



SUNMARY
ANATOMY
M.E.G.A

محمد أيمن أبو مشايخ

Pelvis

abdominal cavity
continuous
مستمرة عليه

bone muscle

- The pelvis is the region of the trunk that lies below the abdomen.

The bony pelvis's main function:



- Contains, supports, and protects the pelvic viscera, the lower parts of the intestinal tract, the urinary tracts & the internal organs of reproduction.

urinary bladder
urethra
part of ureters

rectum and anus

ex: uterus

نقل

- Transmit the weight of the body from the vertebral column to the femurs.

الاجسام واقعة على
pelvic stability
بجو

- Provides attachment for trunk and lower limb muscles.

شل ال
psoas major

Bony Pelvis

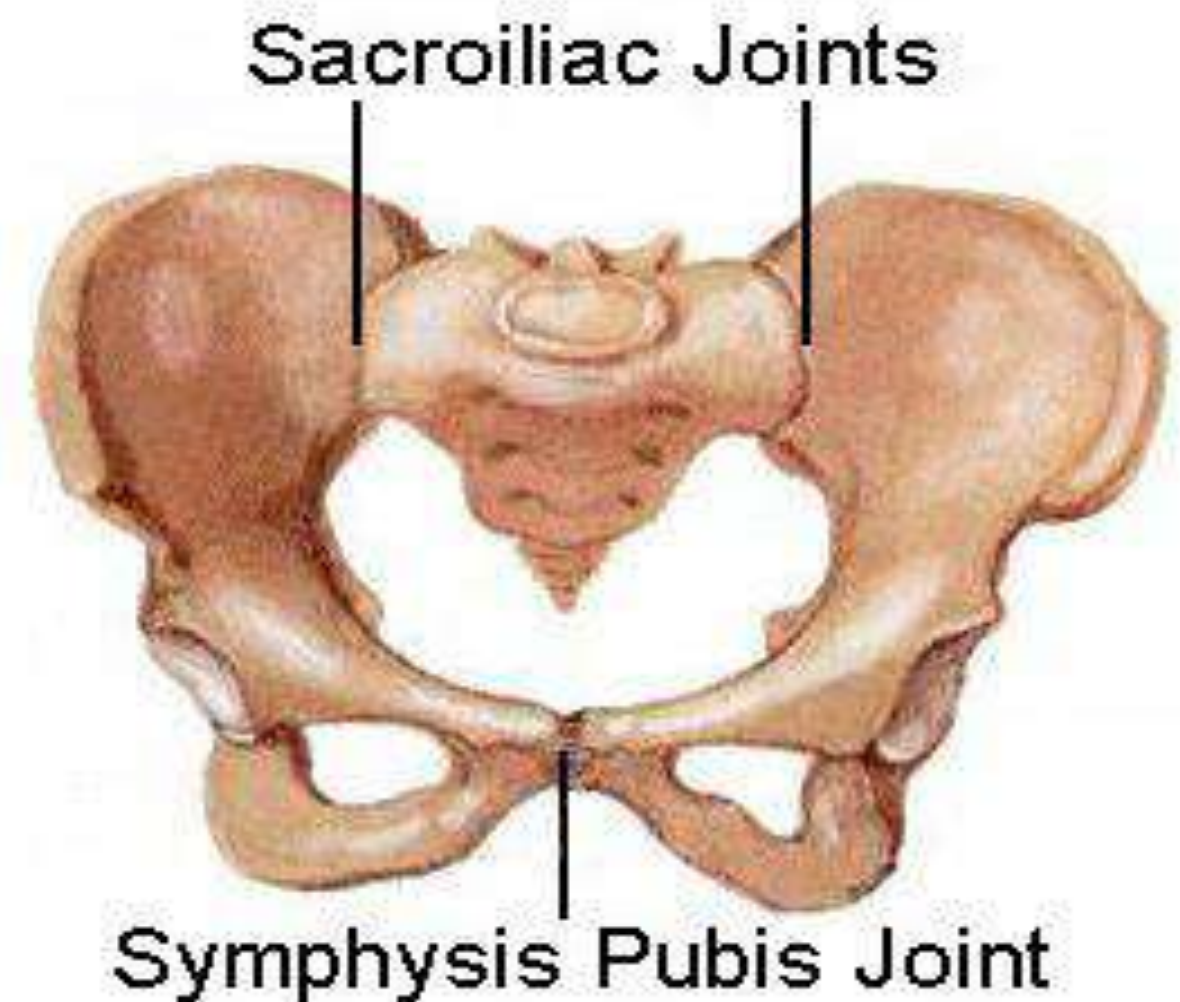
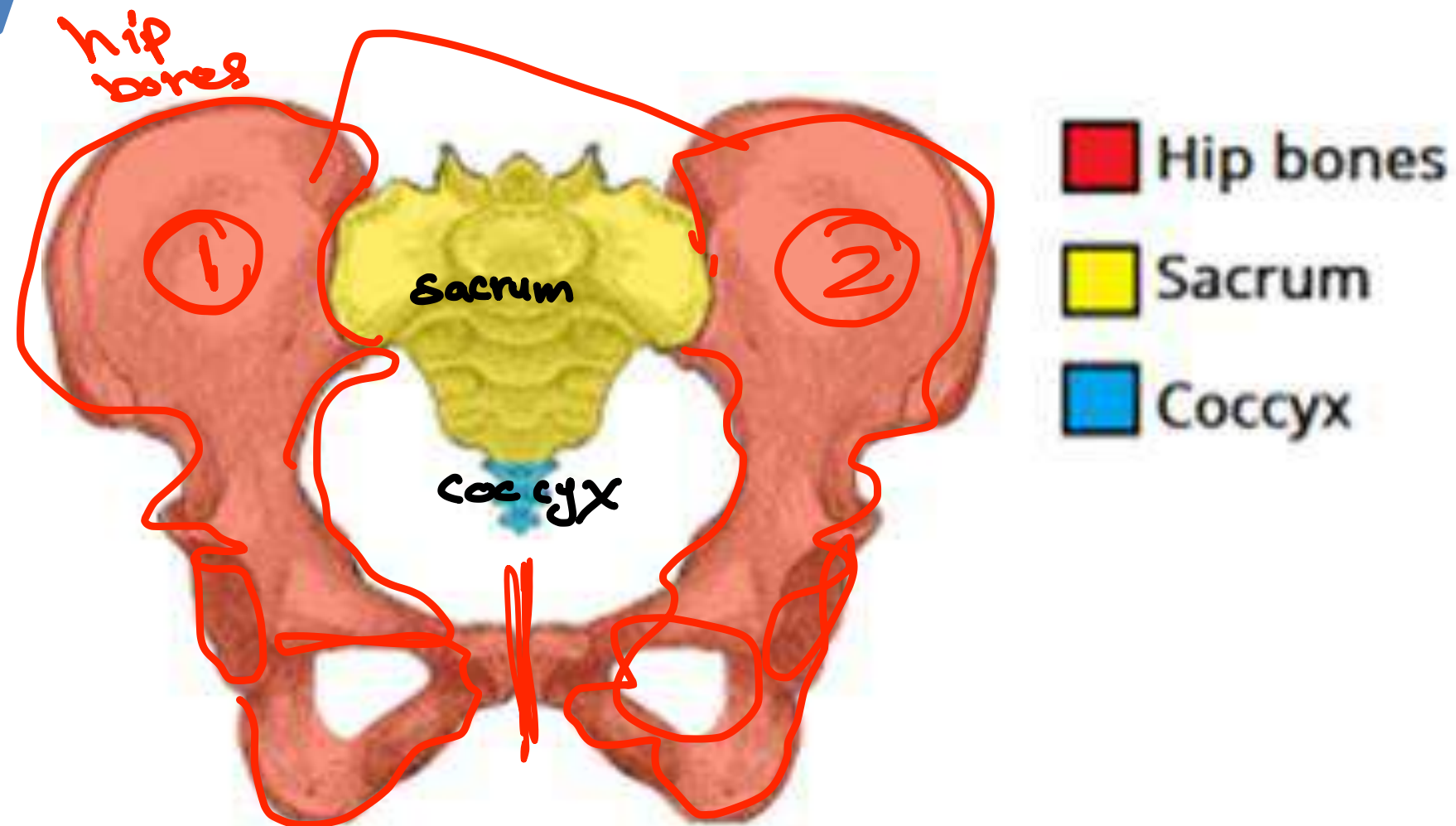
- The bony pelvis forms a strong basin-shaped structure.

