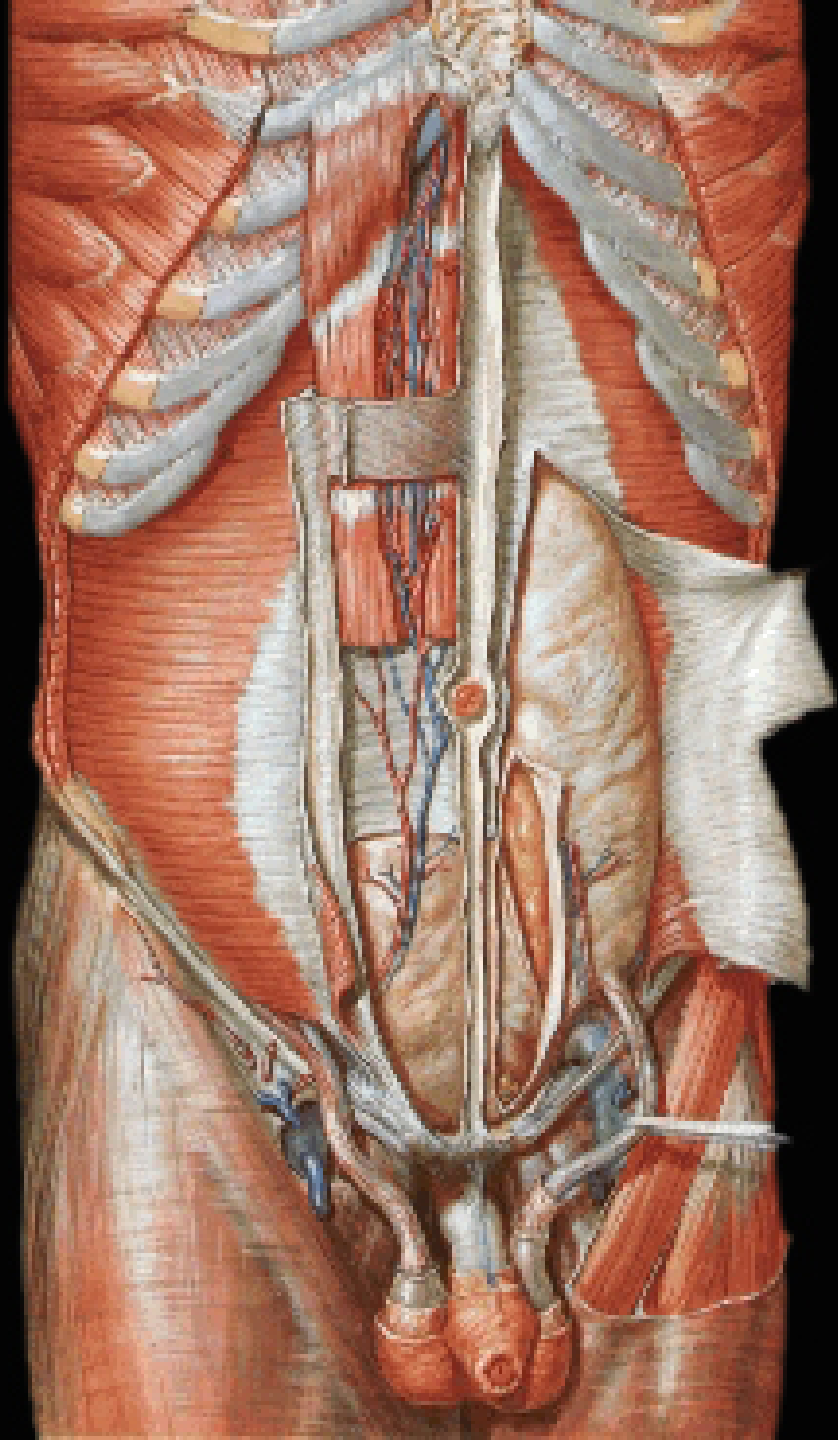
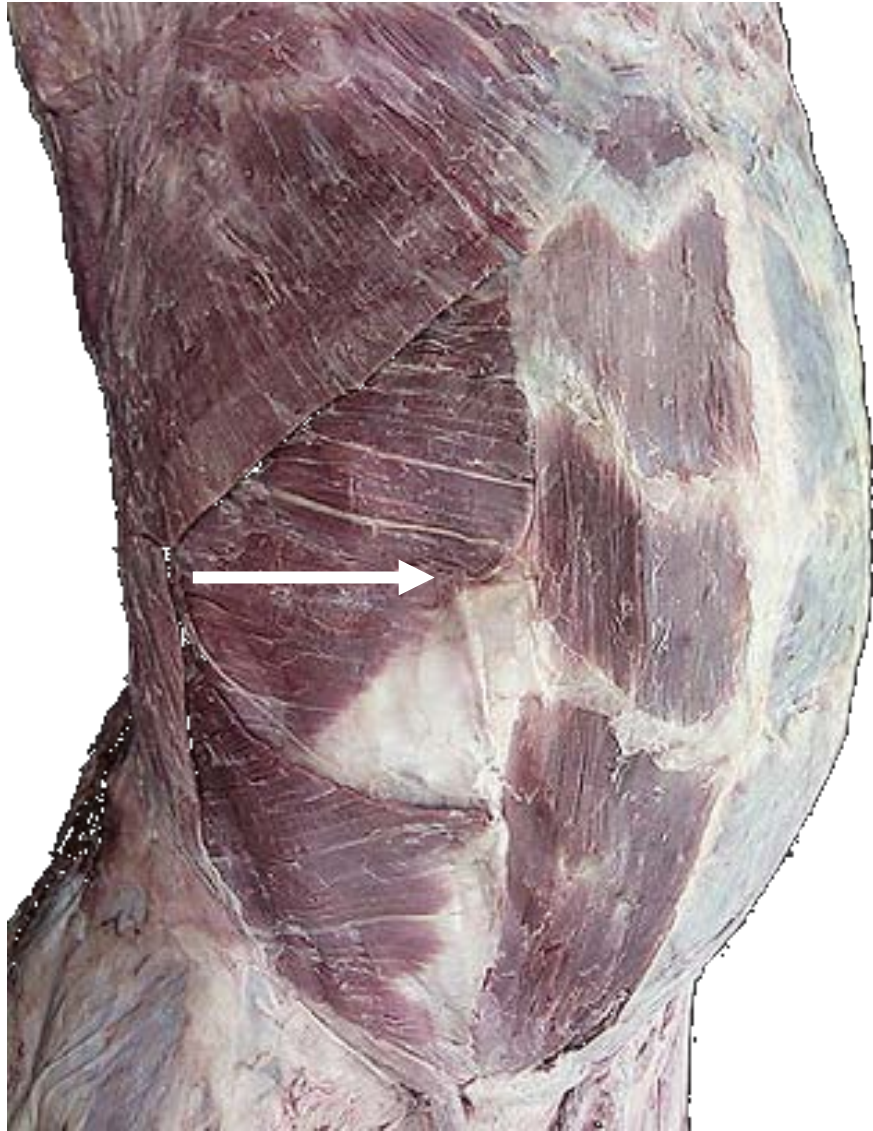
Internal  
Oblique



