

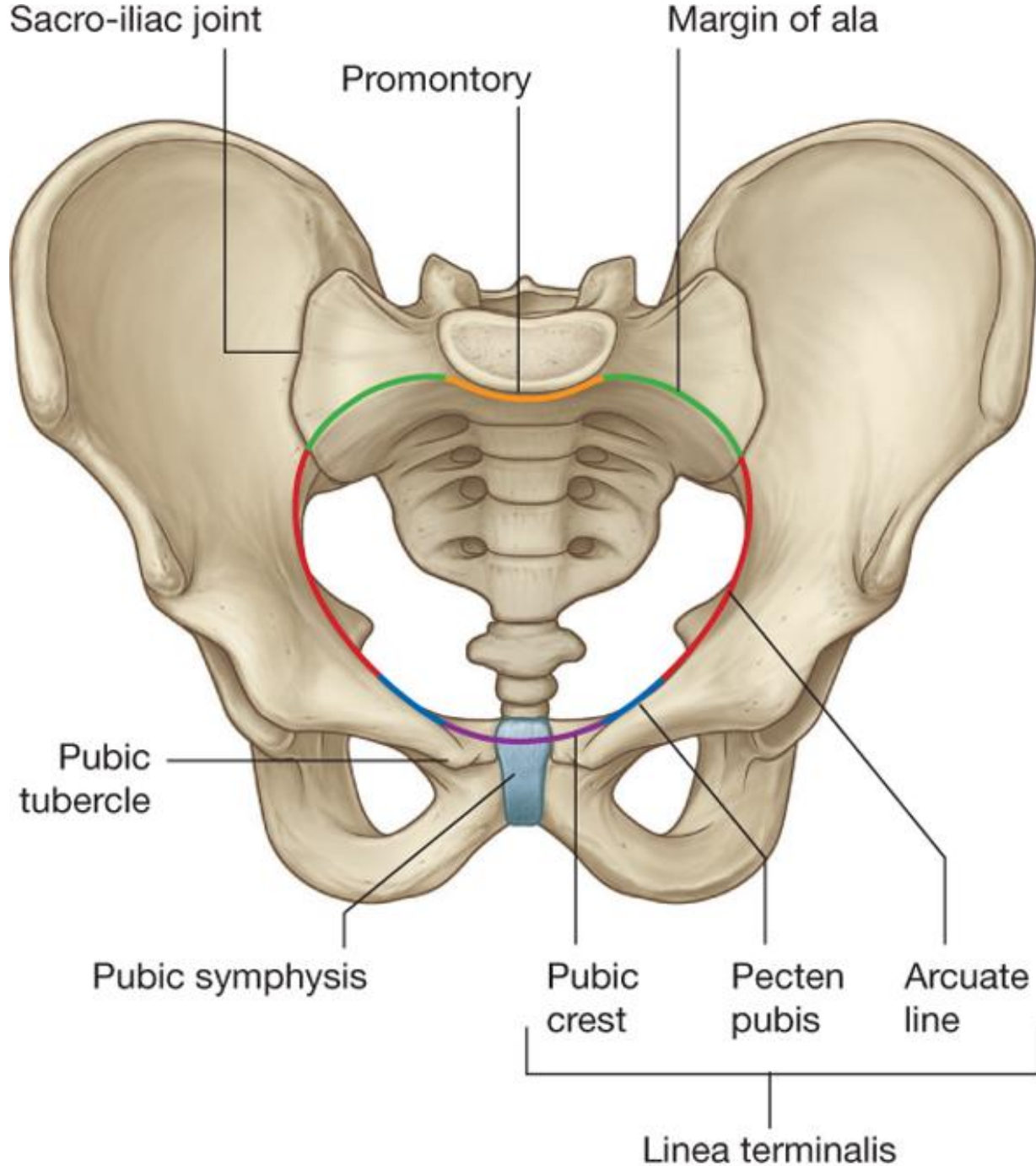
Pelvis

Slides Rearranged by: Ismail A.
Raslan

Bony pelvis

- protects the lower parts of the alimentary & urinary tracts and the internal organs of reproduction
- 4 bones
 - Right and left hip bone
 - Sacrum
 - coccyx
- 4 joints
 - **Right and left sacroiliac joint**
 - **Sacrococcygeal**
 - **Symphesis pubis**

- Above the brim is false pelvis
- Below the brim true pelvis
- What is the brim(also the boundaries of the inlet) made of ?
 - Sacral promontory
 - ala of sacrum
 - Ileopectineal lines.
 - Symphysis pubis



- False pelvis boundries

The False pelvis is bounded by:

Posteriorly:

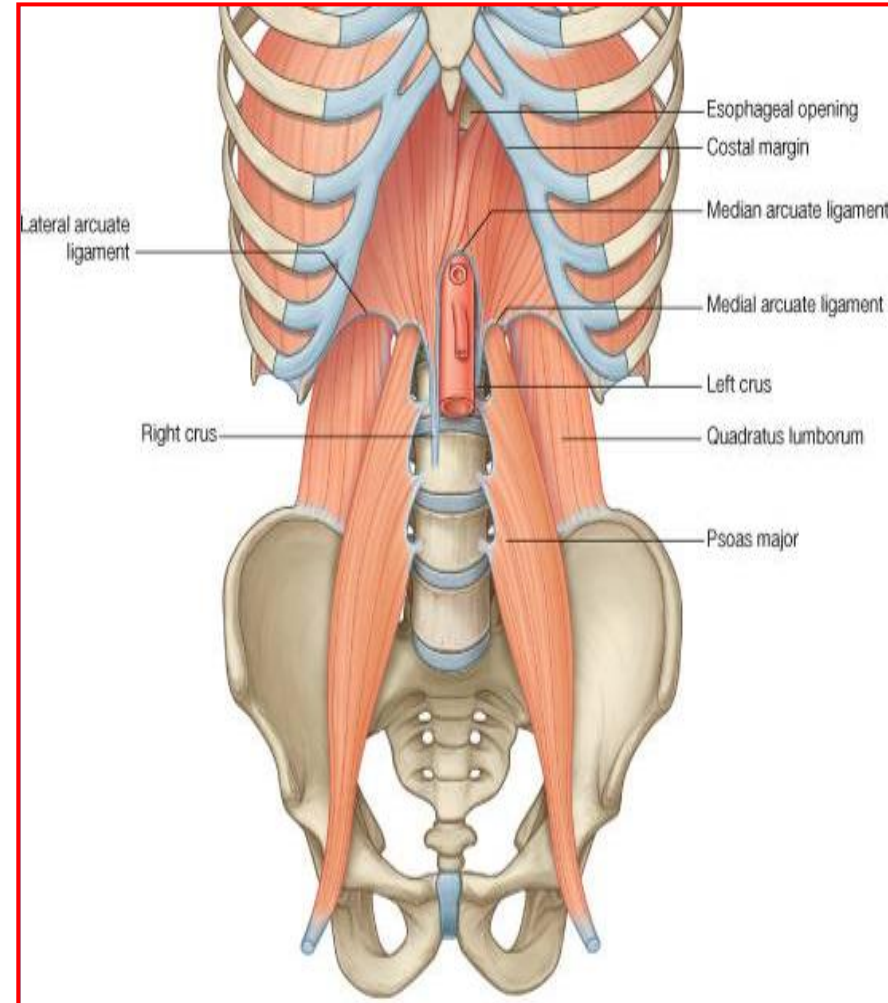
Lumbar vertebrae.

Laterally:

Iliac fossae and the iliacus muscles.