- Composed of 4 bones:

- The 2 hip bones, which form the lateral and anterior walls.

ليتقوا عند ال
Symphysis Pubis

- The sacrum and the coccyx, form the back wall.



Divisions of the pelvis

ماخوذ عن آية
عنا صيد
Greater (False)
pelvis

ما يُعتبره pelvis

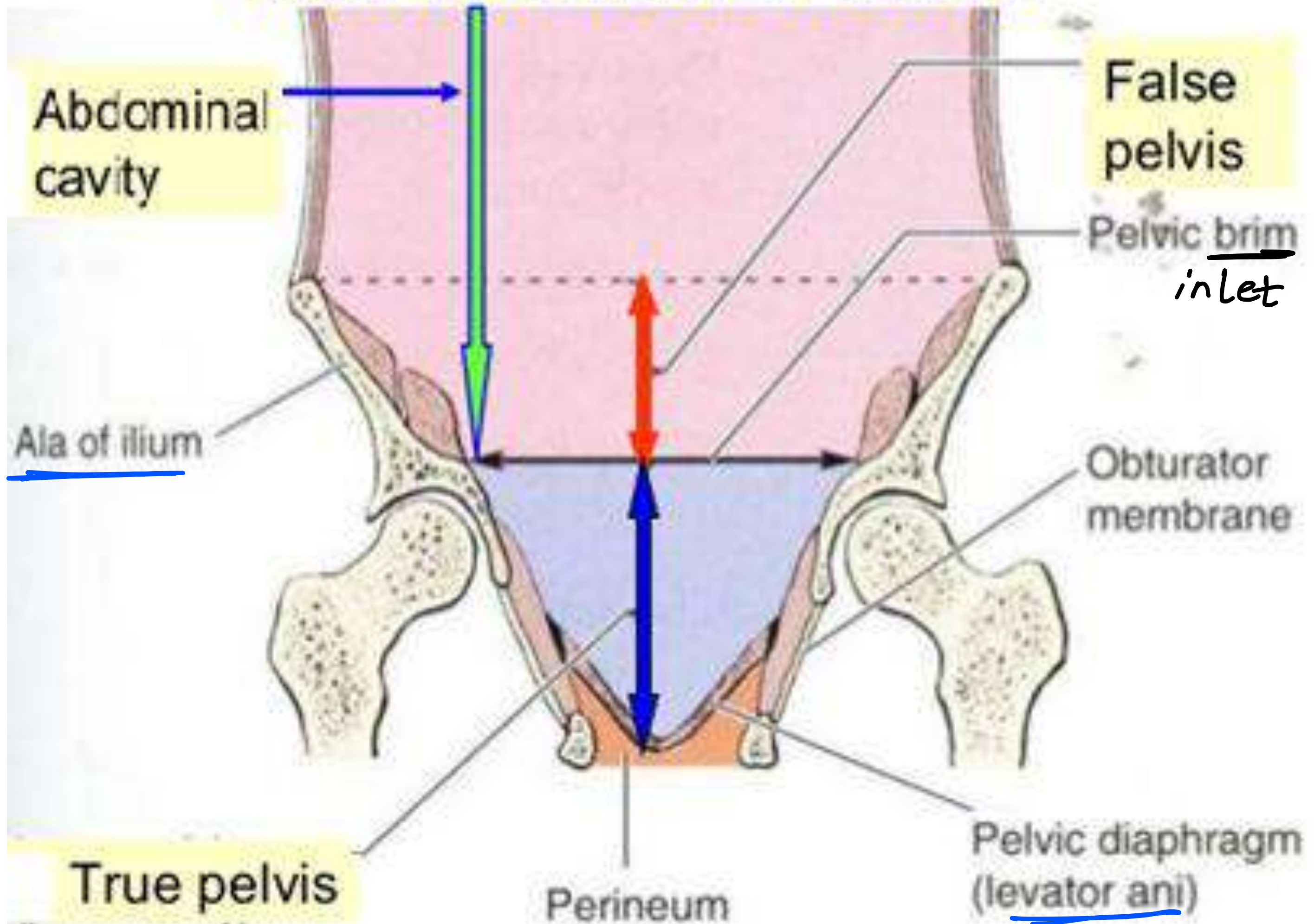
- Lies above the level of pelvic brim (pelvic inlet)

