Pelvic Wall

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Intended Learning Outcomes (ILOs)

1. Identify the specific features and articulations of pelvic wall bones.
2. Identify the origin, insertion and functions of pelvic wall muscles.

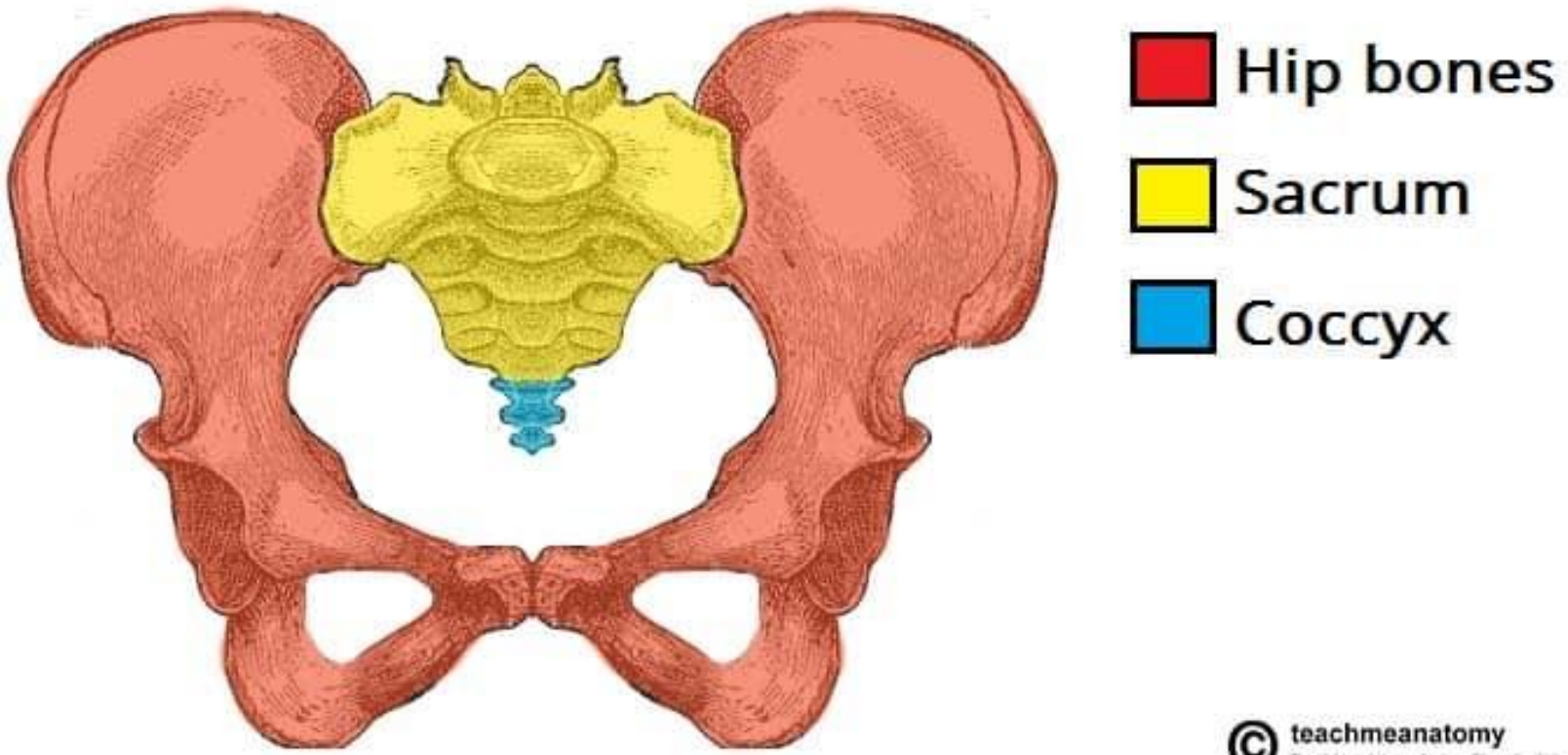
Agenda

1. What are the specific features and joints pelvic wall?
2. What are the attachment and functions of pelvis muscles?

Bones of the Pelvis

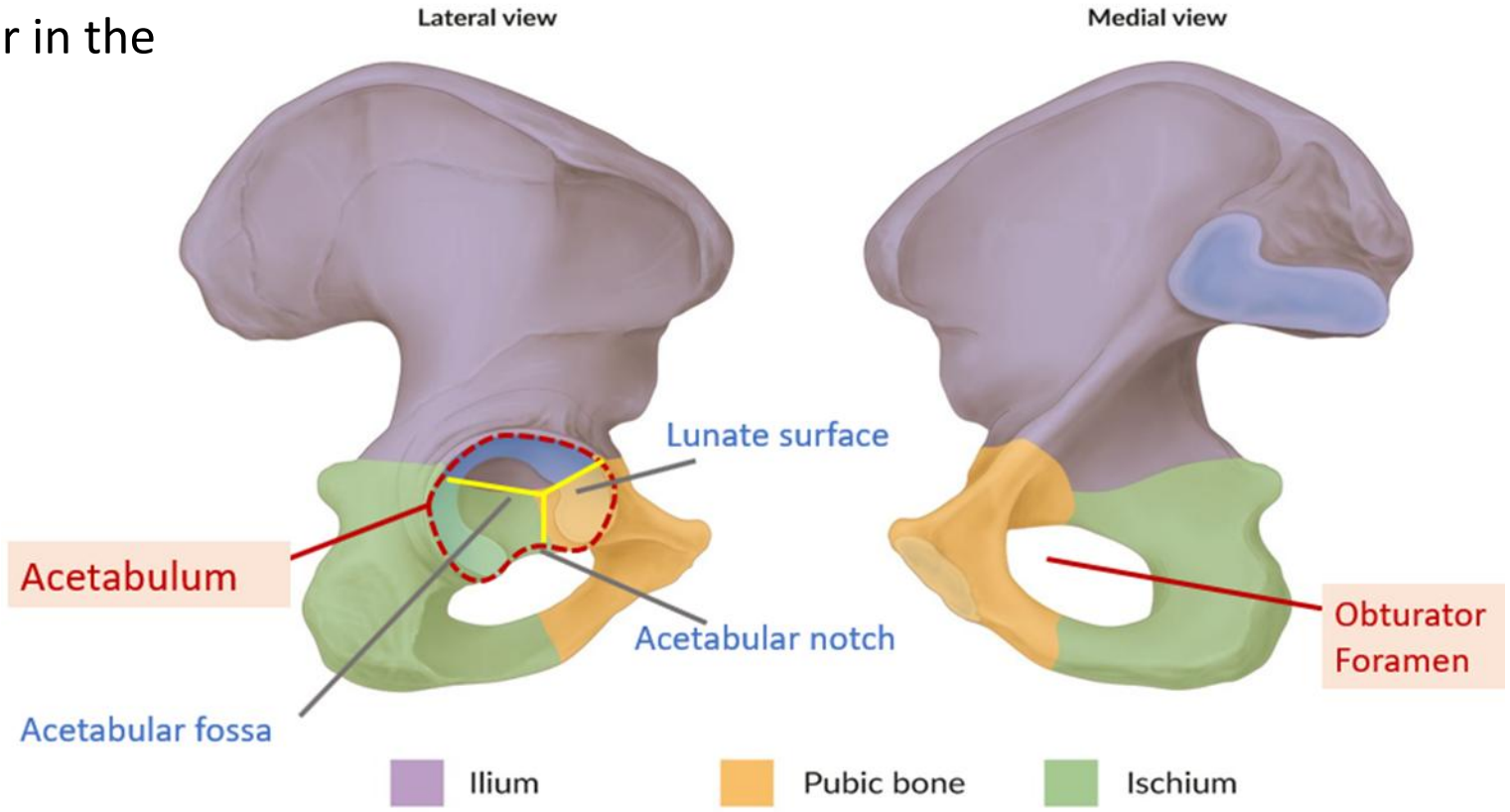
4 bones:

- 2 Hip bones.
- Sacrum.
- Coccyx.