Anteriorly:

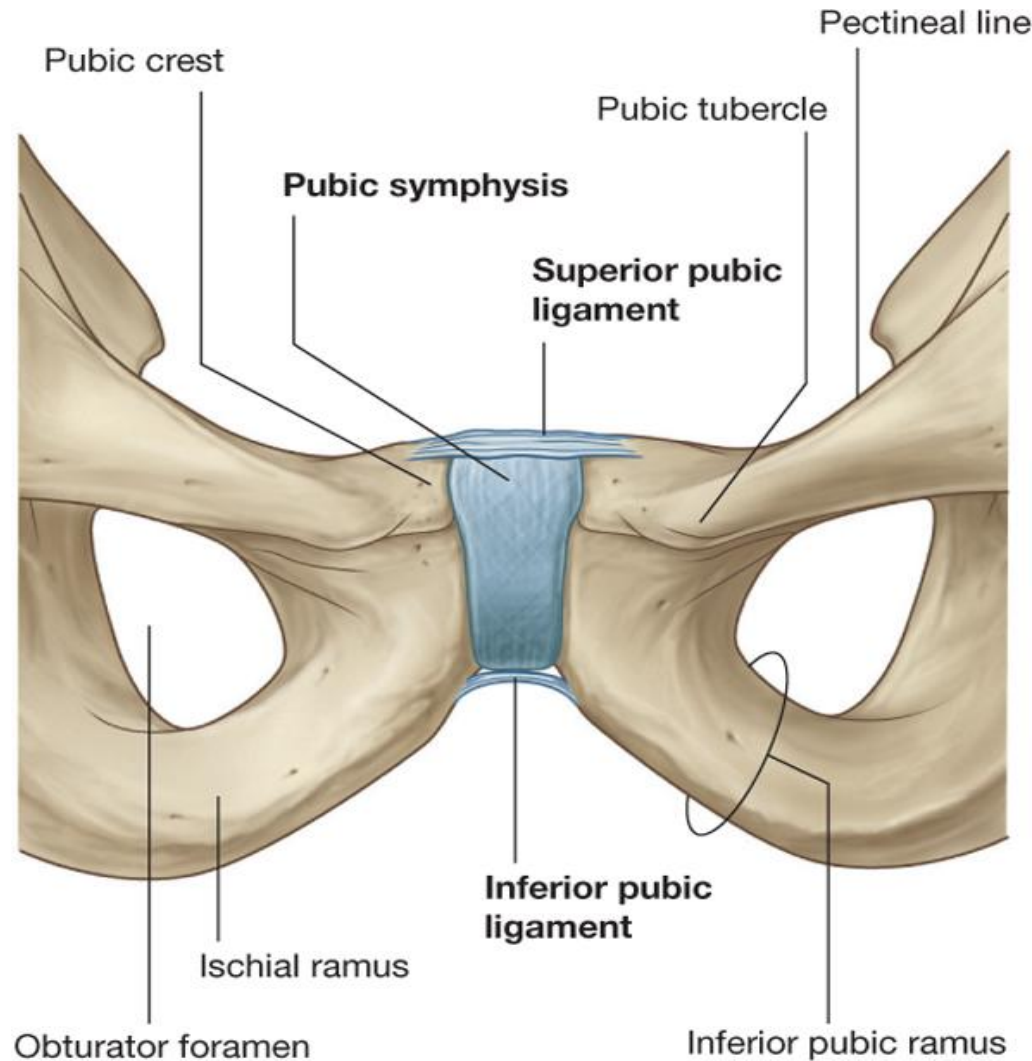
Lower part of the anterior abdominal wall.
It supports the abdominal contents.



- True pelvis boundaries
 - Anterior pelvic wall
 - Posterior pelvic wall
 - Lateral
 - Floor

Anterior pelvic wall

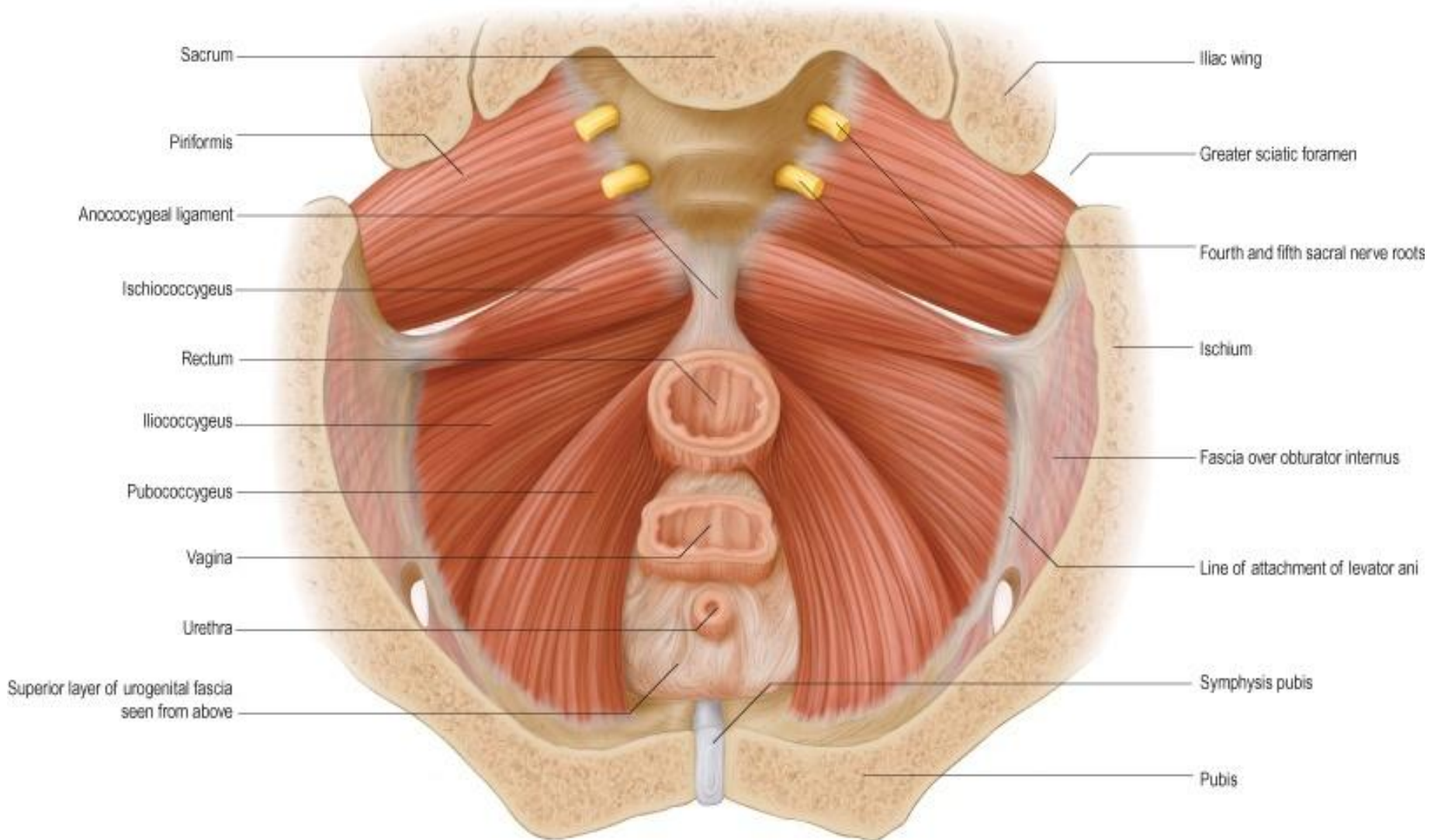
- It is the shallowest wall and is formed by the posterior surfaces of the
 - bodies of the pubic bones,
 - the pubic rami, and the
 - symphysis pubis.



Drake: Gray's Anatomy for Students, 2nd Edition.

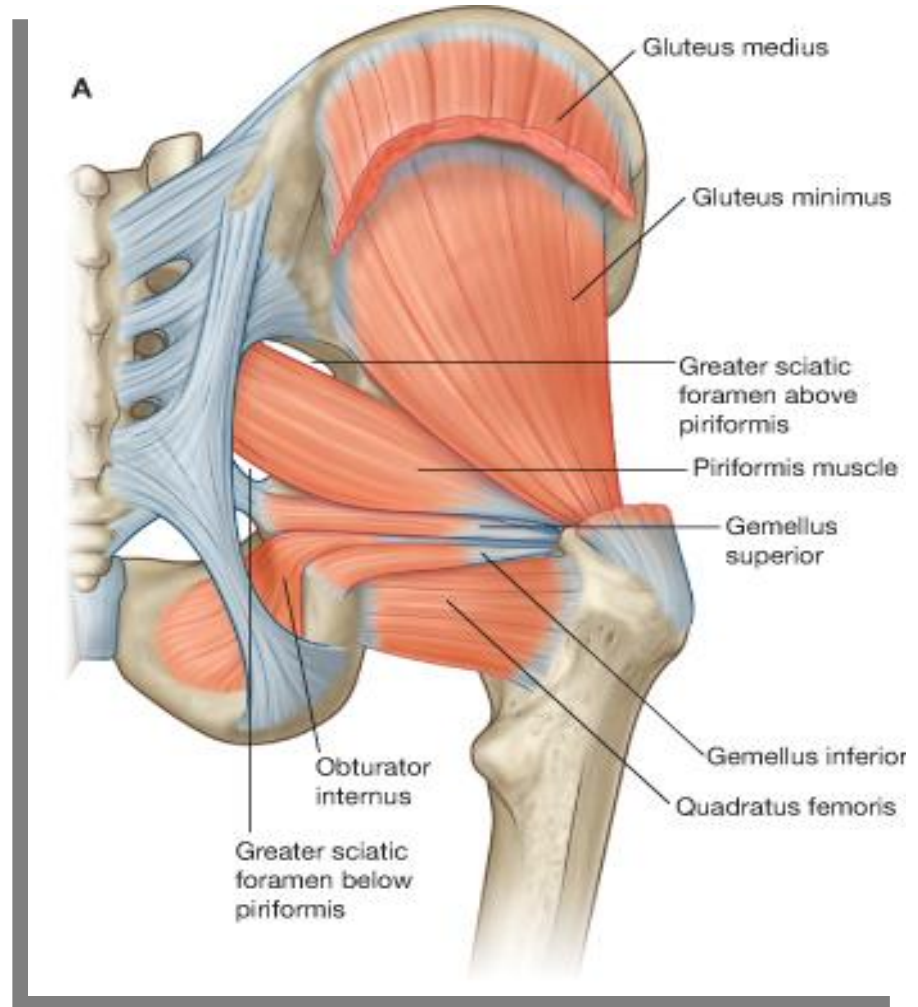
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Posterior pelvic wall