↓
الحد الفاصل

حجم صغير
Lesser (True)
pelvis

- Lies below the level of pelvic brim (pelvic inlet)

TRUE & FALSE PELVIS



False Pelvis

- It is of little clinical importance.
- It is bounded: sacrum ^{رُزْمَة} ^{بجوه فوهه} ^{false Pelvis} ^{رُزْمَة}
- ✓ bounded by the lumbar vertebrae.
- ✓ bounded by iliac fossae ^{origin} and iliacus muscles.
- ✓ bounded by the lower part of the anterior abdominal wall. ^{Symphysis pubis} ^{True Pelvis} ^{يعتبر} ^{سافل}
- The false pelvis **supports** the abdominal contents and after the third month of pregnancy helps support the gravid uterus. ^{ثالث}

الأغصم يحملوا بطنه
الـ organs من:
→ small intestine
→ part of large intestine

True Pelvis

* لیٹوں باں boundaries
! Inf, above, below

پہلے دیکھو pelvic جگہ
oblique

• Thorax ذریعہ

anterior
below
یعنی ذریعہ
ہیجی

above posterior ذریعہ
ہیجی

- The true pelvis has an :

① inlet ② outlet ③ cavity

← ہونٹوں کا
pelvic brim

inlet
outlet

- It is bounded: pubic bone = crest + tubercle

✓ **infront and below** : symphysis pubis , pubic

crest
tubercle
body and rami = branch

✓ **Behind and above** : pelvic surface of sacrum &
coccyx

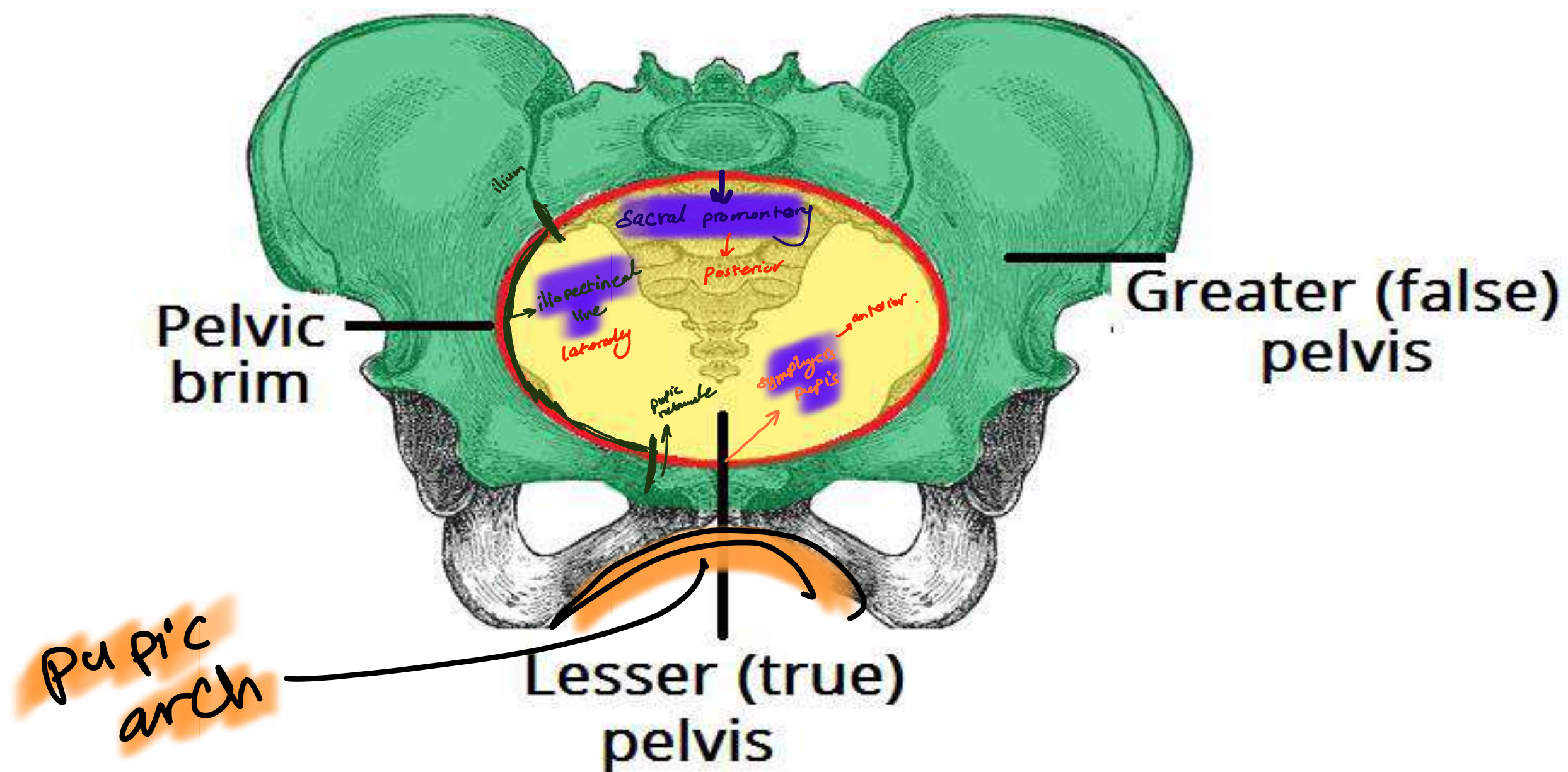
✓ **On each side** : pelvic surface of ilium & ischium