# Transverse abdominis

<b>Origin</b>	<b>Insertion</b>	<b>Innervation</b>	<b>Function</b>
Thoracolumbar fascia; medial lip of iliac crest; lateral one-third of inguinal ligament; costal cartilages lower six ribs (ribs 7-12)	Aponeurosis ending in linea alba; pubic crest and pectineal line	Anterior rami of lower six thoracic spinal nerves (T7 to T12) and L1	Compresses abdominal contents

# Transversus Abdominis



# Rectus abdominis

<b>Origin</b>	<b>Insertion</b>	<b>Innervation</b>	<b>Function</b>
Pubic crest, pubic tubercle, and pubic symphysis	Costal cartilages of ribs 5-7; xiphoid process	Anterior rami of lower seven thoracic spinal nerves (T7 to T12)	Compress abdominal contents; flexes vertebral column; tenses abdominal wall



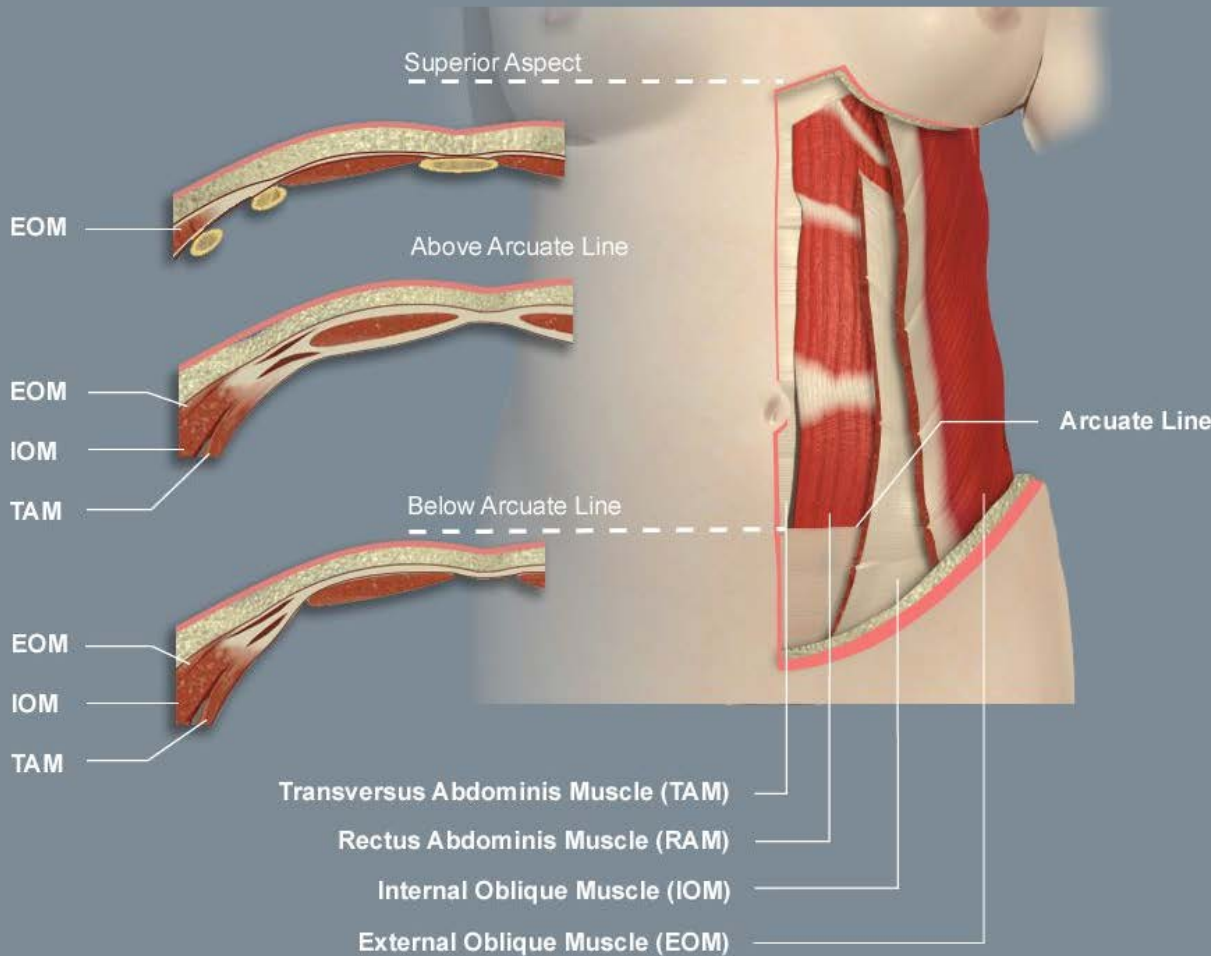
# RECTUS ABDOMINIS

- Tendinous Intersection (3)
- Linea Semilunaris

# The rectus sheath

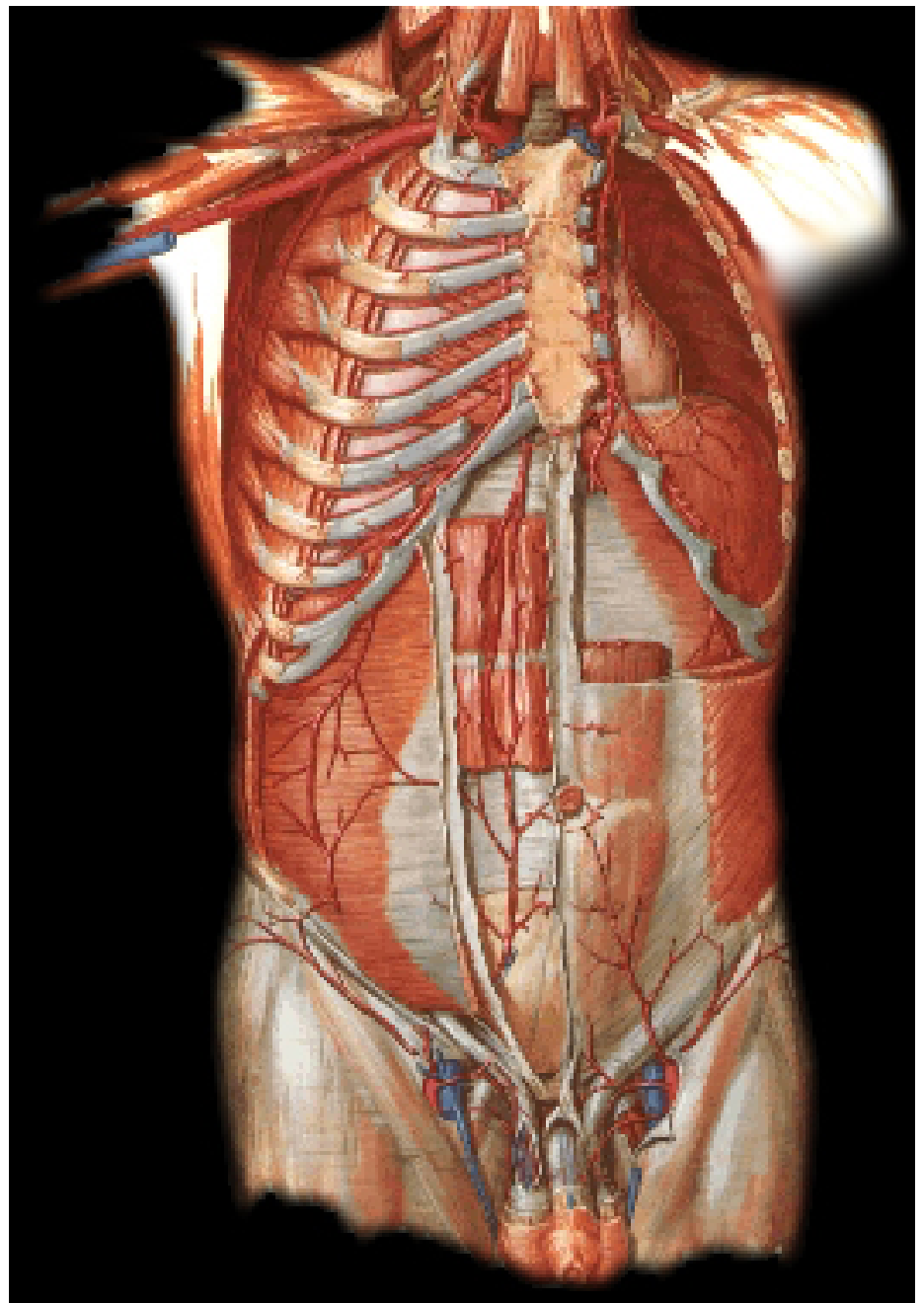
**Arcuate line:** is the lower border of the posterior aponeurotic part of the rectus sheath.

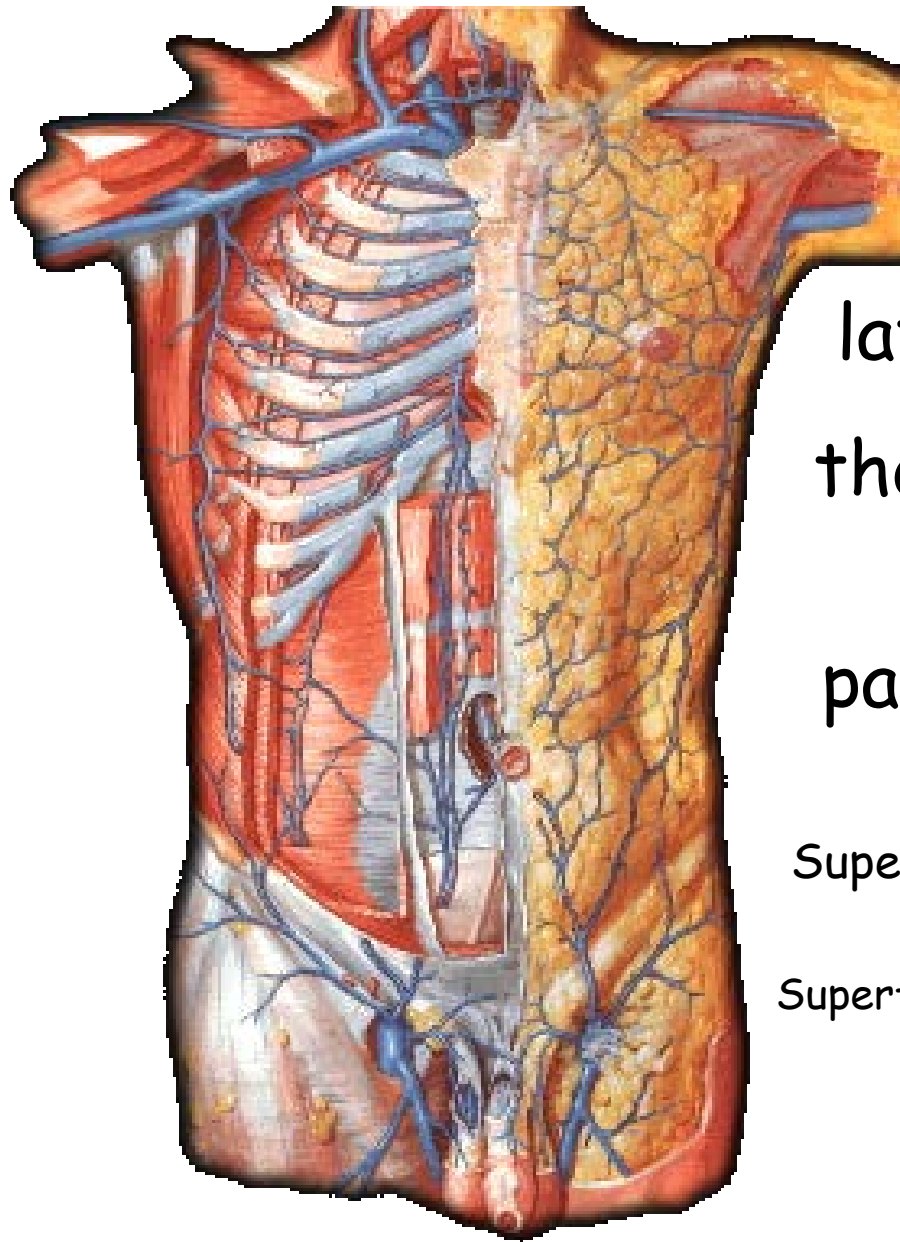
The inferior epigastric artery and vein enter the sheath, pass upwards and anastomose with the superior epigastric vessels.



# SUPERFICIAL ARTERIES

- Lateral
  - Posterior intercostal a.
  - Subcostal a.
  - Lumbar a.
- Median
  - Epigastric a.
  - hypogastric a.
- Inferior
  - Superficial epigastric a.
  - Superficial iliac a.