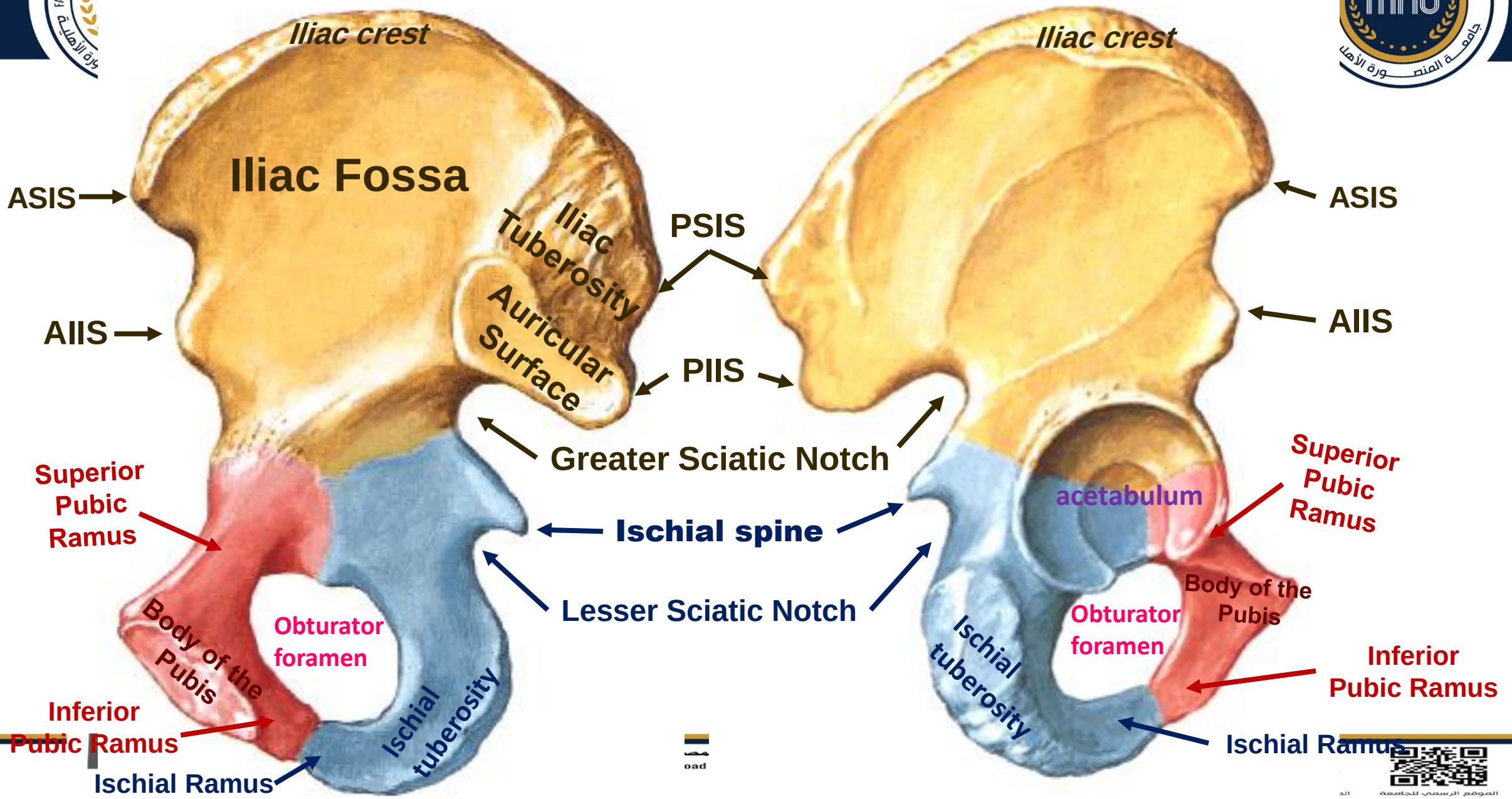
HIP BONE

- Formed of 3 bones articulating together in the **acetabulum**
  - **Ileum**
  - **Pubic bone**
  - **ischium**



Medial View

Lateral View



SACRUM

- **The fused five sacral vertebrae.**
- Inverted triangle.

- **Base:** Articulates with the fifth lumbar vertebra.
  Sacral promontry: the projecting anterior margin of S1 vertebra.
  Ala of sacrum: on each side of sacral promontry.
- **Apex**: Articulates with the coccyx.

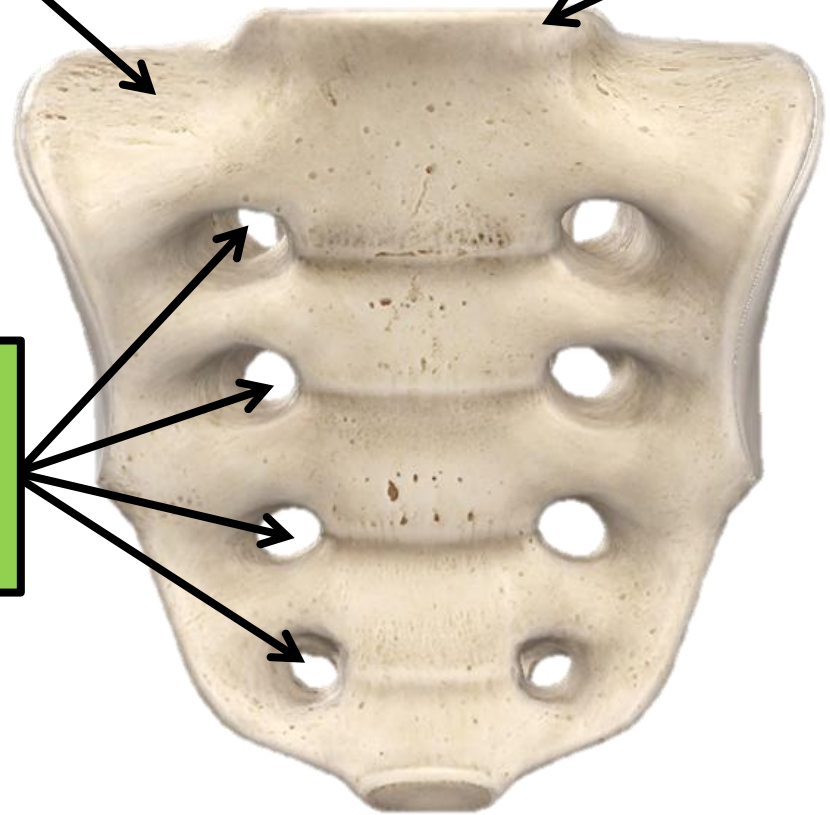
- **4 Surfaces:**
  - **Anterior (Pelvic surface):** Has 4 anterior sacral foramina on each side.
  - **Posterior surface shows:**
    - posterior sacral foramina (4 on each side).
    - Sacral hiatus: the lower end of sacral canal.
    - Spinous tubercles: the fused sacral spines.
  - **2 Lateral surfaces:** articulates with the ilium through the upper wide part named (Auricular surface) .