Pelvic inlet = brim

Line عباقة عن
يعني محيط وليس مائة

The pelvic inlet, or pelvic brim is bounded:

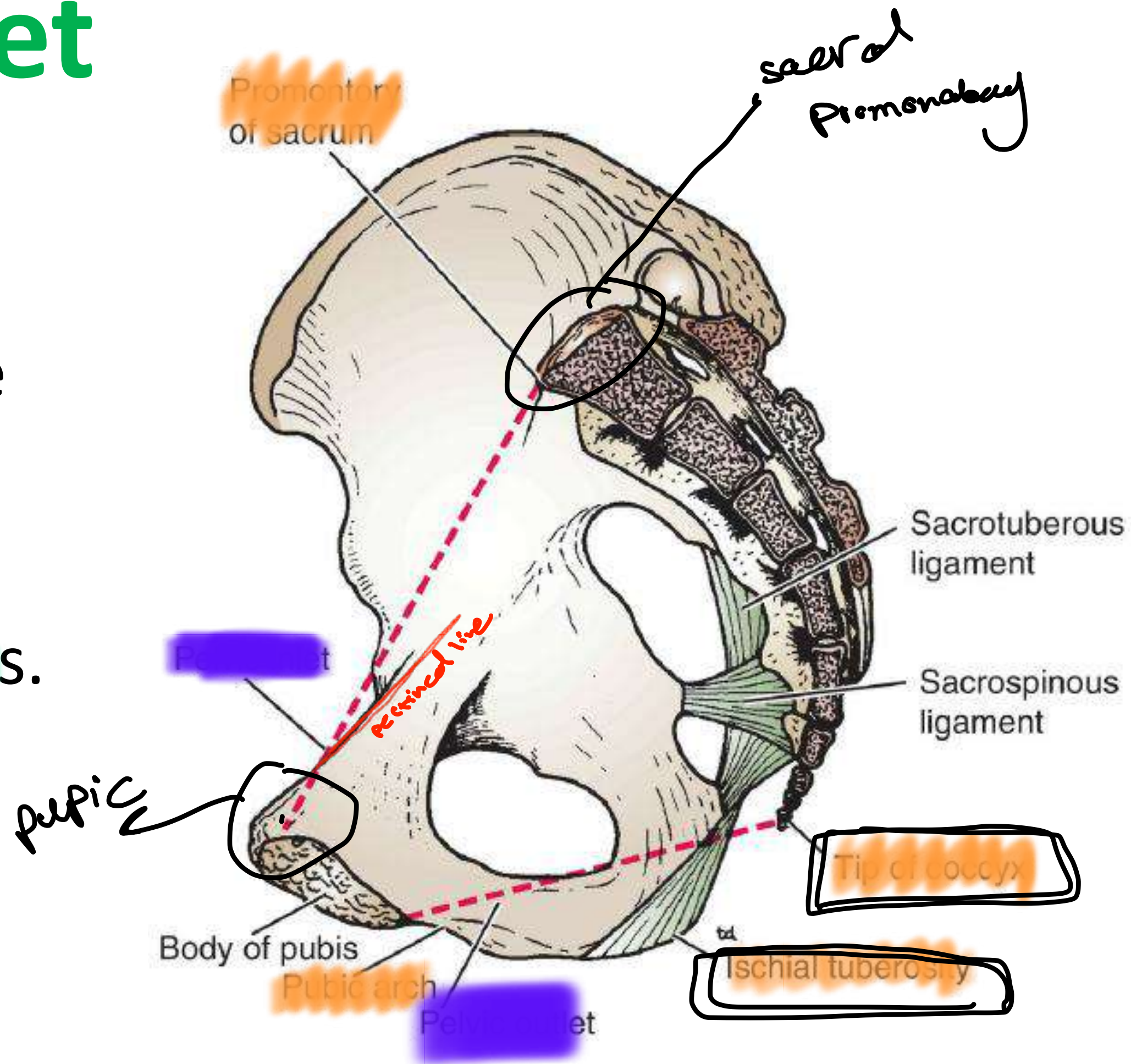
- **Posteriorly** by the **sacral promontory**.
- **Laterally** by the **iliopectineal lines**.
- **Anteriorly** by the **symphysis pubis**.