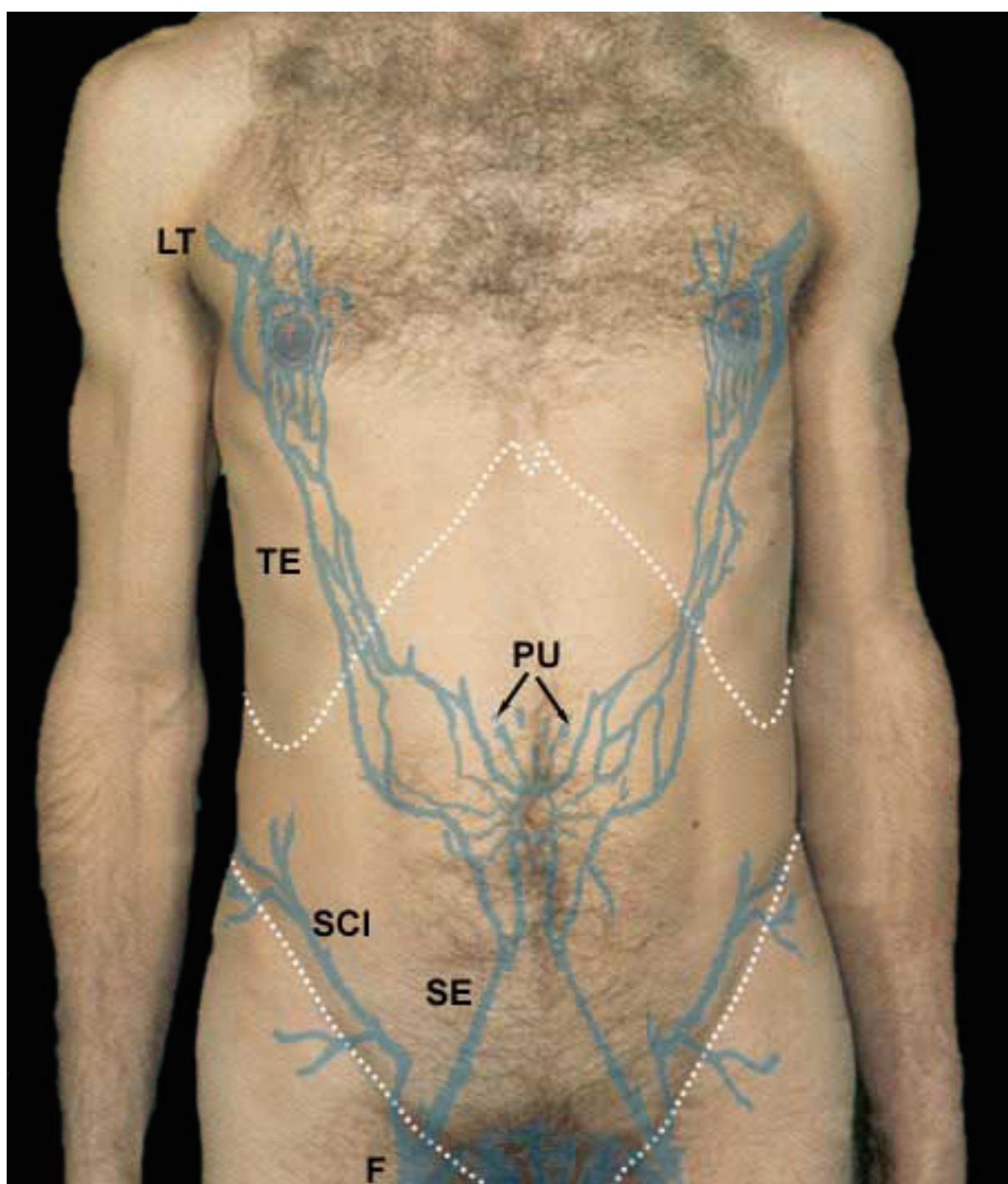
# Superficial veins

lateral thoracic }  
thoracoepigastric } subclavian

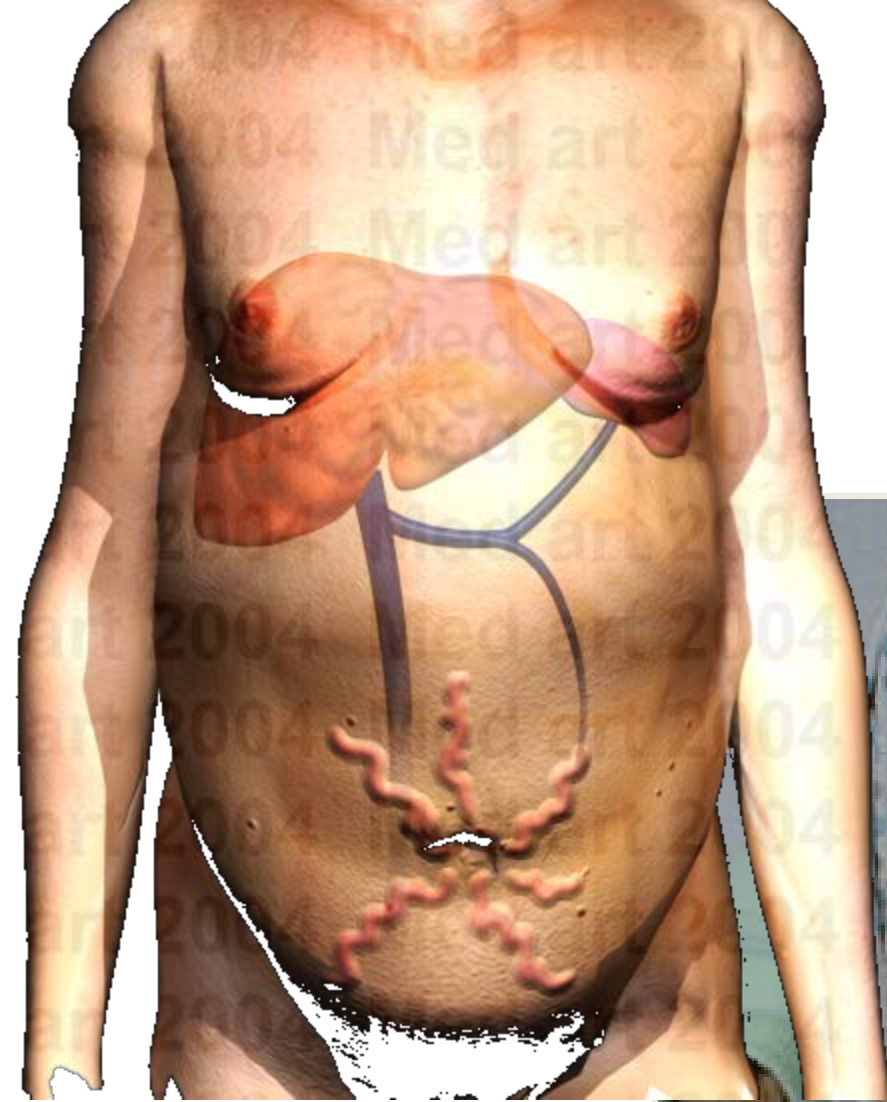
paraumbilical — portal

Superficial epigastric }  