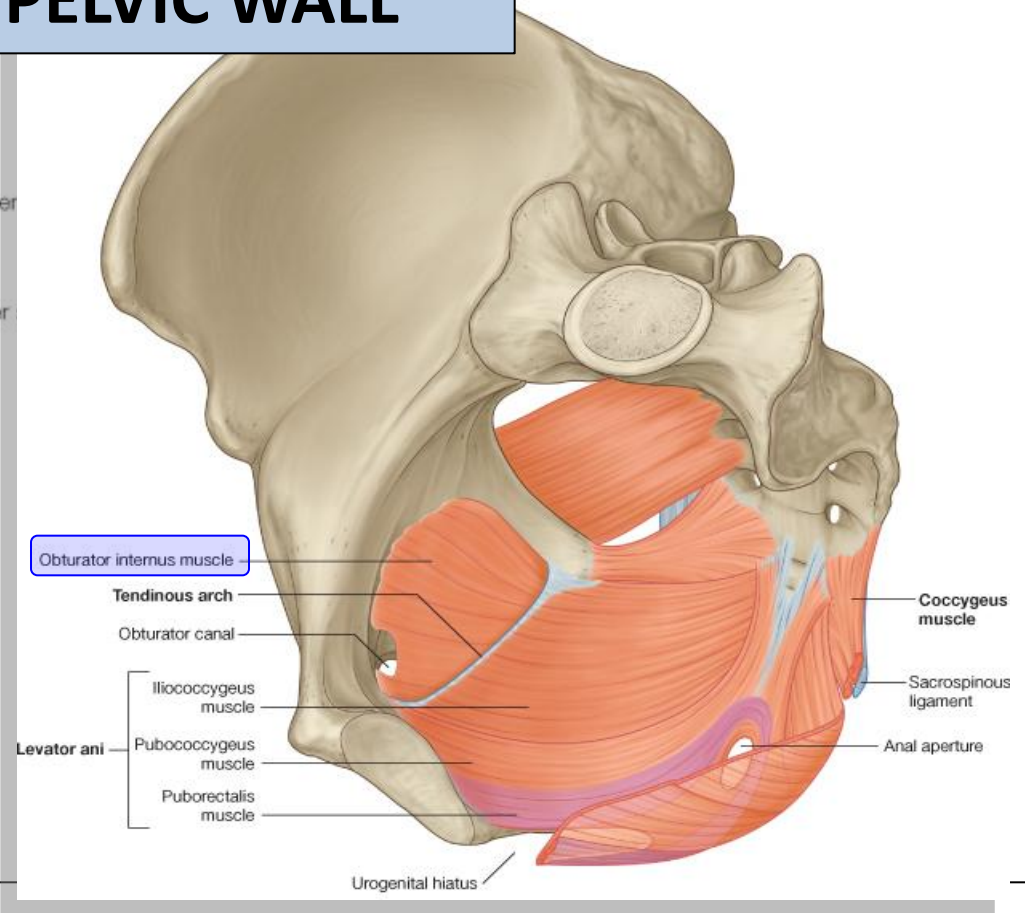
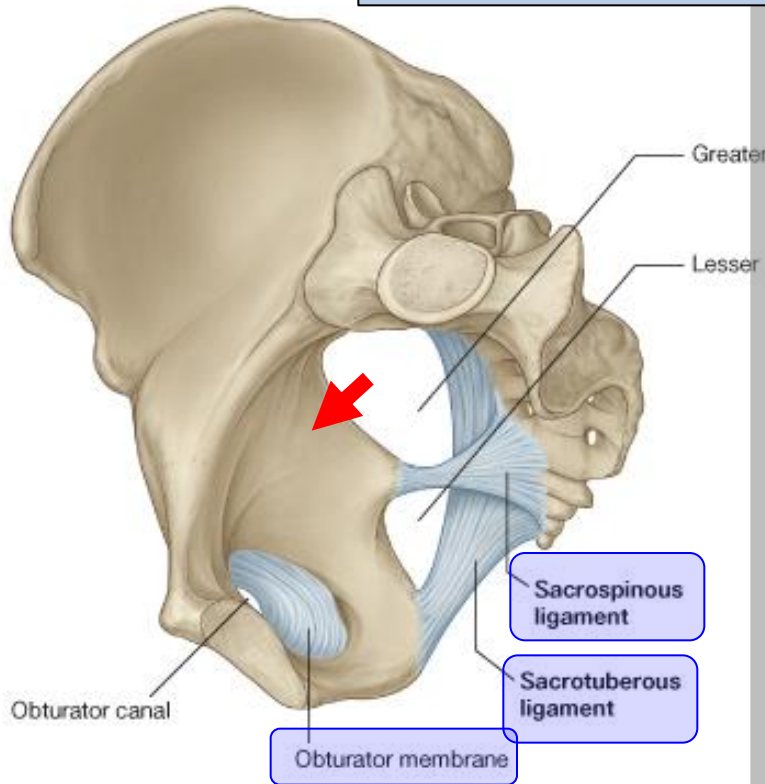


Posterior pelvic wall

- Sacrum
- Coccyx
- Piriformis muscle
 - **Origin:** Front of the middle 3 sacral vertebrae
 - Then leaves through greater sciatic foramen
 - **Insertion:** Greater trochanter of the femur
 - Lateral rotator of the hip
 - Sacral plexus