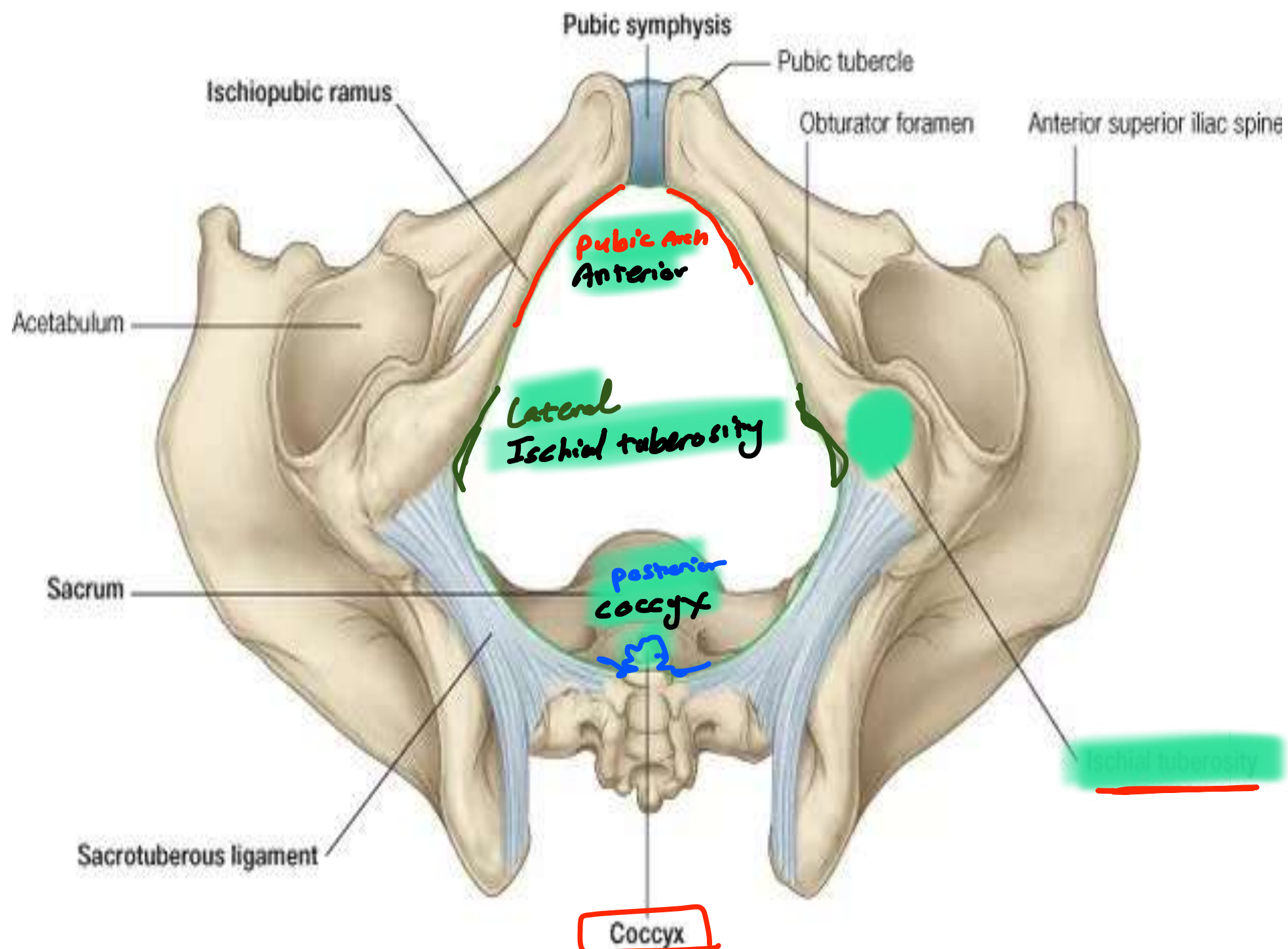


Pelvic outlet

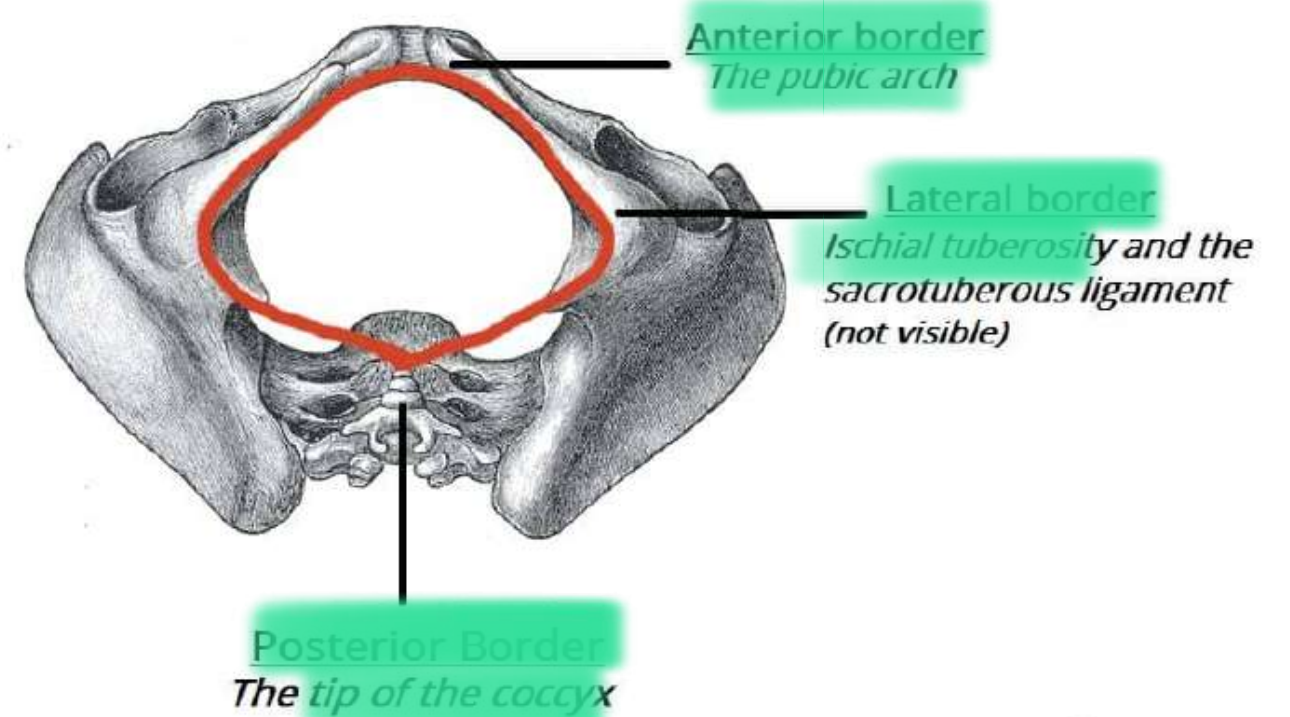
The pelvic outlet is bounded

- **Posteriorly** by the coccyx.
- **Laterally** by the ischial tuberosities.
- **Anteriorly** by the pubic arch.