Superficial circumflex iliac } femoral





# Caput Medusae (Medusa Head)

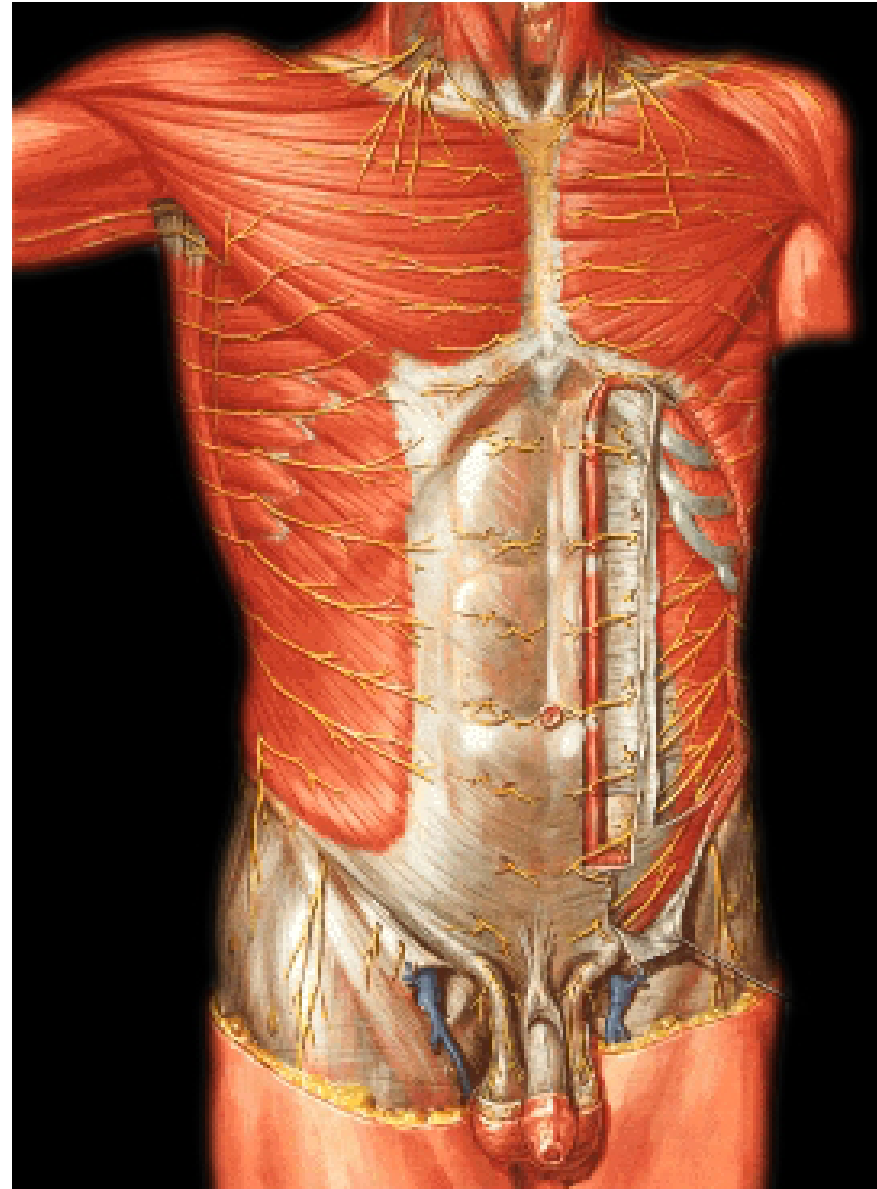


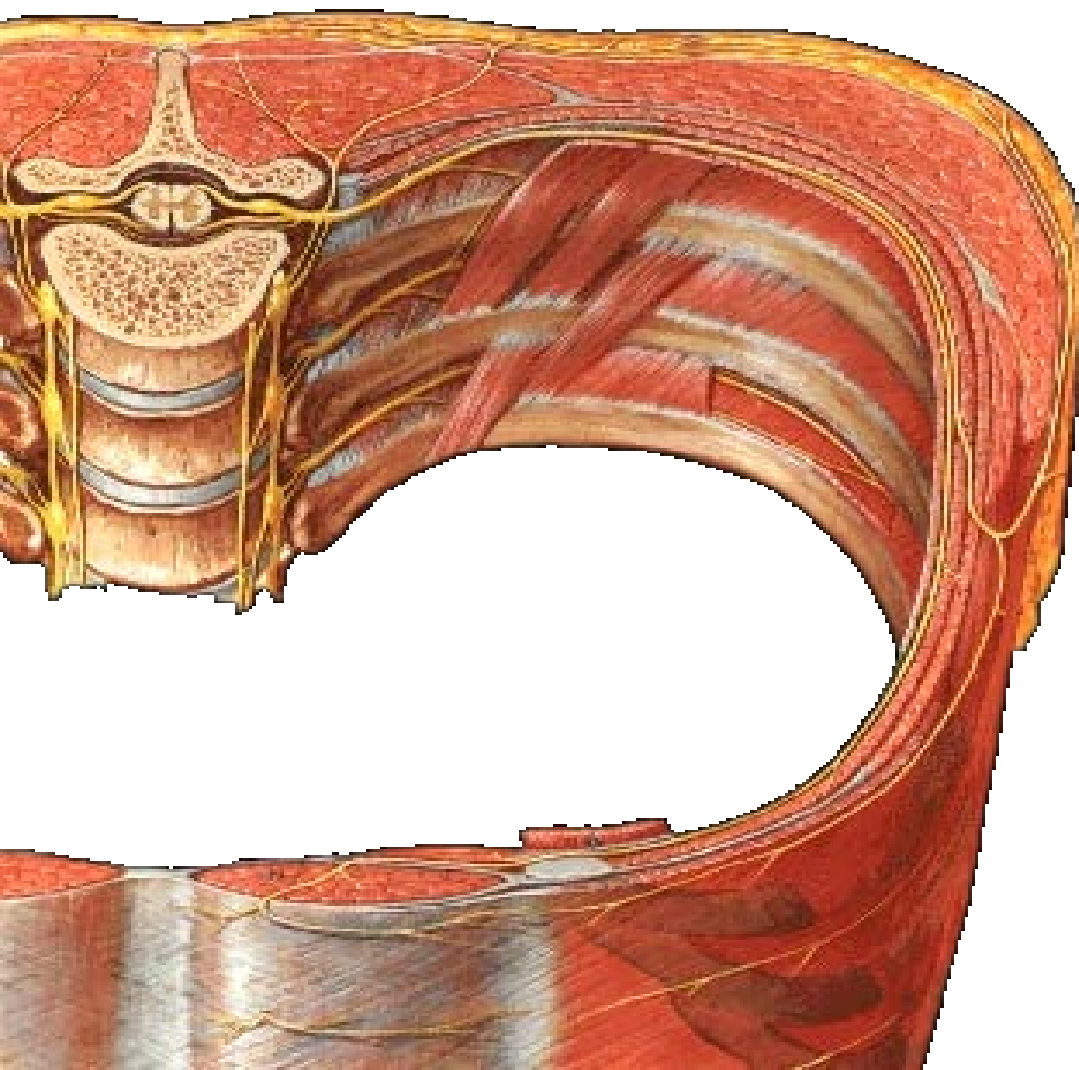
# Lymphatic Drainage

Anterior	→	Intercostal Lymphatic Nodes Parasternal Lymphatic Nodes