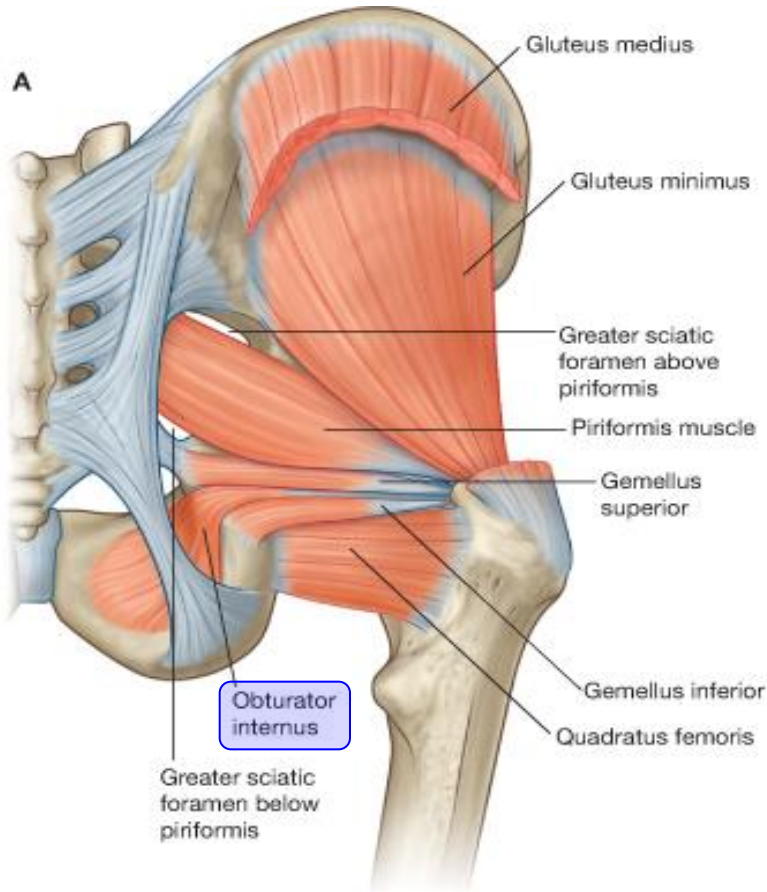


LATERAL PELVIC WALL

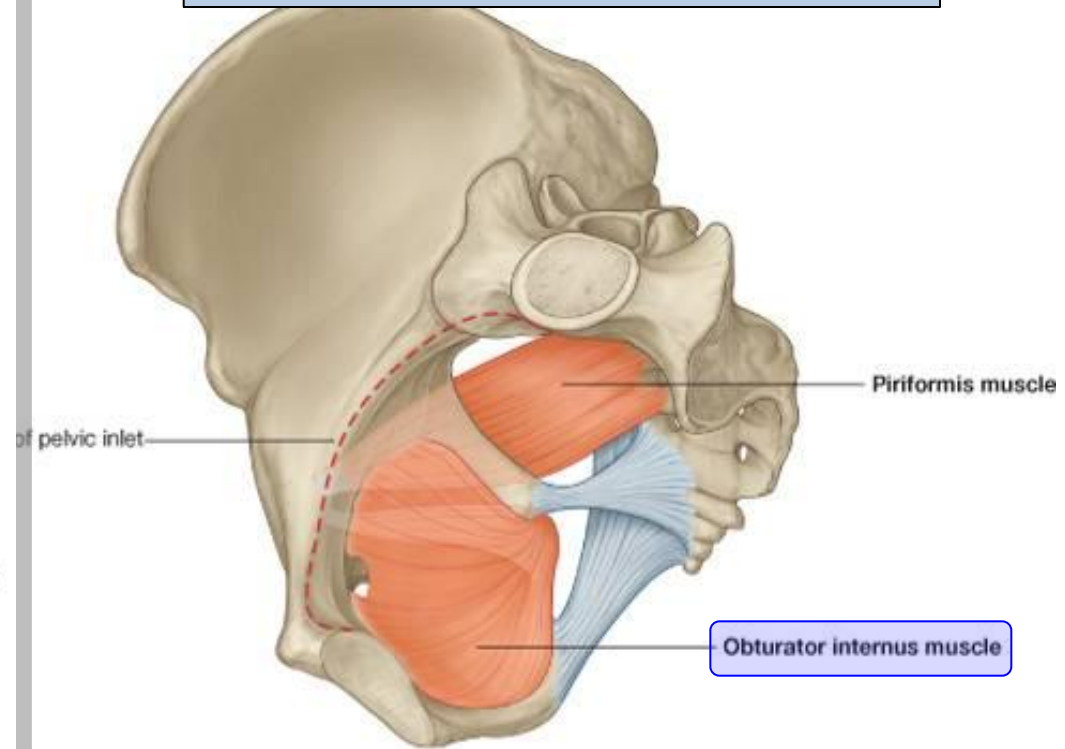


It is formed by:

- 1- Part of the hip bone below the pelvic inlet,
- 2- Obturator internus and its covering fascia & the obturator membrane,
- 3- Sacrotuberous ligament
- 4- Sacrospinous ligaments.

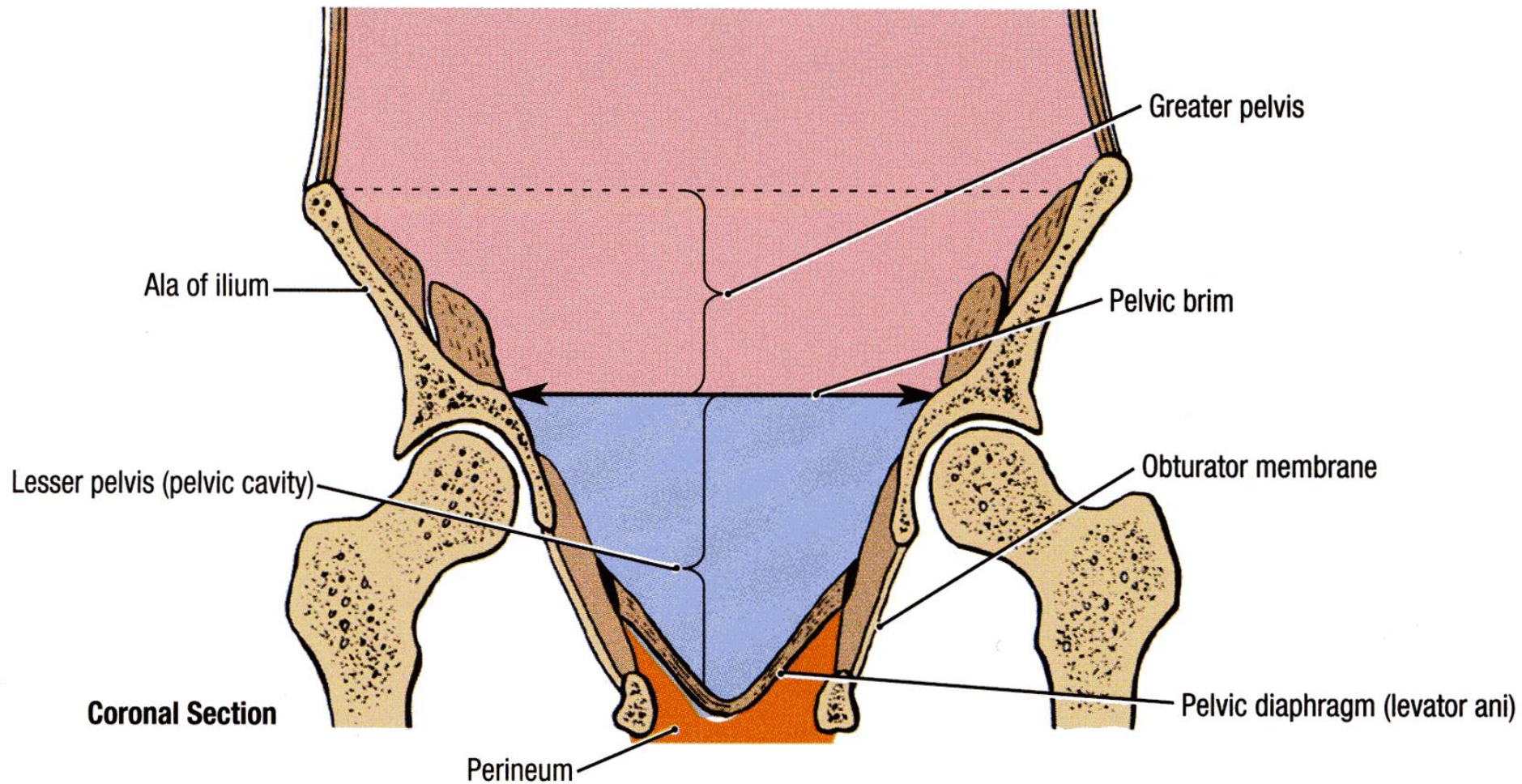


Obturator Internus



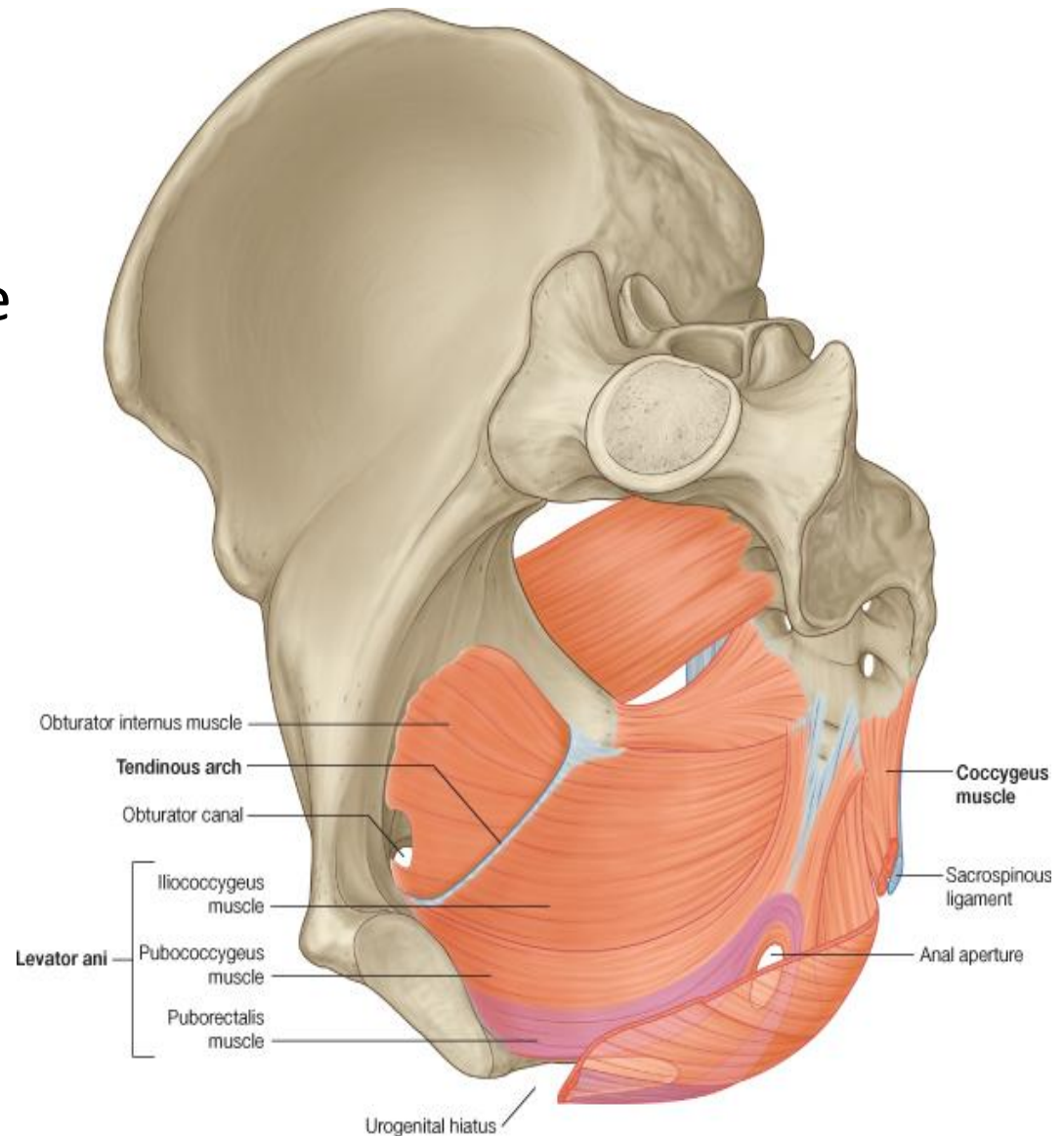
- **Origin:** Inner surface of the obturator membrane and the hip bone.
- **Insertion:** It leaves the pelvis through the lesser sciatic foramen to be inserted into the greater trochanter of the femur.
- **Action:** Lateral rotator of the femur at the hip joint.
- **Nerve supply:** Nerve to obturator internus.