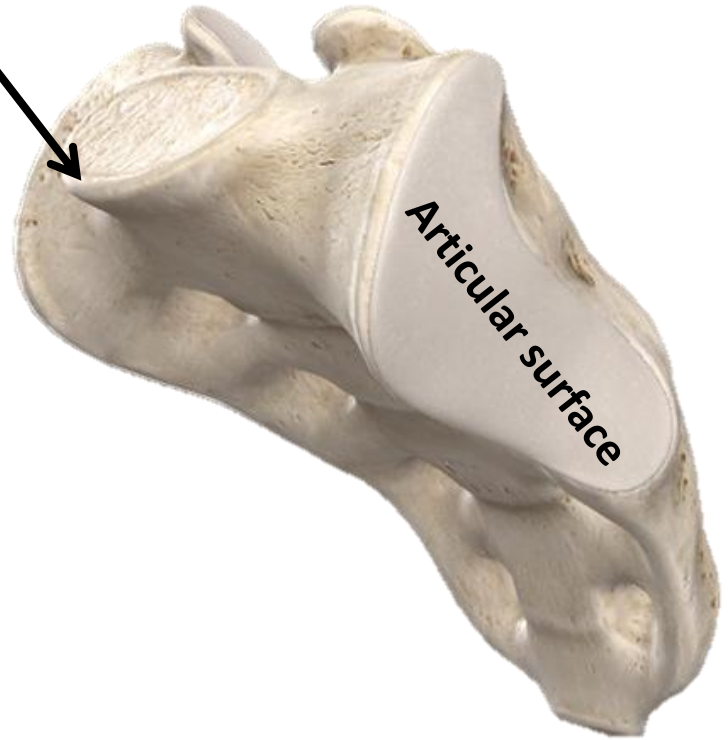
SACRUM

Sacral promontry

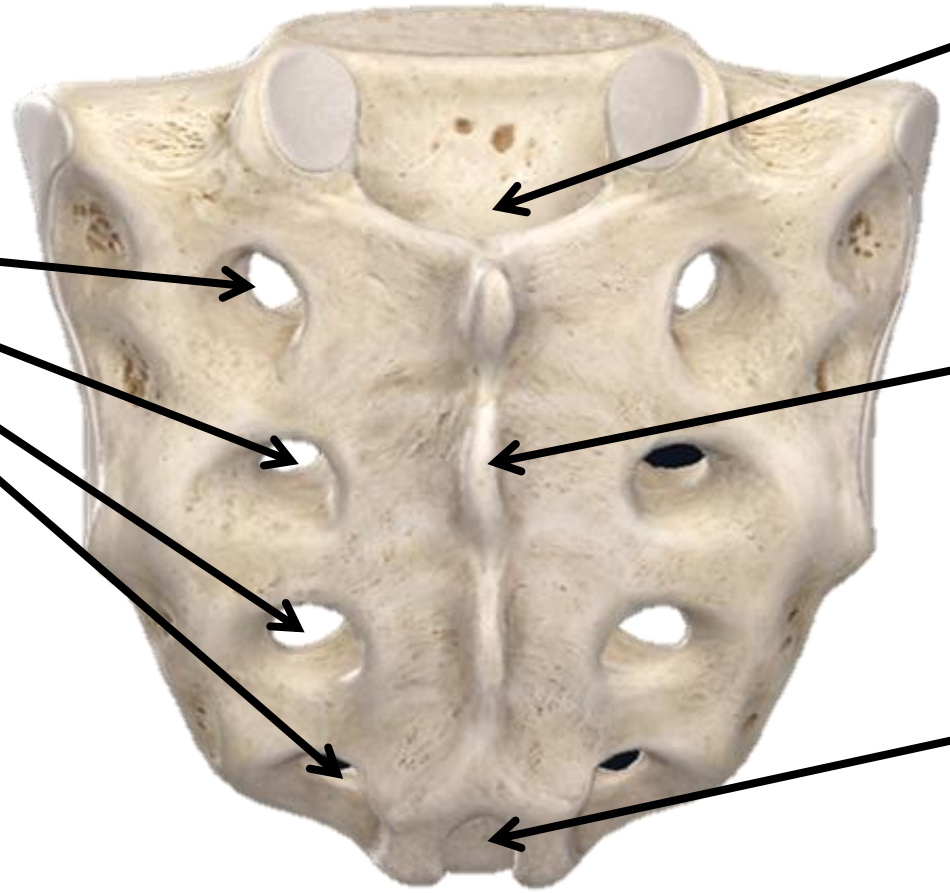
Ala of sacrum

Anterior Sacral foramina





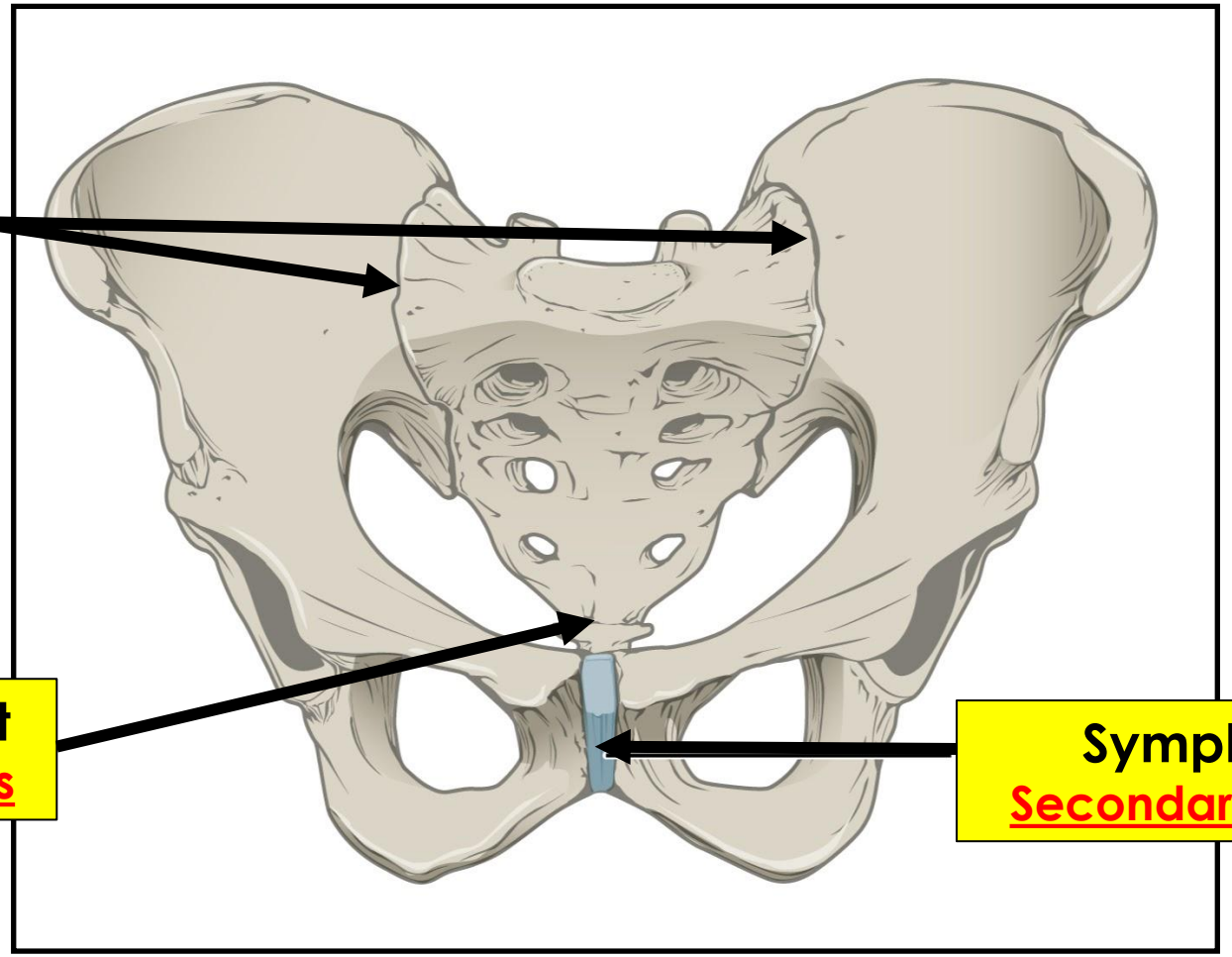
SACRUM


Sacral Canal
Posterior Sacral foramina
Spinous tubercles
Sacral Hiatus

Joints of the pelvis

4 joints

2 Sacroiliac joint
Synovial plane

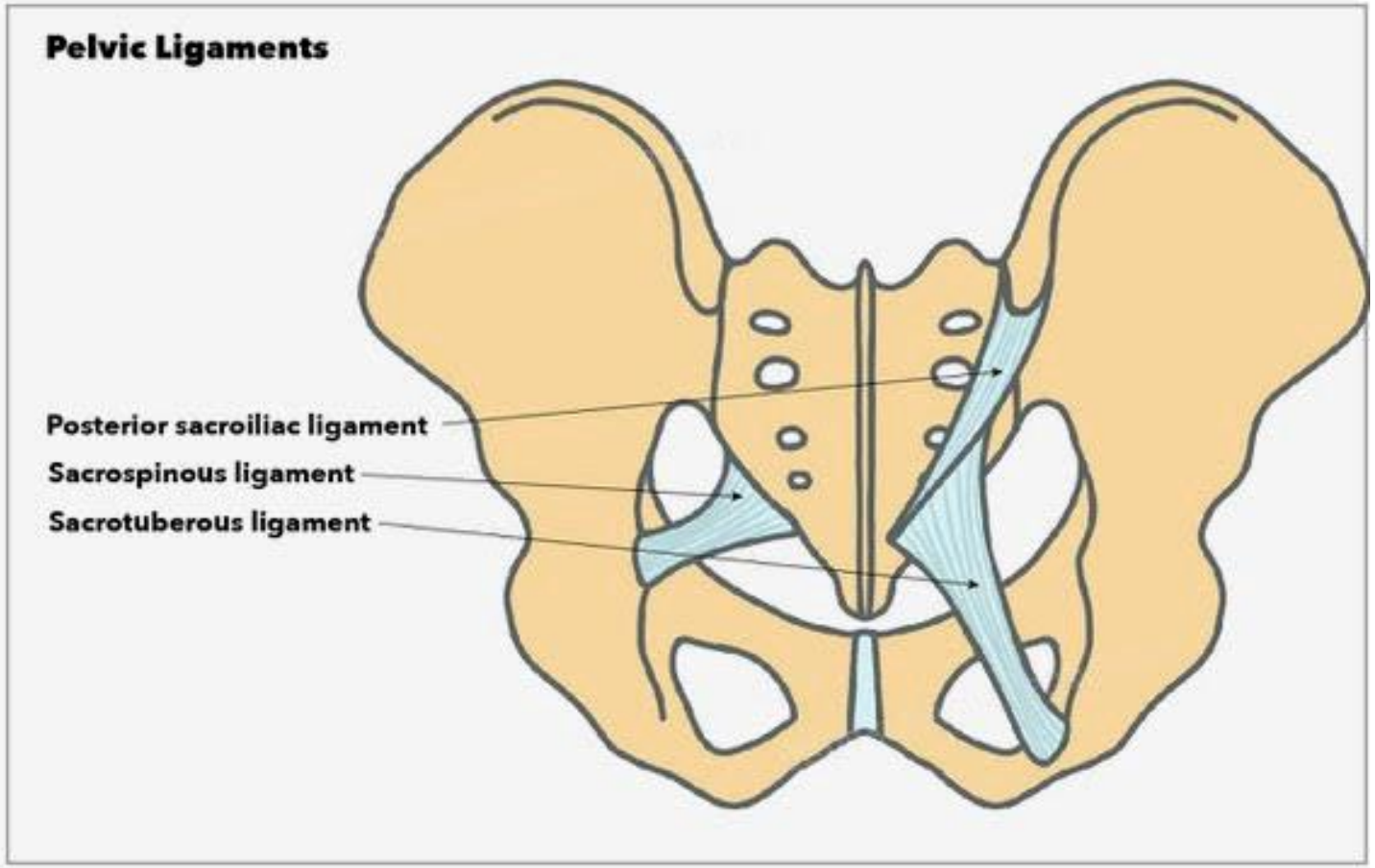


Sacrococcygeal joint
Secondary cartilaginous

Symphysis pubis
Secondary cartilaginous