Middle	→	Lumbar Lymphatic Nodes
Lower	→	External Iliac Lymphatic Nodes

# INNERVATIONS

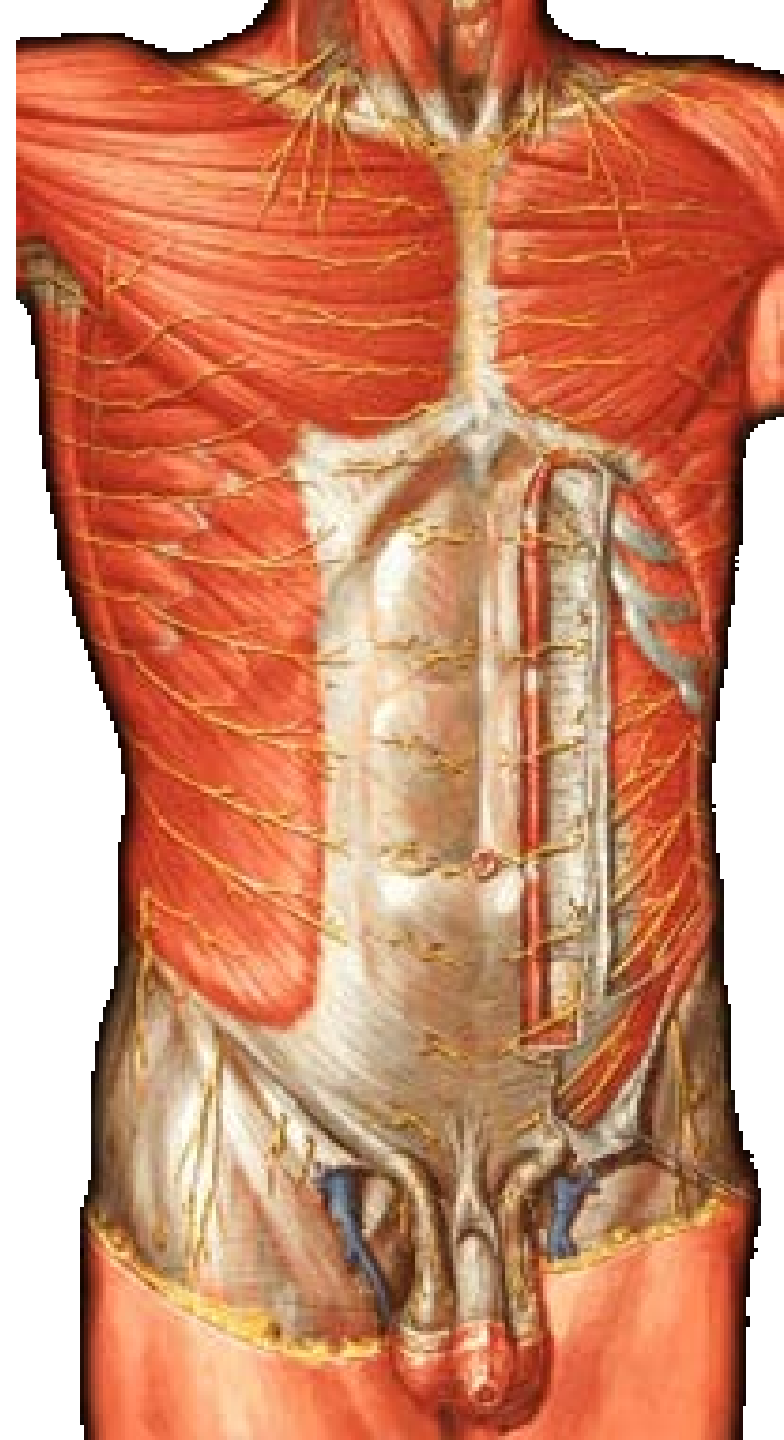
- Intercostal Nerves  
T7-T11
- Subcostal nerve  
(T12)
- L1