Pelvic diaphragm (inferior pelvic wall)



Pelvic diaphragm

- 2 muscles
- Coccygeus
 - Origin :ischial spine
 - Insertion : Lower end of sacrum and coccyx
 - Action : assists levator ani
 - Nerve supply : Fourth and fifth sacral nerves
- Levator ani

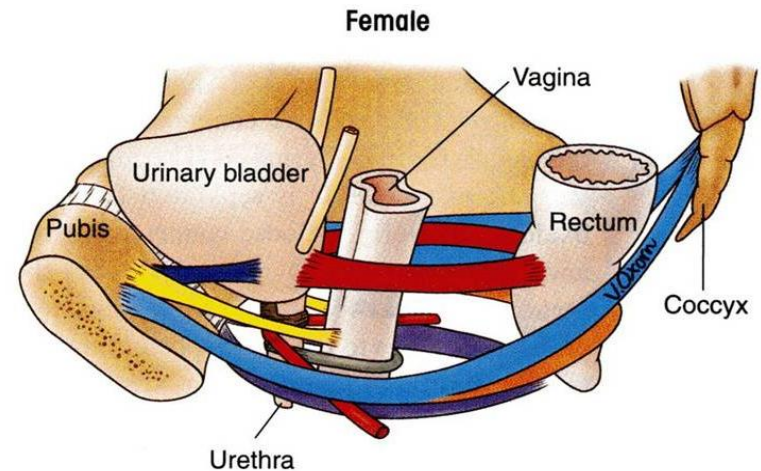
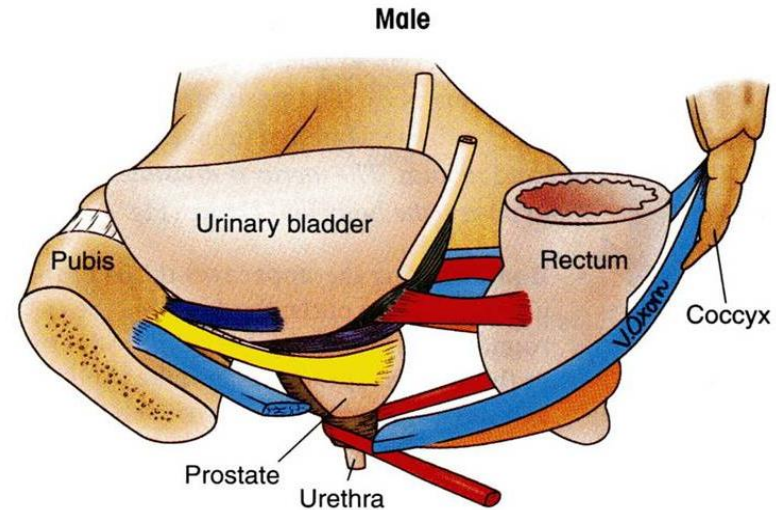


Levator ani

- Originates from
 - back of the body of the pubis
 - tendinous arch
 - of the pelvic fascia covering the obturator internus
 - spine of the ischium

Anterior fibers

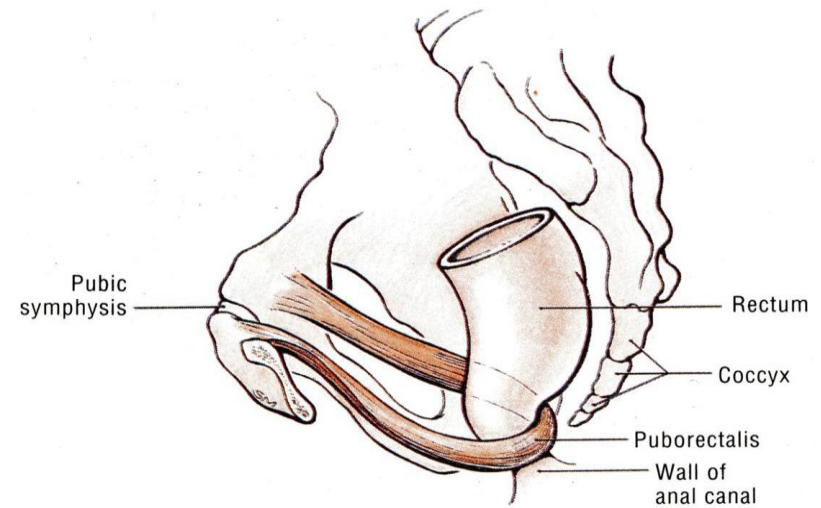
- Male
 - levator prostate
 - Action :
 - support the prostate
 - Stabilize the perineal body
- Female
 - sphincter vaginae
 - Action :
 - Constricts the vagina
 - Stabilize the perineal body