Ligaments of the pelvis

- **Sacroilliac ligaments:**
  - Connect sacrum with the ilium.
- **Sacrospinous ligament:**
  - Connect sacrum & Coccyx with ischial spine.
- **Sacrotuberous ligament:**
  - Connect sacrum & Coccyx with ischial tuberosity.



❖ Pelvic inlet (Pelvic brim):

Extends between sacral promontary & upper margin of symphysis pubis.

❖ Pelvic outlet:

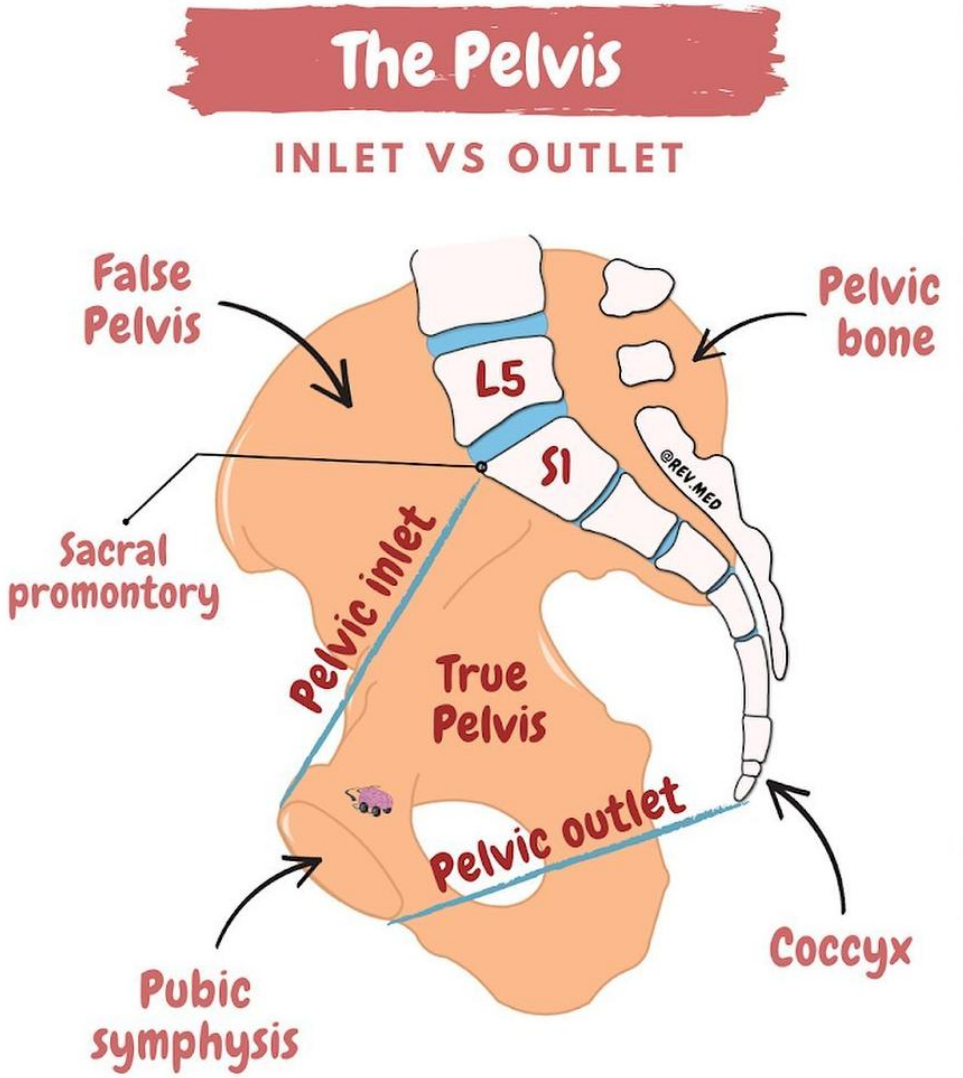
Extends between tip of coccyx & lower margin of symphysis pubis.