# Innervations

- Intercostal n.
  - Anterior cutaneous branch
  - Lateral cutaneous branch

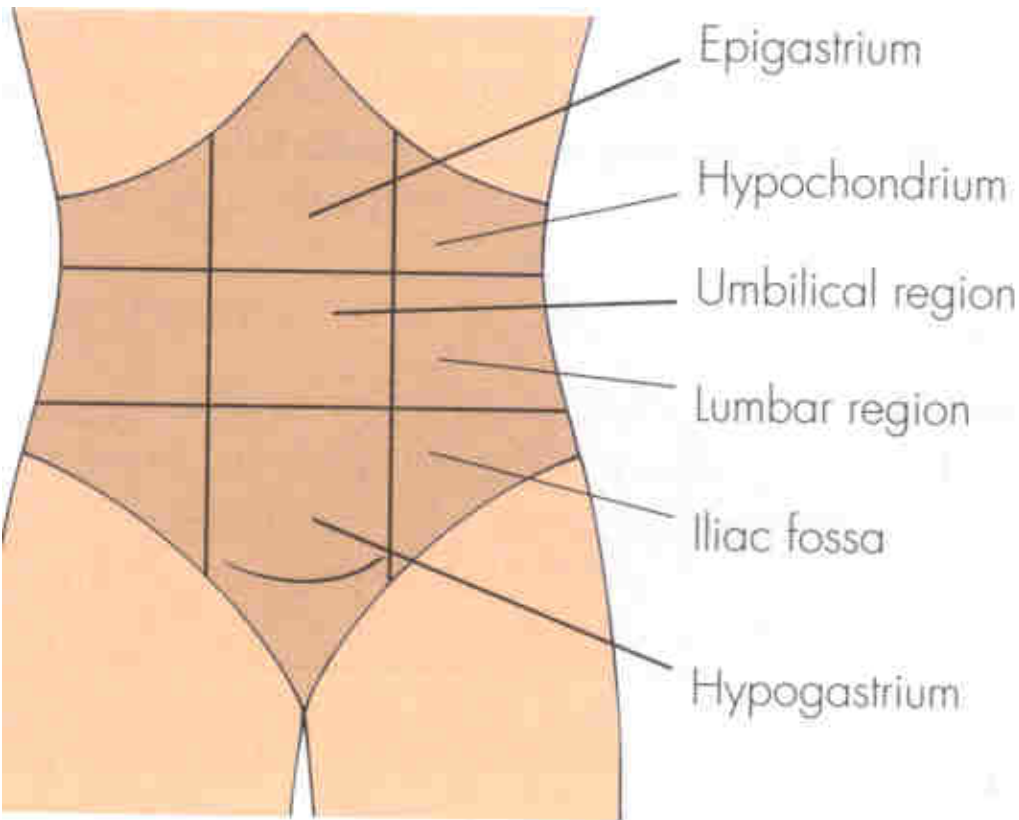


- T7-11: thoracoabdominal n.
  - T12: Subcostal n.
  - Iliohypogastric n.
  - Ilioinguinal n.
  - Genitofemoral n
- } L1  
} L1,2.

# Regions of the Abdomen

- Dividing the abdomen into regions helps in localization of abdominal signs and symptoms
- Two methods of dividing the abdomen into regions:
  1. Nine regions: By means of two vertical and two horizontal lines
  2. Four Quadrants: By means of one vertical and one horizontal lines, both passing through the umbilicus.

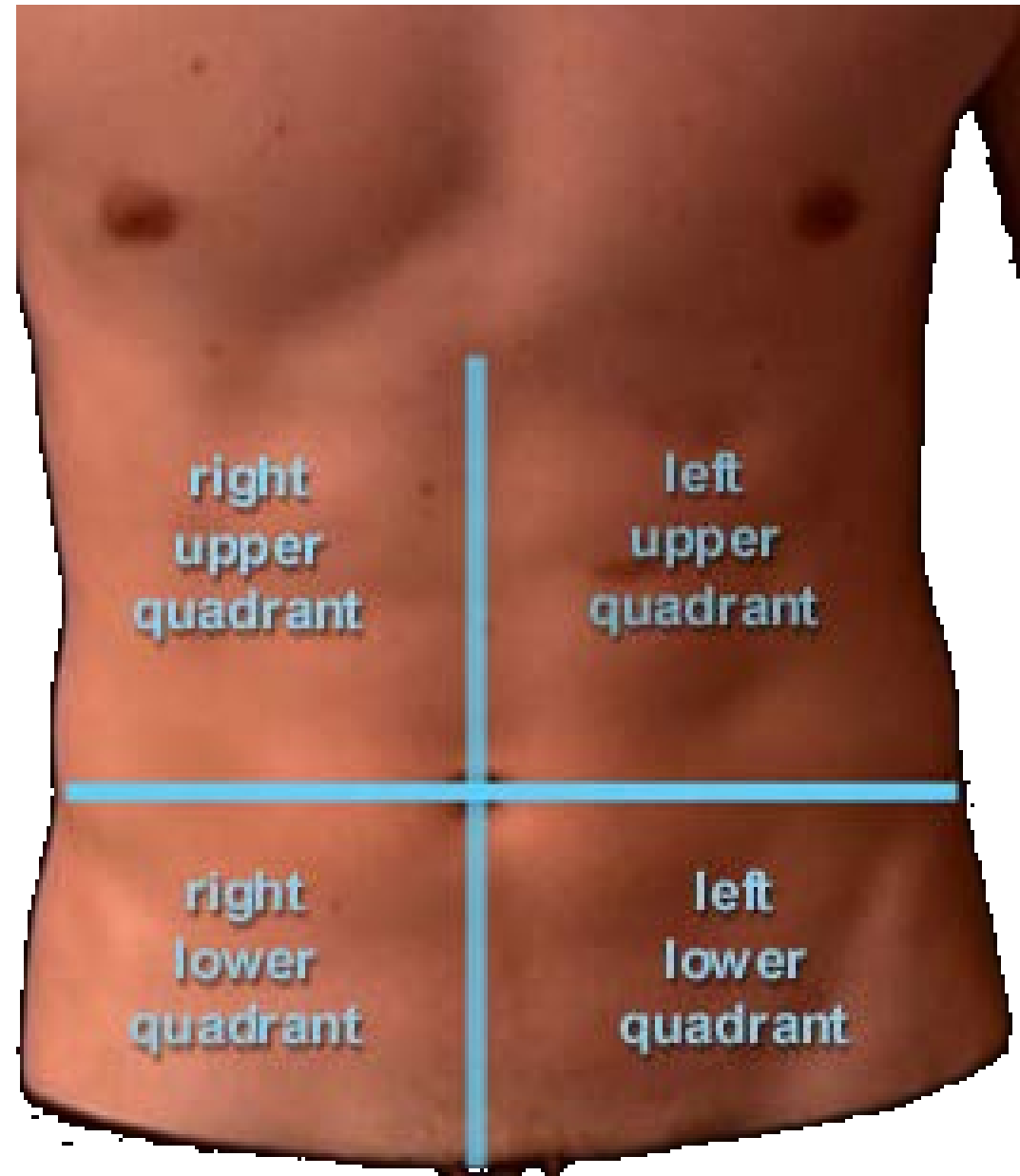
# Regions of the Abdomen



- Nine regions
- Divided by two horizontal lines:
  - i. Transpyloric line
  - ii. Trans tubercular (Trans-iliac) line
- Two Vertical lines
  - i. Rt. & Lt. Midclavicular lines



# Regions of the Abdomen II



# Anterior Abdominal Wall

## *Functions*

- Forms a strong expandable support.
- Protects the abdominal viscera from injury such as low blow in boxing
- Compresses the abdominal content
- Helps to maintain or increase the intraabdominal pressure.
- Moves the trunk and help to maintain posture.