Intermediate fibers

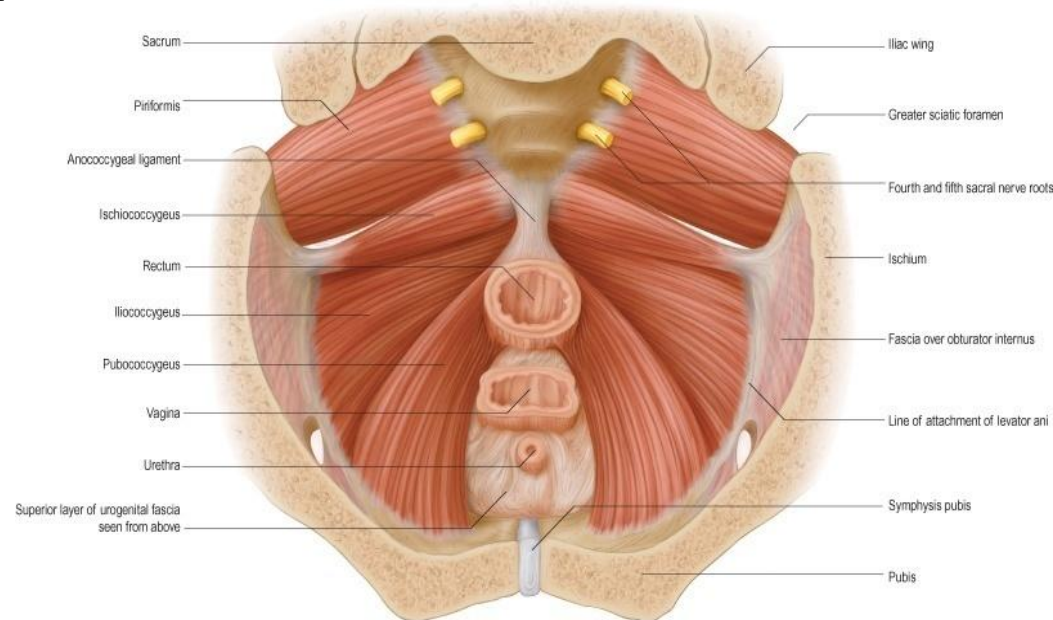
1. Puborectalis muscle

- Slings around the recto-anal junction

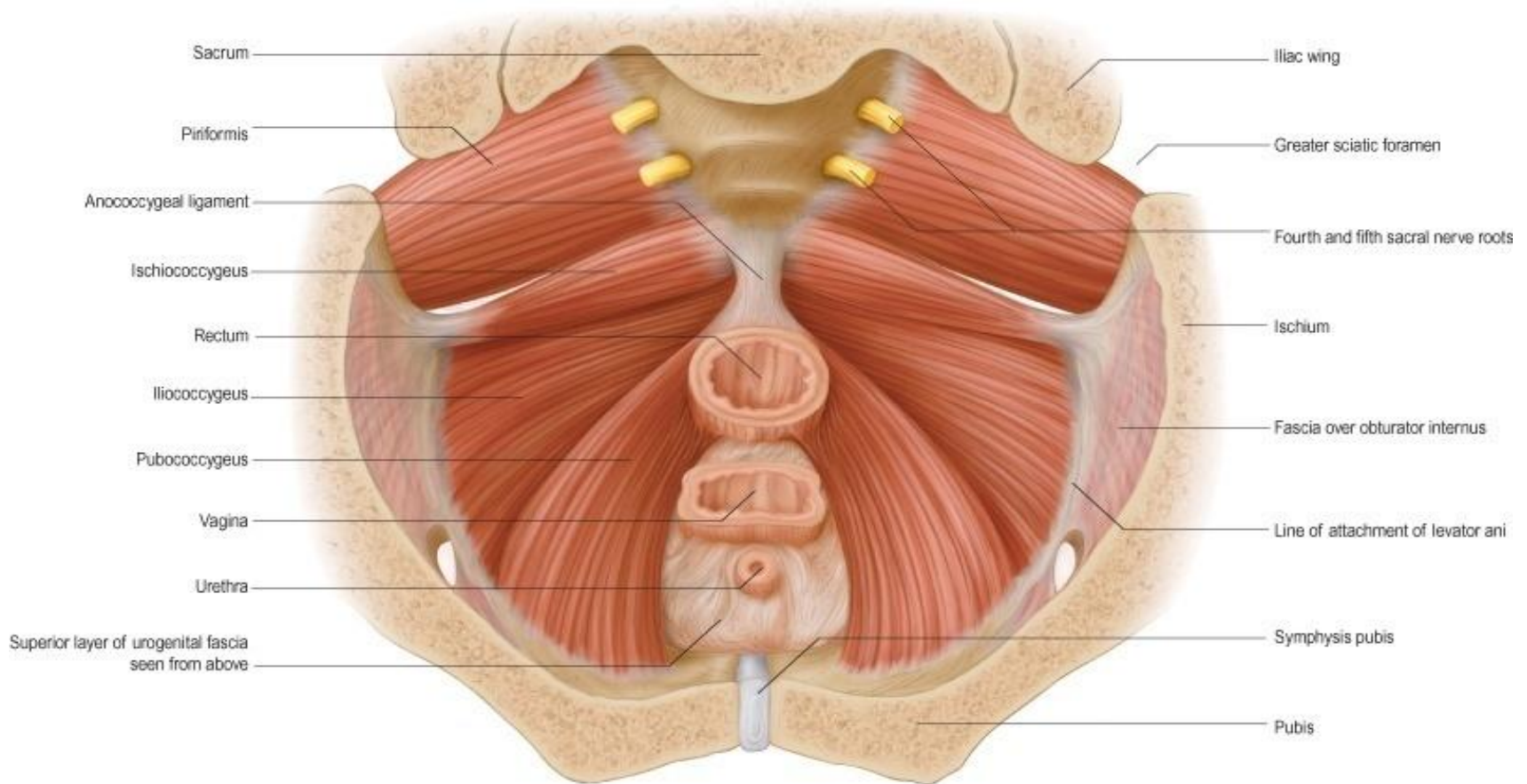


2. Pubococcygeus muscle

- inserted into anococcygeal body, between the tip of the coccyx and the anal canal



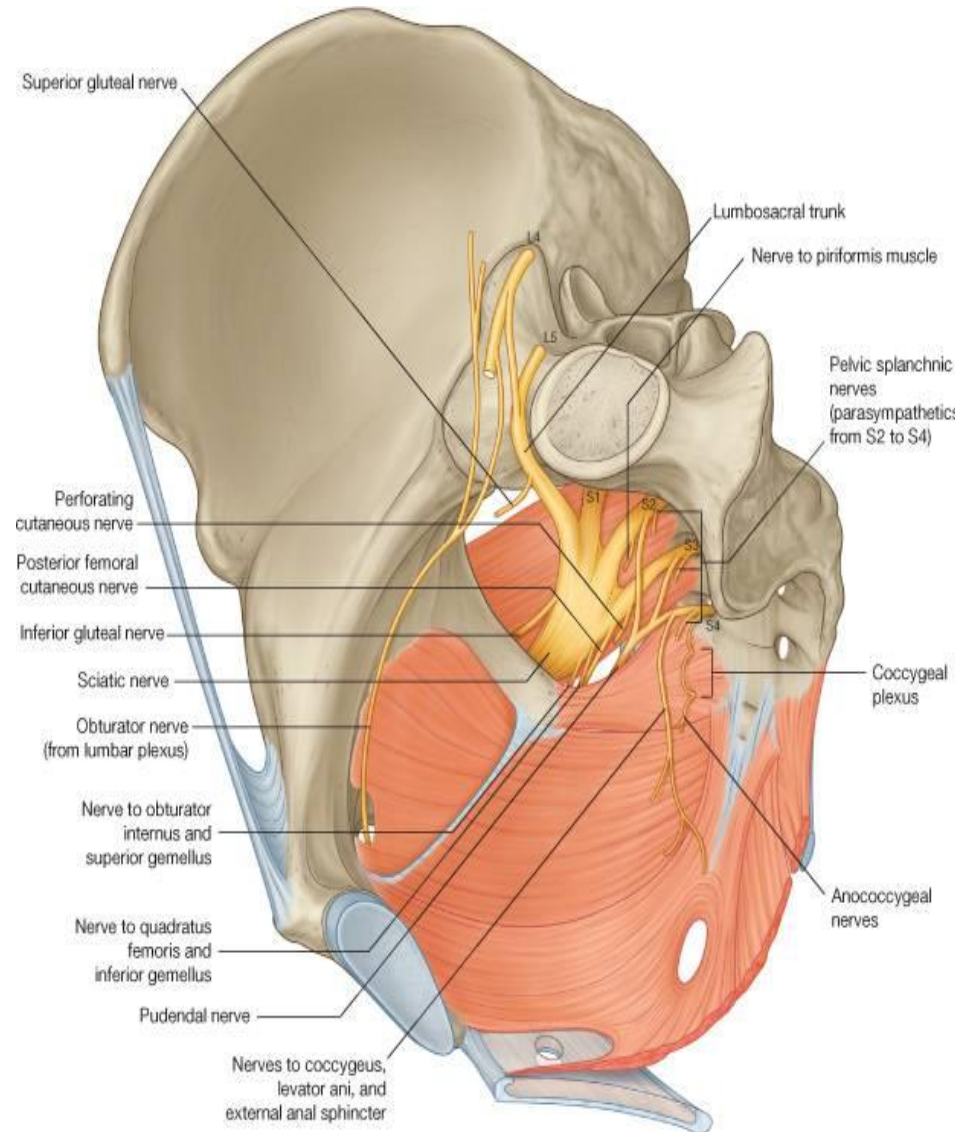
Posterior fibers



- **Iliococcygeus** :inserted into the anococcygeal body and the coccyx

Nerve supply

- perineal branch of the fourth sacral nerve
- Perineal branch of the pudendal nerve
- What was the nerve supply of coccygeas ?
- 4th and 5th sacral



Action

Action:

1. The levator ani muscles of the two sides form an efficient muscular sling that supports and maintains the pelvic viscera in position.
2. They resist the rise in intra pelvic pressure during the straining and expulsive efforts of the abdominal muscles (as occurs in coughing).
3. They also have an important sphincter action on the anorectal junction, and in the female they serve as a vaginal sphincter.

Arteries of the pelvis

- In front of the sacroiliac joint the common iliac artery bifurcates into internal and external
- The internal iliac artery descends inferiorly over the pelvic inlet
- When it reaches the upper boarder of the greater sciatic foramen it branches into
 - Anterior (visceral and parietal branches)
 - Posterior (parietal branches)

Posterior division Supplies:

To Posterior abdominal wall.