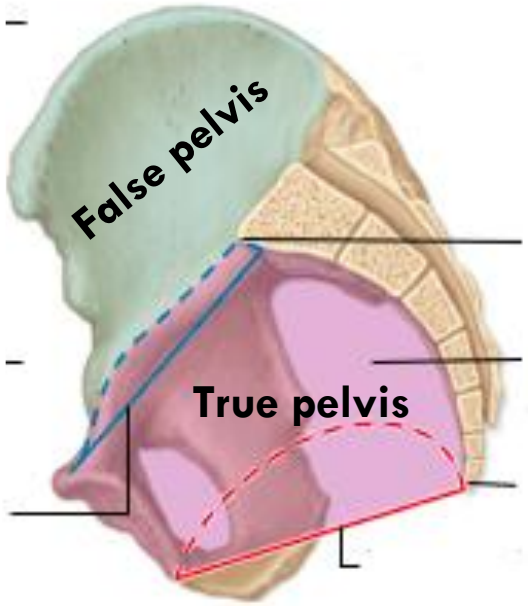
❖ Pelvic Cavity:

Extends between pelvic inlet & outlet.

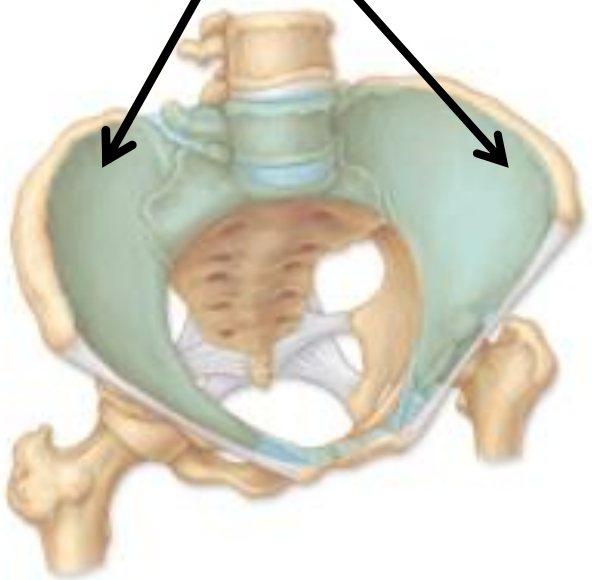
❖ Perineum:

Lower part of pelvic cavity overlying pelvic outlet.



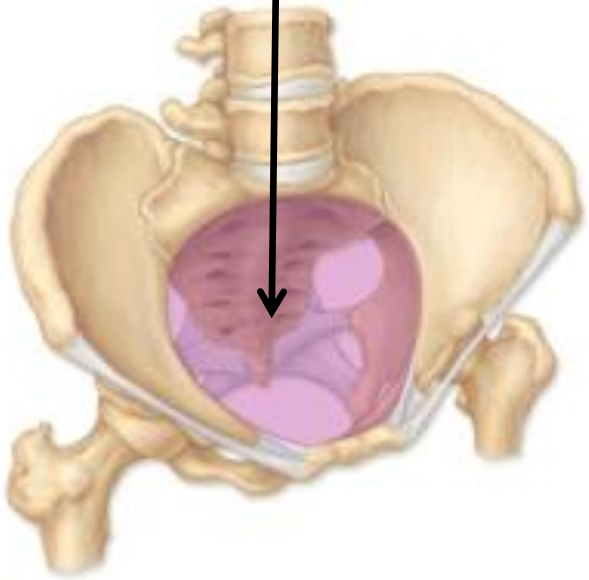


False pelvis



Lies above the pelvic brim.

True pelvis



- Lies below the pelvic brim.
- Has:
  - Pelvic Inlet
  - Pelvic Cavity
  - Pelvic Outlet

Muscles of the pelvis

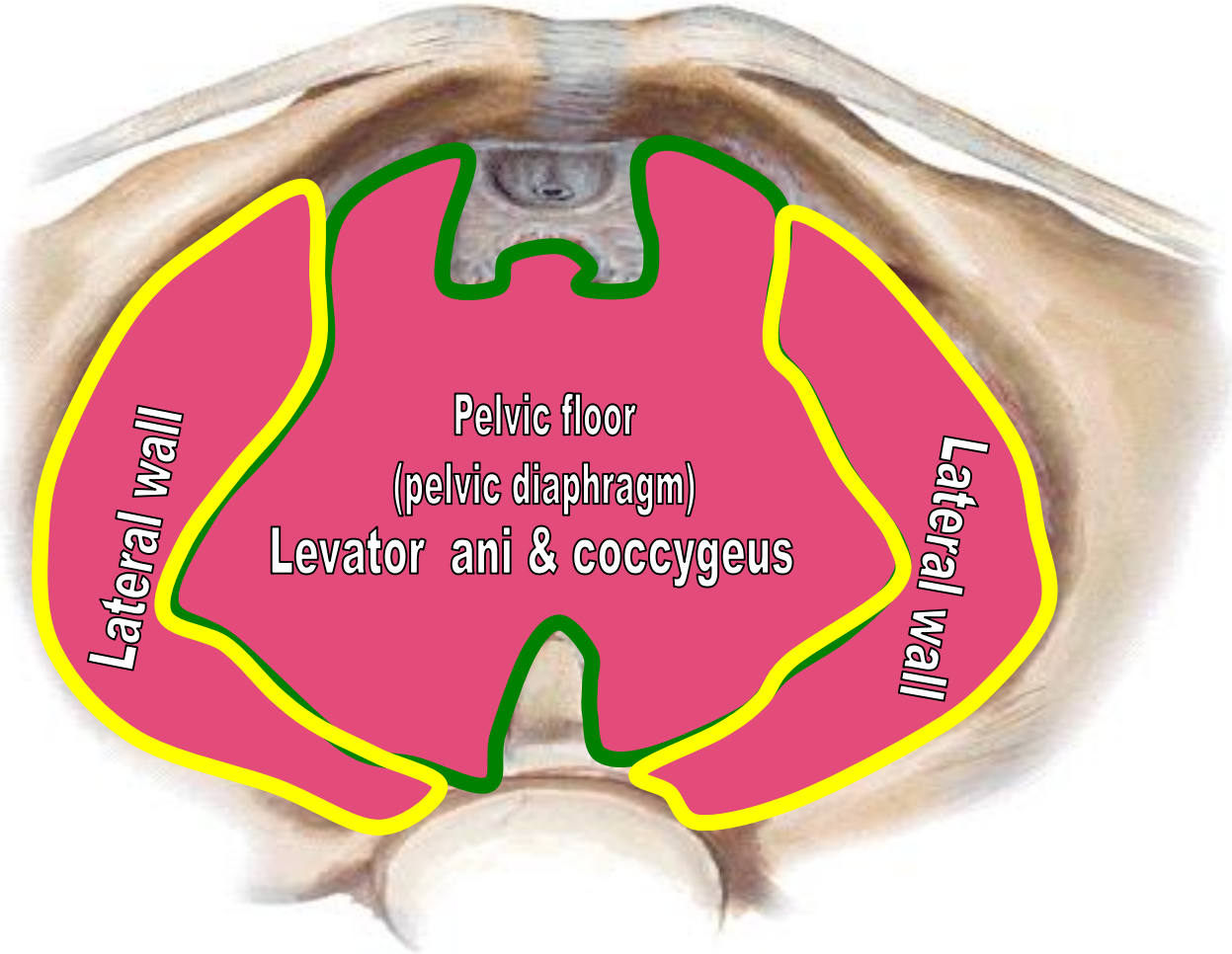
1)Muscles of the wall of the pelvis:

1. Obturator internus.
2. Piriforms.

2)Muscles of the floor of the pelvis

[Pelvic diaphragm]