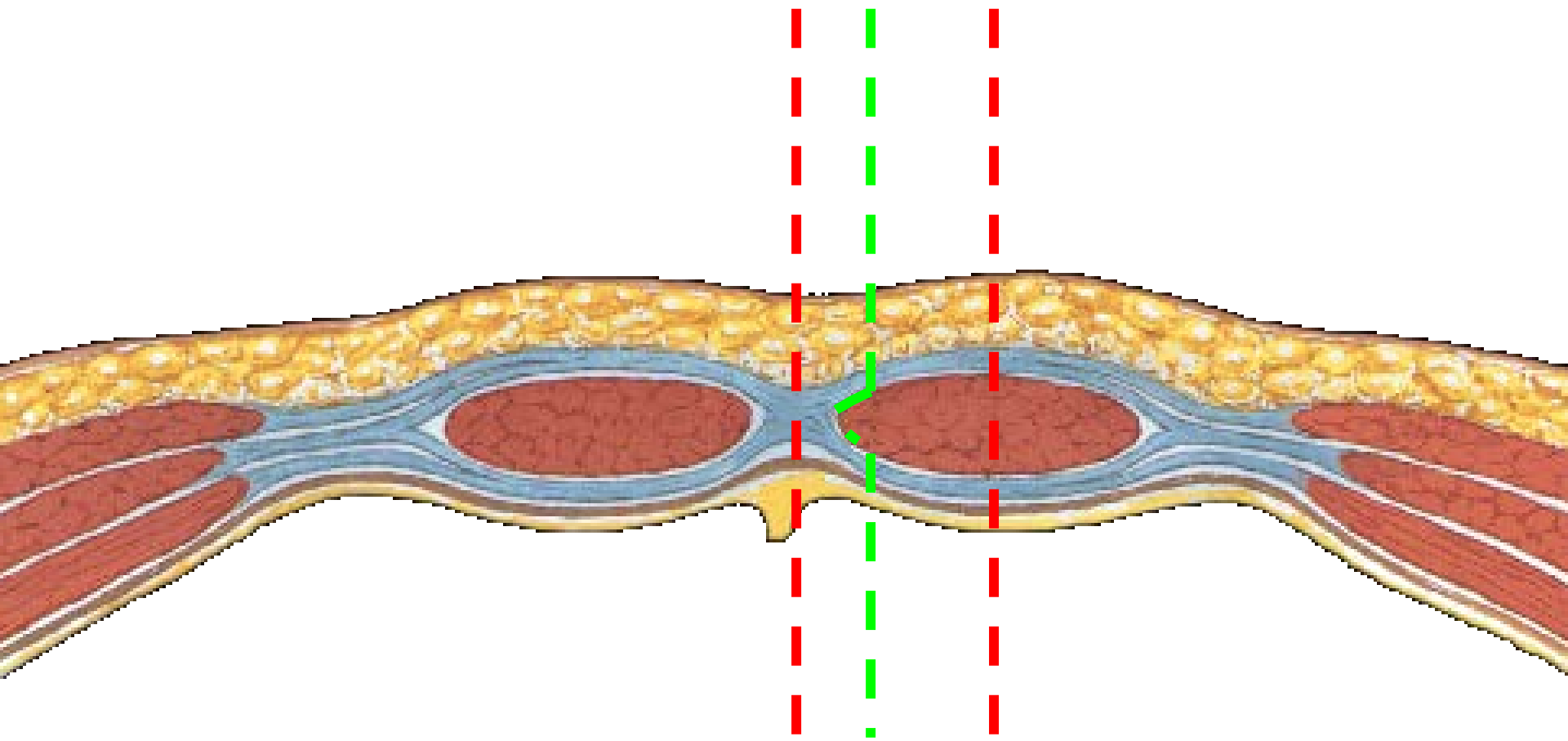
# Abdominal Incisions

An incision is defined as a cut made with knife for surgical purposes.

# INCISIONS



- Longitudinal
  - Midline
  - Paramedian
  - Transrectal
- Oblique
  - Subcostal
  - McBurney's
- Transverse
  - Pfannenstiel
- Combined
  - Thoraco-abdominal



# Abdominal Hernia Orifices

- Hernia is defined as the protrusion of an organ through it's containing wall.
- Abdominal hernias occurs because of weaknesses in the abdominal wall

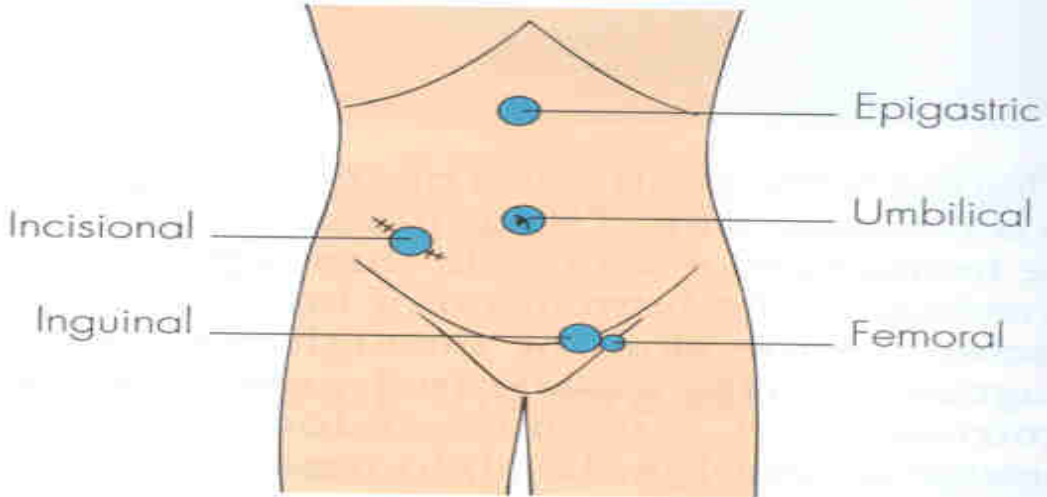
# Common Sites

- Inguinal Hernia
- Umbilical Hernia
- Femoral Hernia
- Incisional Hernia

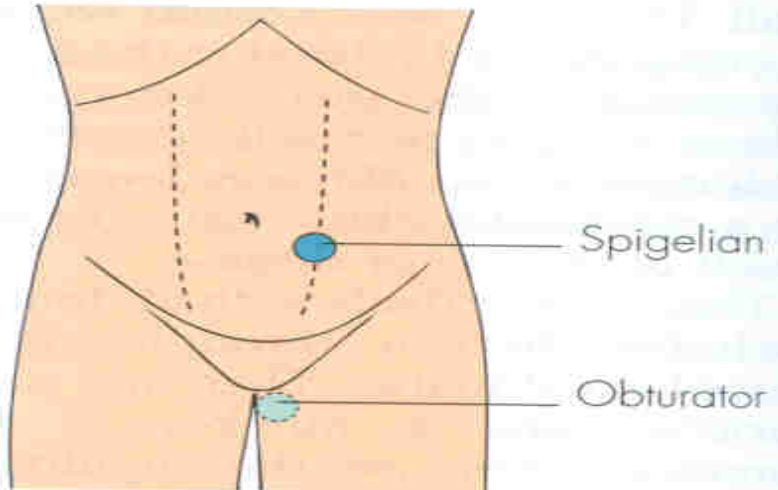
## Less common Hernia

- Epigastric Hernia
- Recurrent Hernia

### The common herniae



### The rare herniae





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**THE END**