To Posterior pelvic wall.

To Gluteal region.

(All are parietal)

Anterior division supplies:

1. Pelvic viscera.

2. Perineum.

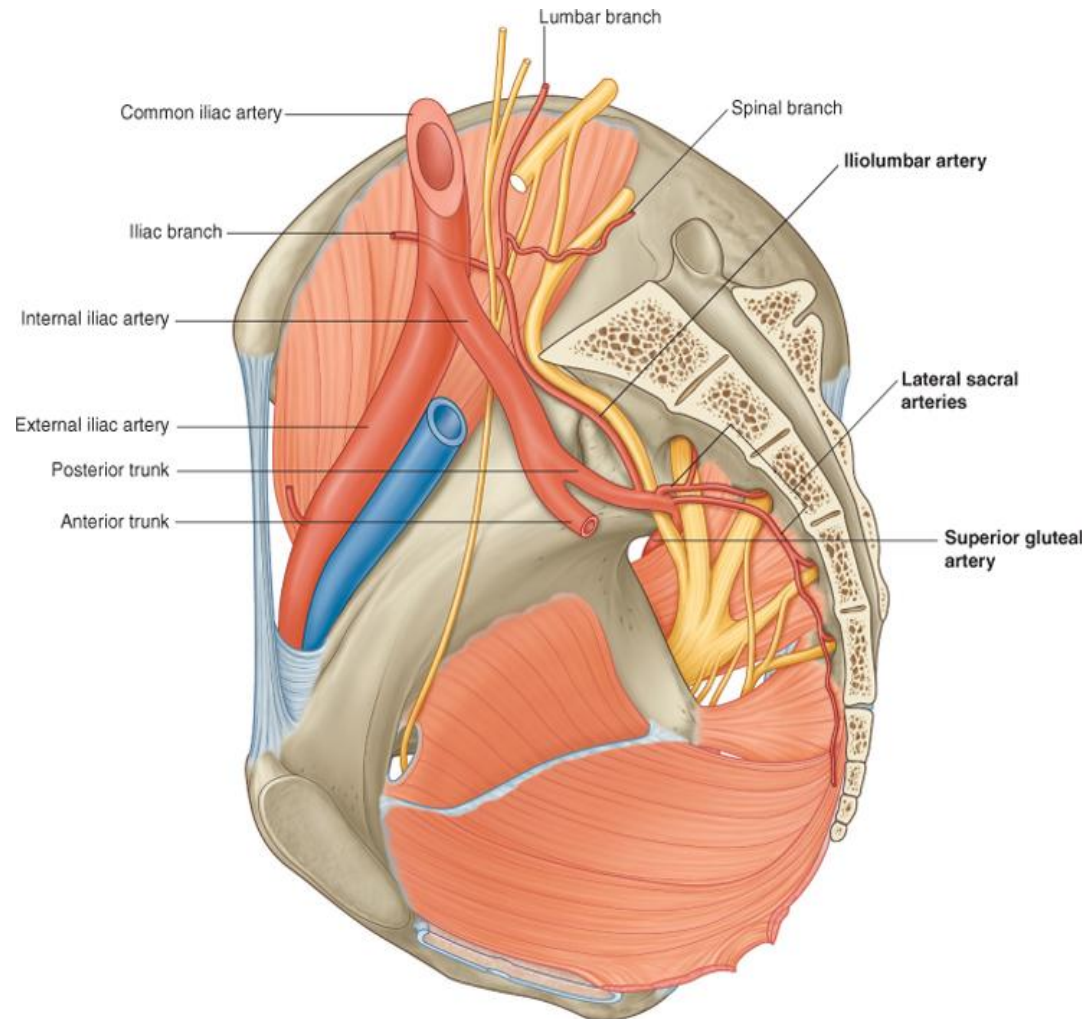
3. Gluteal region.

4. Adductors of the thigh.

5. The fetus.

Paraietal branches

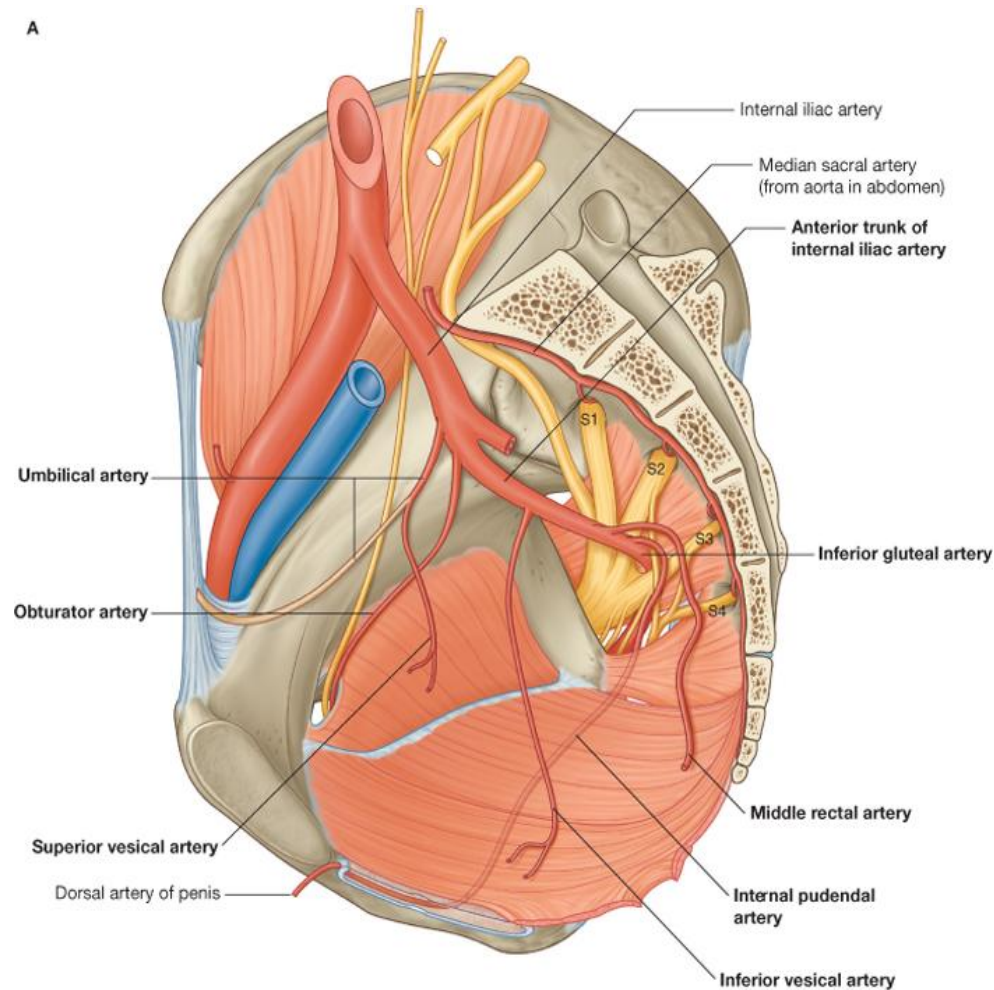
- Anterior division :
 - ***Obturator artery***
 - ***Inferior Gluteal Artery***
- Posterior division :
 - ***Iliolumbar artery***
 - ***Superior Gluteal artery***
 - ***Lateral sacral arteries (2)***



Visceral branches

- Only from the anterior division

1. Umbilical artery
2. Inferior Vesical artery
3. Middle rectal artery
4. Internal pudendal artery



Visceral branches

1. Umbilical artery

- I. Gives the superior vesical artery
- II. distal fibrous part of the artery becomes the Medial Umbilical Ligament

2. Inferior Vesical artery

- I. Gives artery to vas deferens
- II. Male : Prostate and the Seminal Vesicles
- III. Female : replaced by vaginal artery