1. Levator ani.
2. Coccygeus

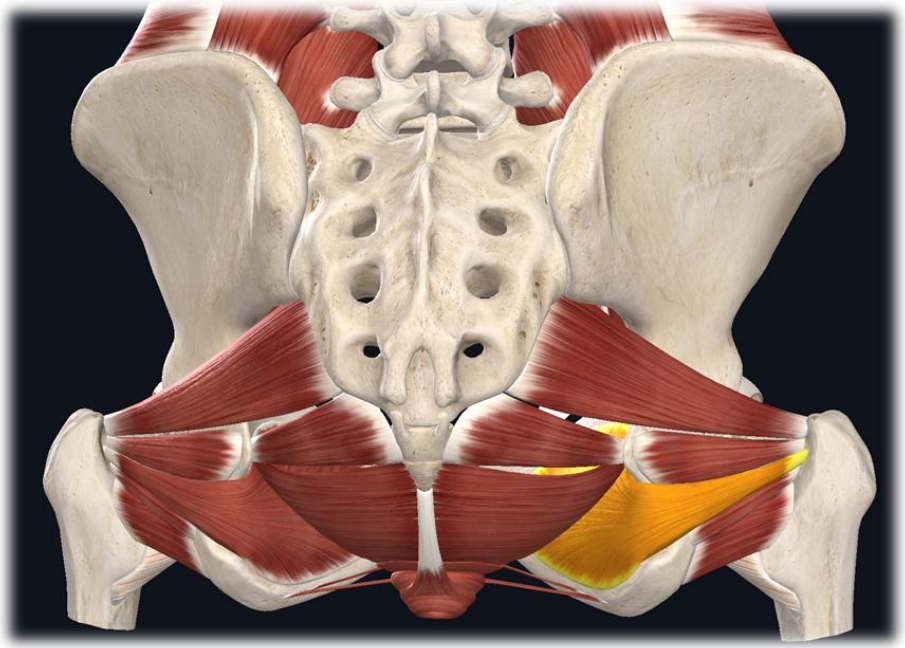


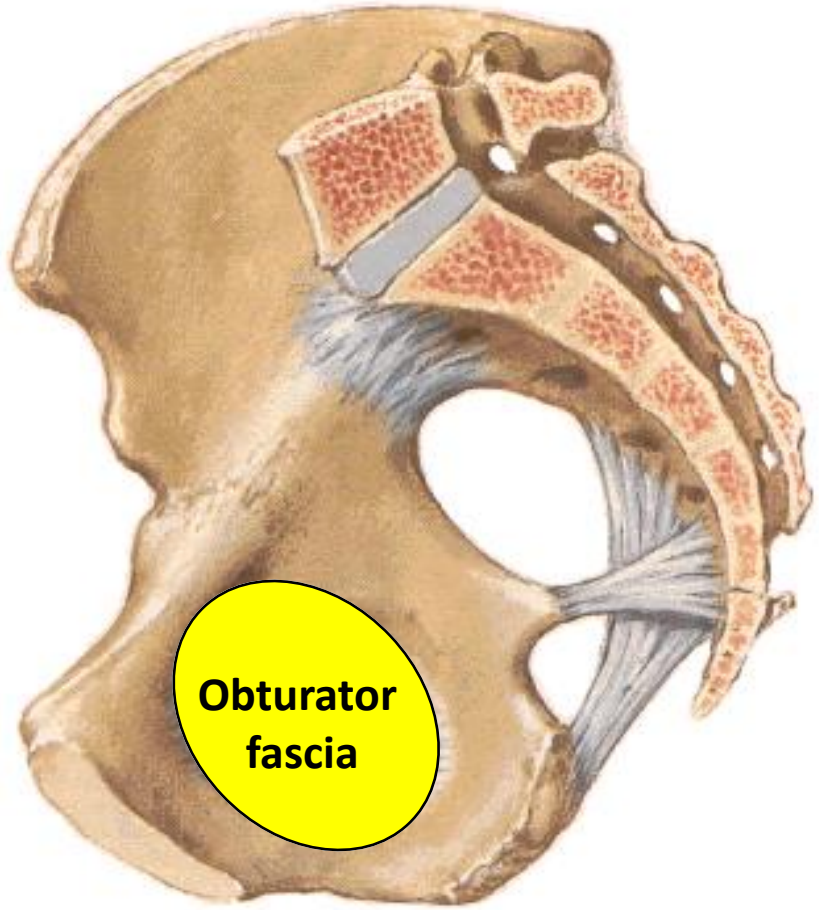
Muscles of the wall of pelvis

Obturator Internus

- **Origin:**
  Obturator membrane.
- **Insertion:**
  Greater trochanter of femur.

The muscle is covered with obturator fascia.

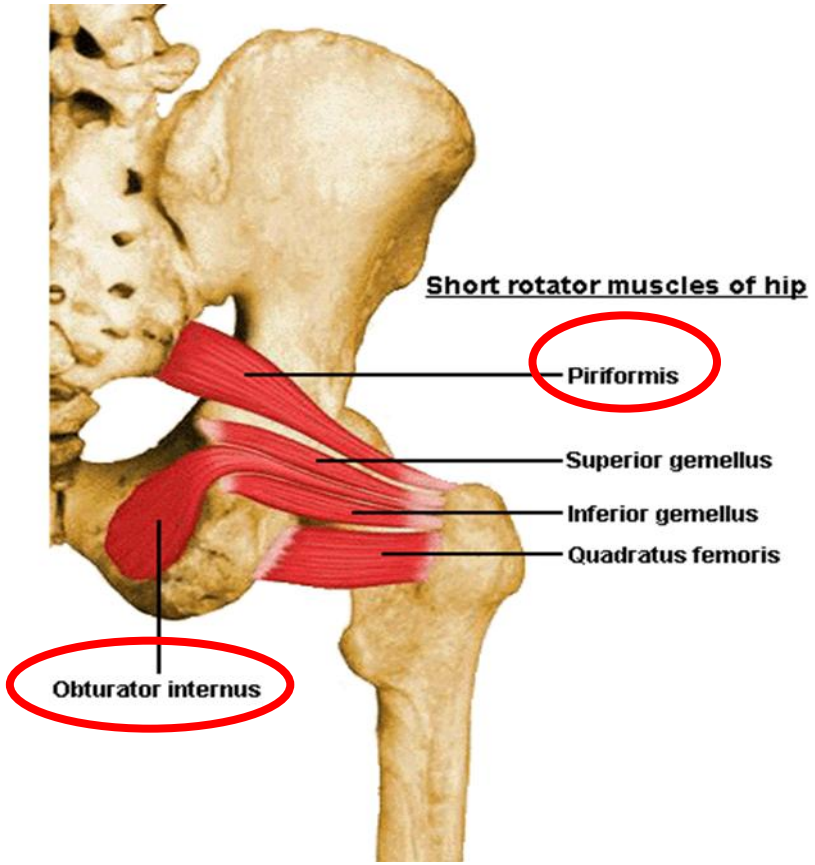


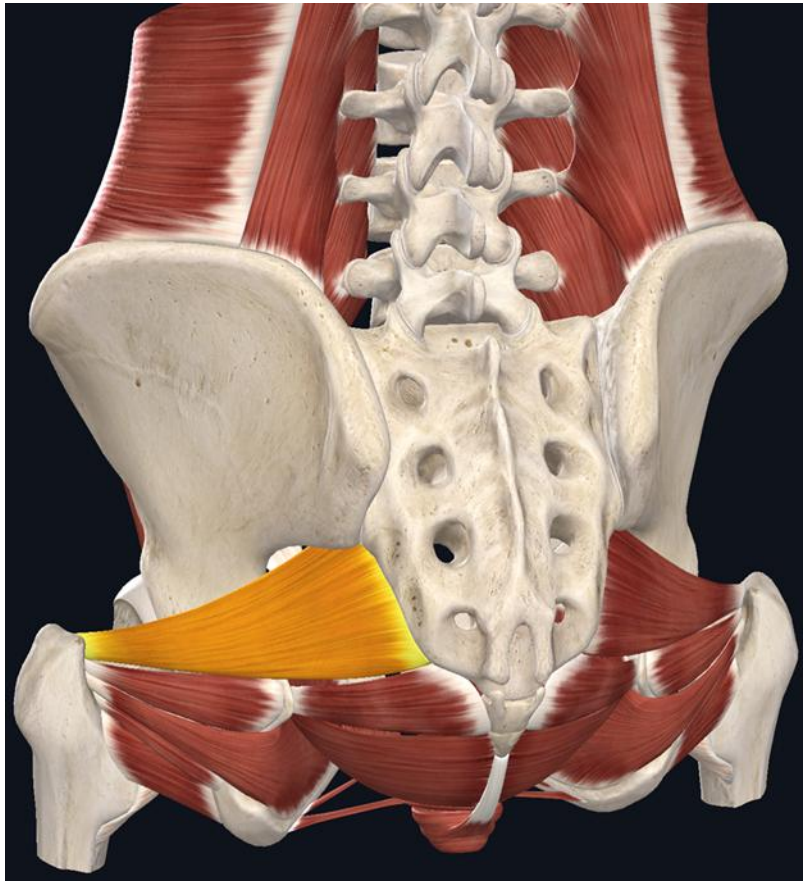


Muscles of the wall of pelvis

Piriformis Muscle

- **Origin:**
  Anterior surface of sacrum.
- **Insertion:**
  Greater trochanter of femur.