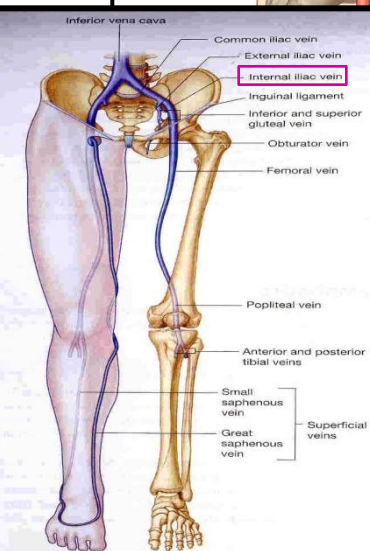
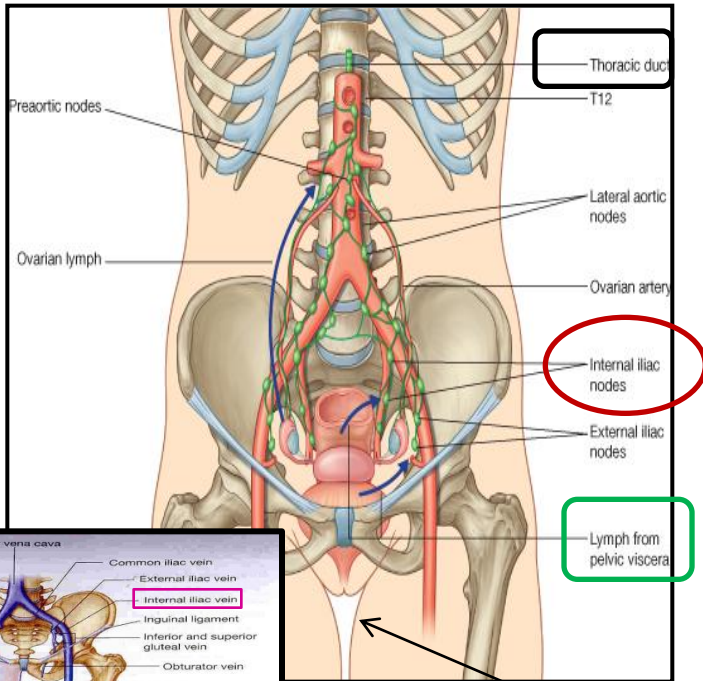
3. Middle rectal artery

4. Internal pudendal artery : main supply of the perineum

5. In females :

- I. Inferior vesical is replaced by vaginal
- II. Uterine artery : crosses the ureter superiorly
- III. Ovarian artery : from the aorta

Venous & Lymph drainage

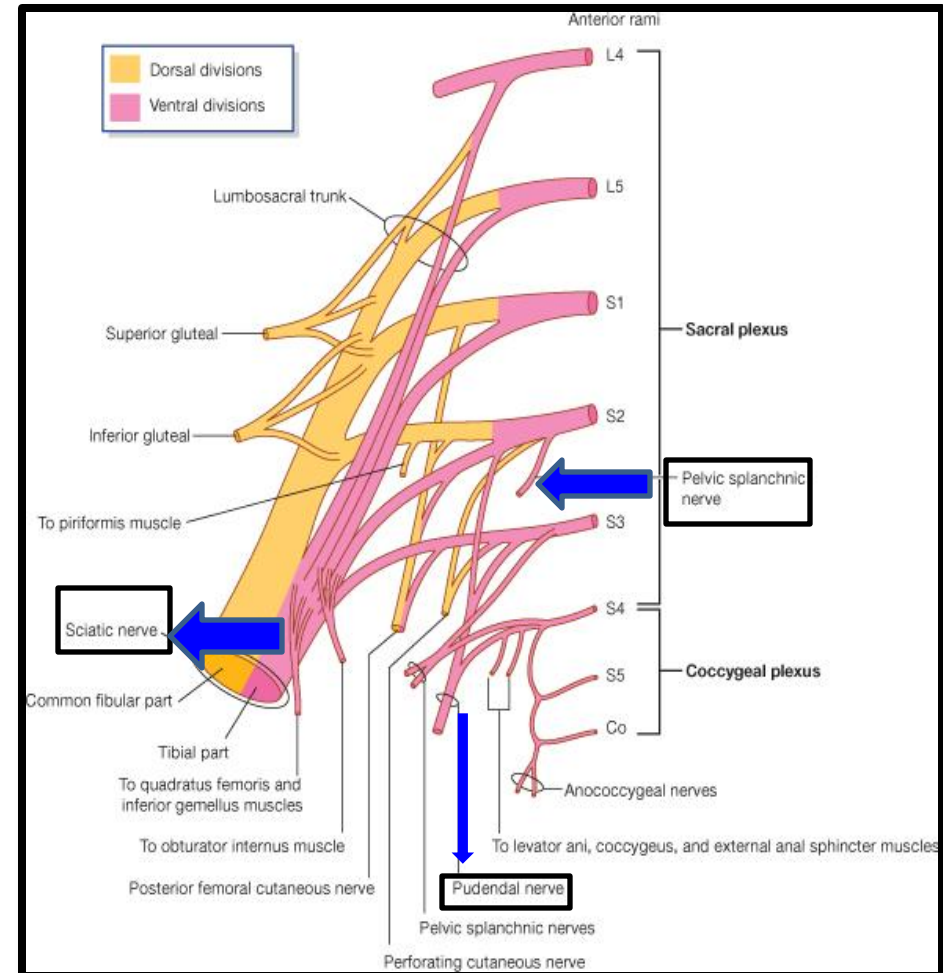


Fundus, ut. tube & ovary

- **Venous drainage:**
- (a) **Internal iliac v**
- **It Joins the external iliac vein to form the Common Iliac vein.**
- (b) **Ovarian v**
- **Right v drains into IVC**
- **Left v drains into Left renal V**
- **Lymph from the pelvis passes through Internal iliac, External iliac &.**
- **Common iliac nodes.**
- **lymph from Common iliac nodes & the following viscera (Ovaries, uterine tubes & fundus of uterus) passes to Lateral aortic nodes.**

Nerve Supply

- **From:**
- **Sacral plexus:**
- From Ventral (anterior) rami of L4 & L5 (lumbosacral trunk) + S1,2,3 and most of S4.
- It gives:
- **Pelvic splanchnic nerves :**
- **From 2nd, 3rd & 4th sacral nerves.**
- **They are the Preganglionic parasympathetic nerves to pelvic viscera & hindgut.**
- **Pudendal nerve: to perineum.**



Sympathetic Nerve supply

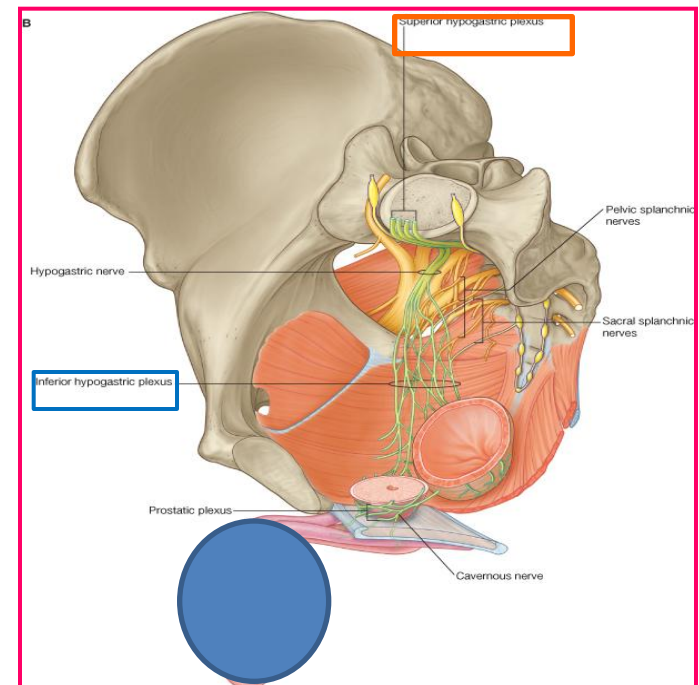
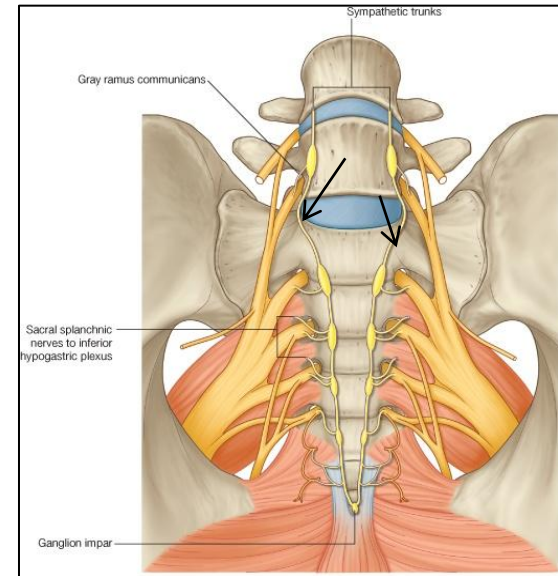
(a) Pelvic part of sympathetic trunk:

It is the continuation of the abdominal sympathetic trunk.

It Descends in front of the ala of the sacrum, medial to the lumbosacral trunk & anterior sacral foramina.

They terminate inferiorly in front of the coccyx and form a single ganglion (Ganglion Impar**).**

**(b) Hypogastric plexuses:
Superior & Inferior**



- Superior vesical artery branches from the internal iliac directly ?