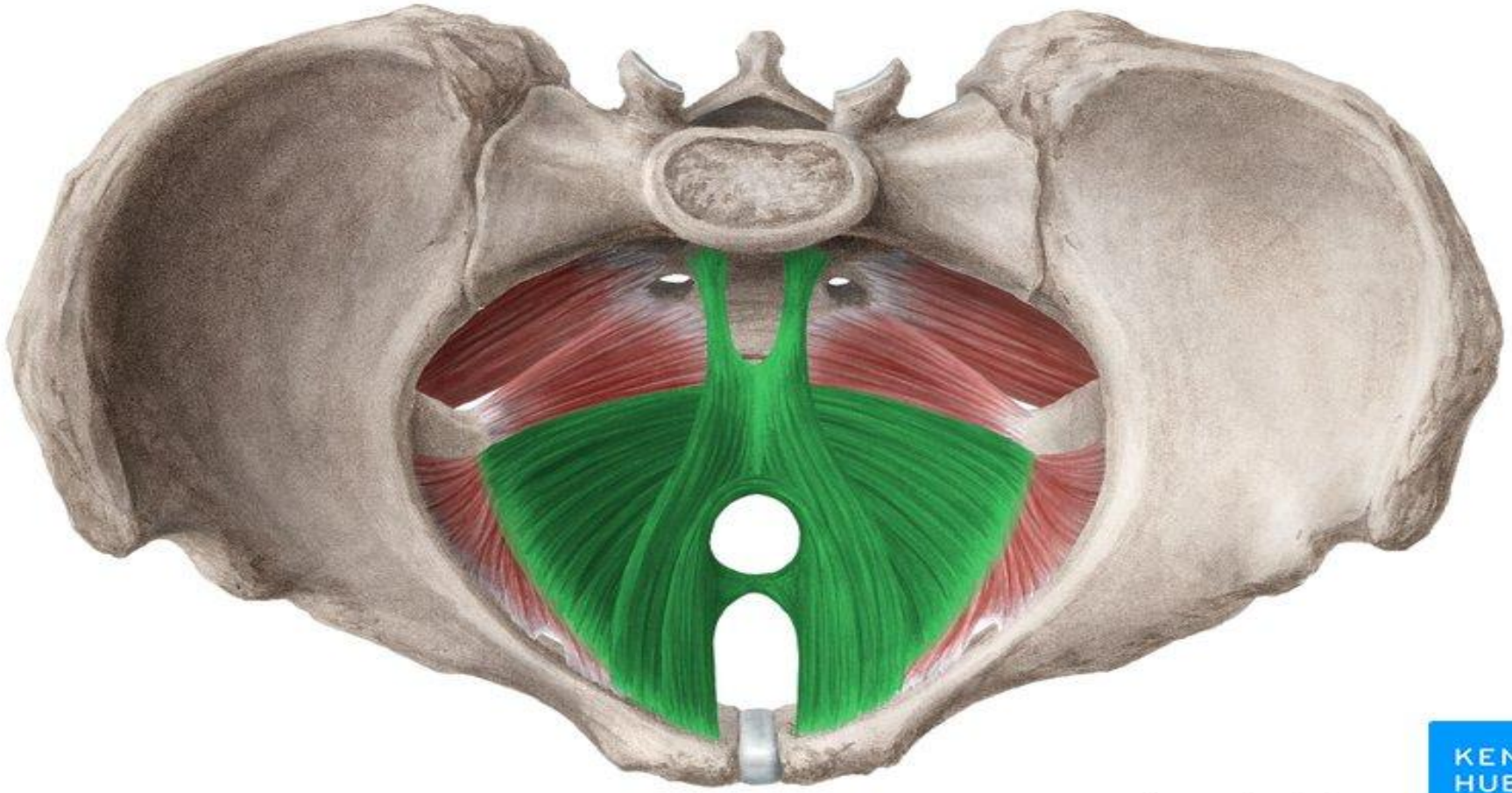


Muscles of the floor of pelvis

Levator Ani

Origin:

1. Body of pubis
2. White line
3. Ischial spine

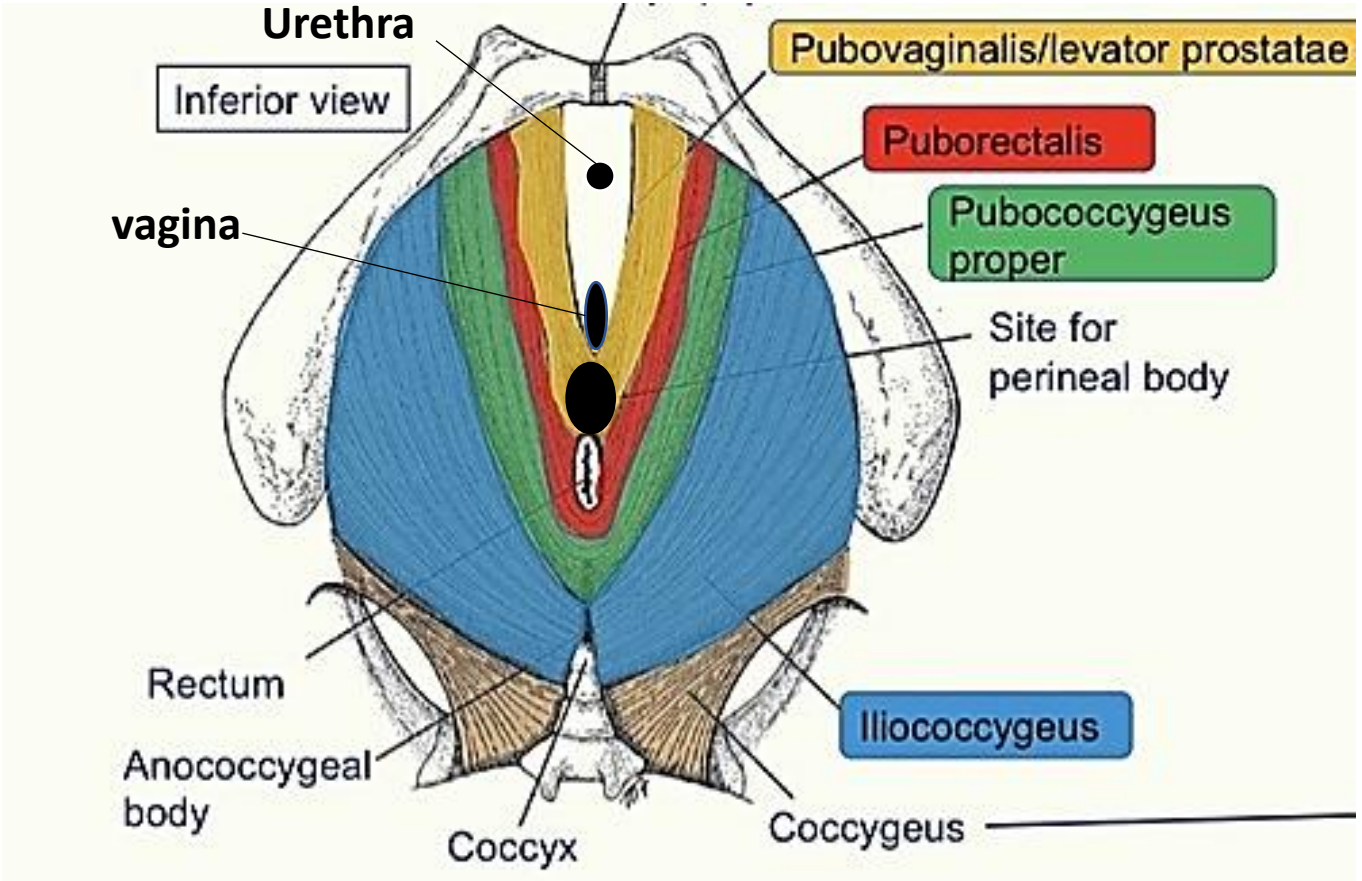


Muscles of the floor of pelvis

Levator Ani

Insertion:

- **Anterior fibers (Levator prostate or sphincter vaginae):** inserted in perineal body.
- **Middle fibers (puborectalis):** Form U shaped loop around anorectal junction.
- **Posterior fibers:** inserted in anococcygeal body & tip of coccyx



Muscles of the floor of pelvis

Levator Ani

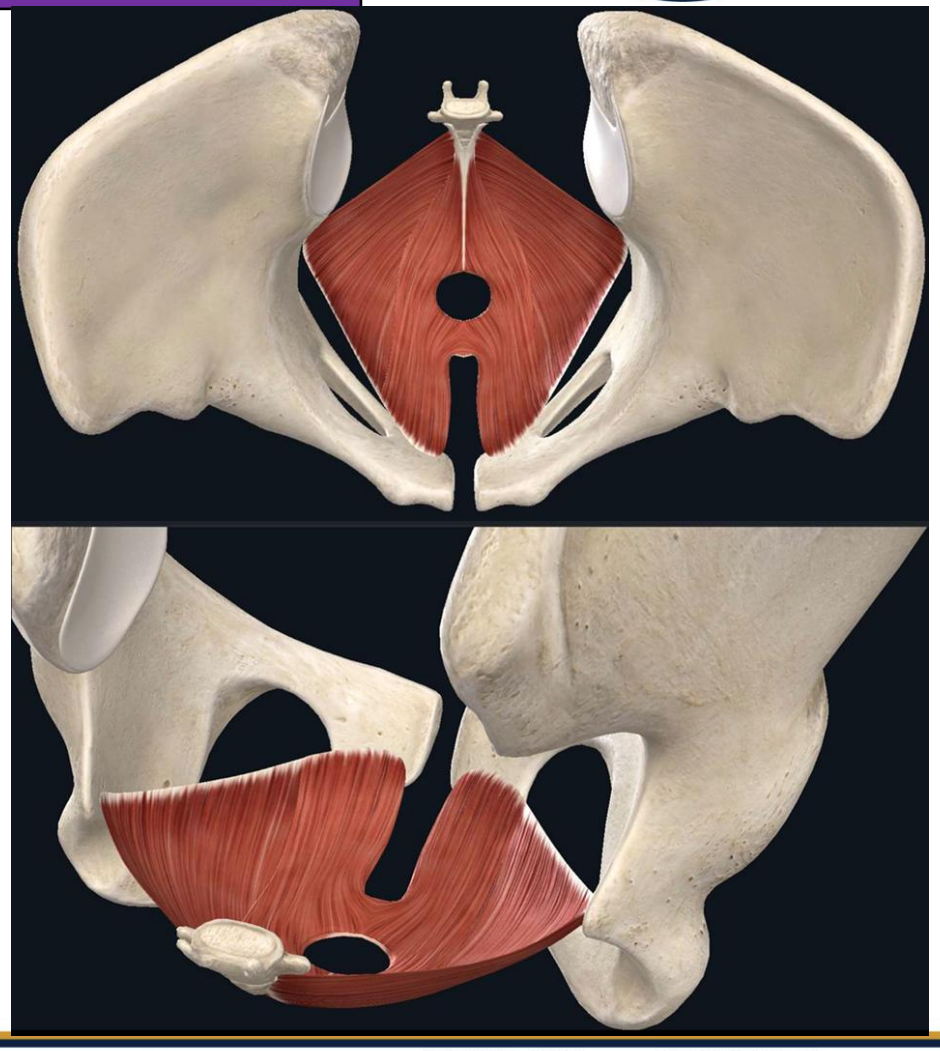
Nerve supply:

1-pelvic surface……S4

2-perineal surface….inferior rectal.

Action:

- Together with abdominal diaphragm increase intra abdominal tension to help in defecation and micturition.
- Support the pelvic viscera.
- Additional sphincter to anal canal.
- Support prostate in male and act as sphincter for vagina in female.



Muscles of the floor of pelvis

Coccygeus

Origin:

Ischial spine

Insertion:

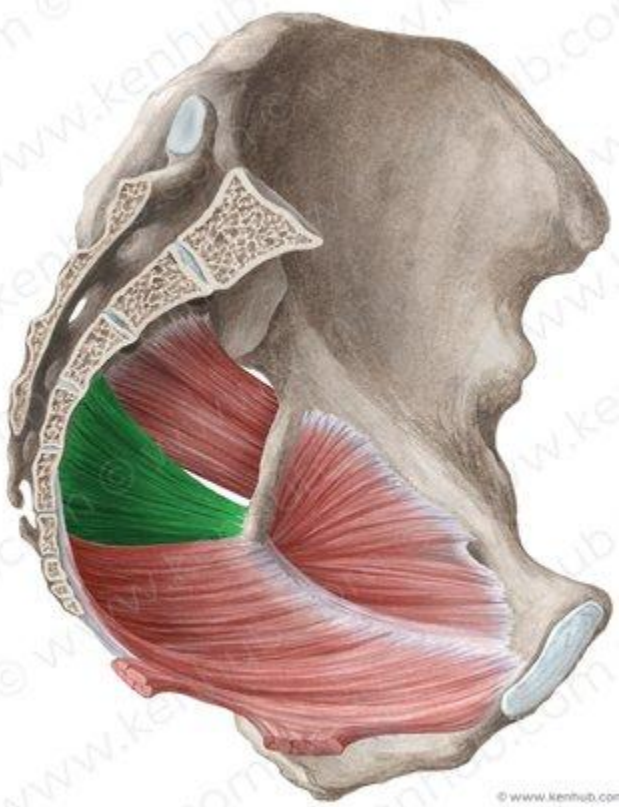
last piece of sacrum

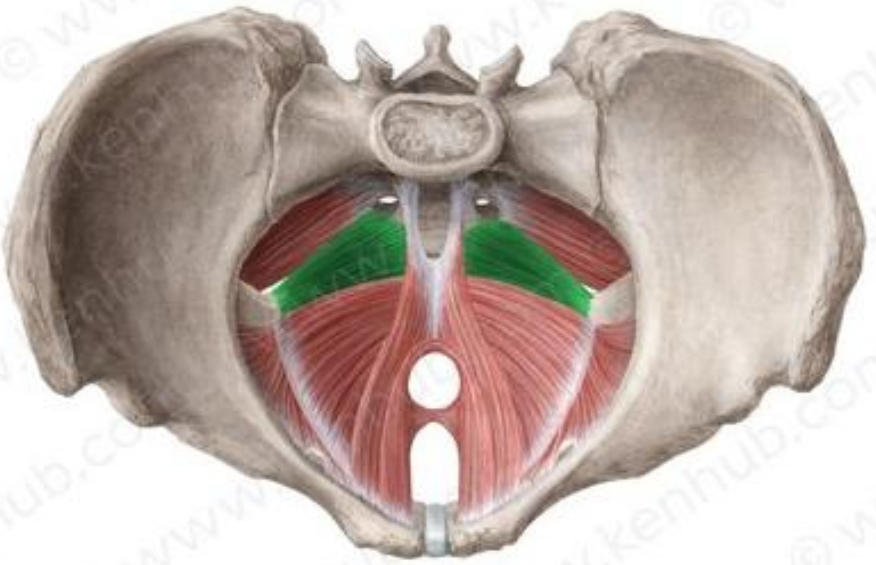
&

First piece of coccyx

Action:

Support coccyx during defecation or labor.





Thank
You!