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Pelvic inlet (brim) Pelvic outlet

Anteriorly symphysis pubis Pubic arch

Laterally iliopectineal line [♂] ischial tuberosity

Posteriorly [♂] sacral promontory tip of the coccyx

3 parts

Hip Bone

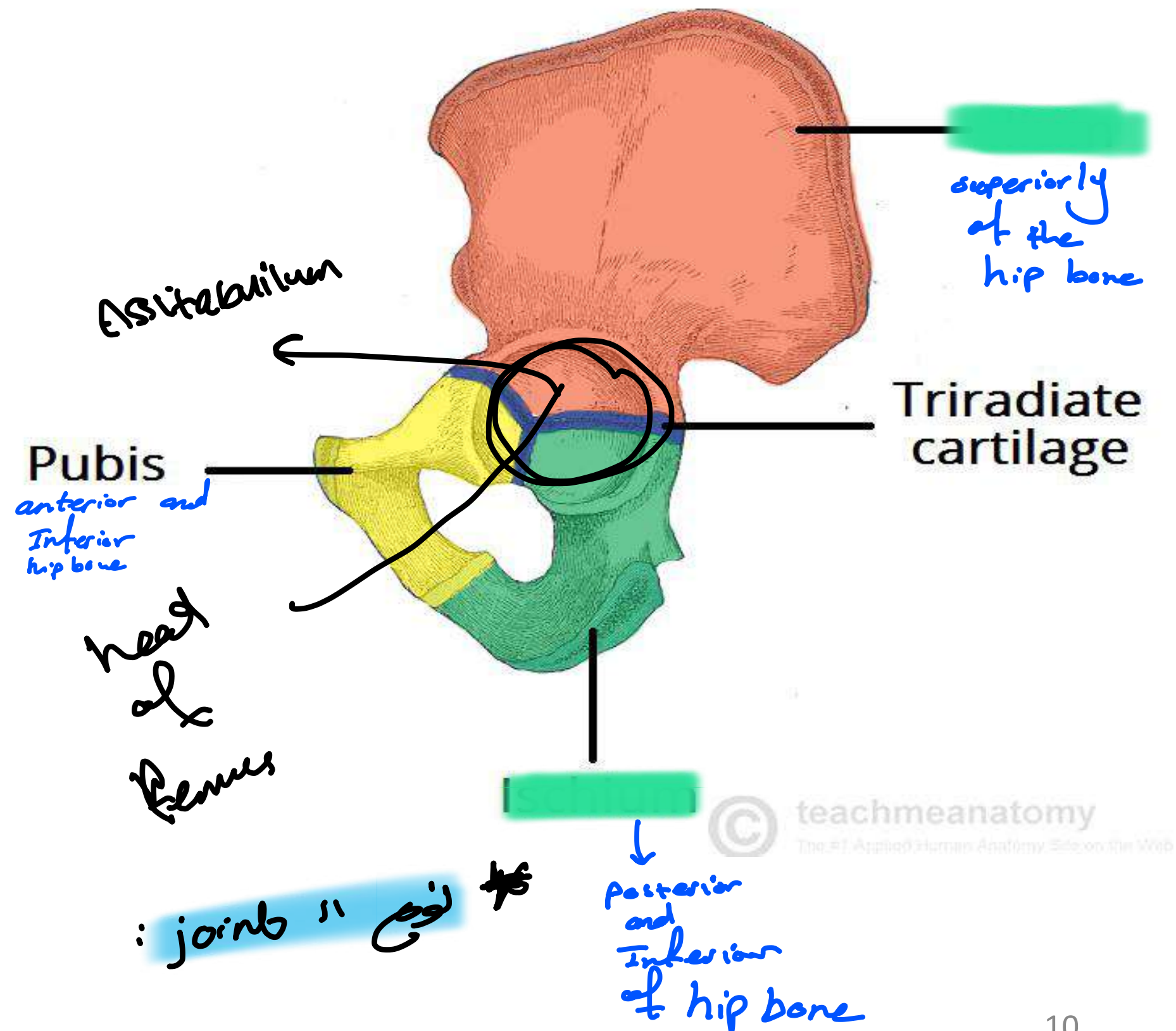
hip = 2 LP

Each hip bone consists of:

① **Ilium**, which lies superiorly.

② **Ischium**, which lies posteriorly and inferiorly.

③ **Pubis**, which lies anteriorly and inferiorly.

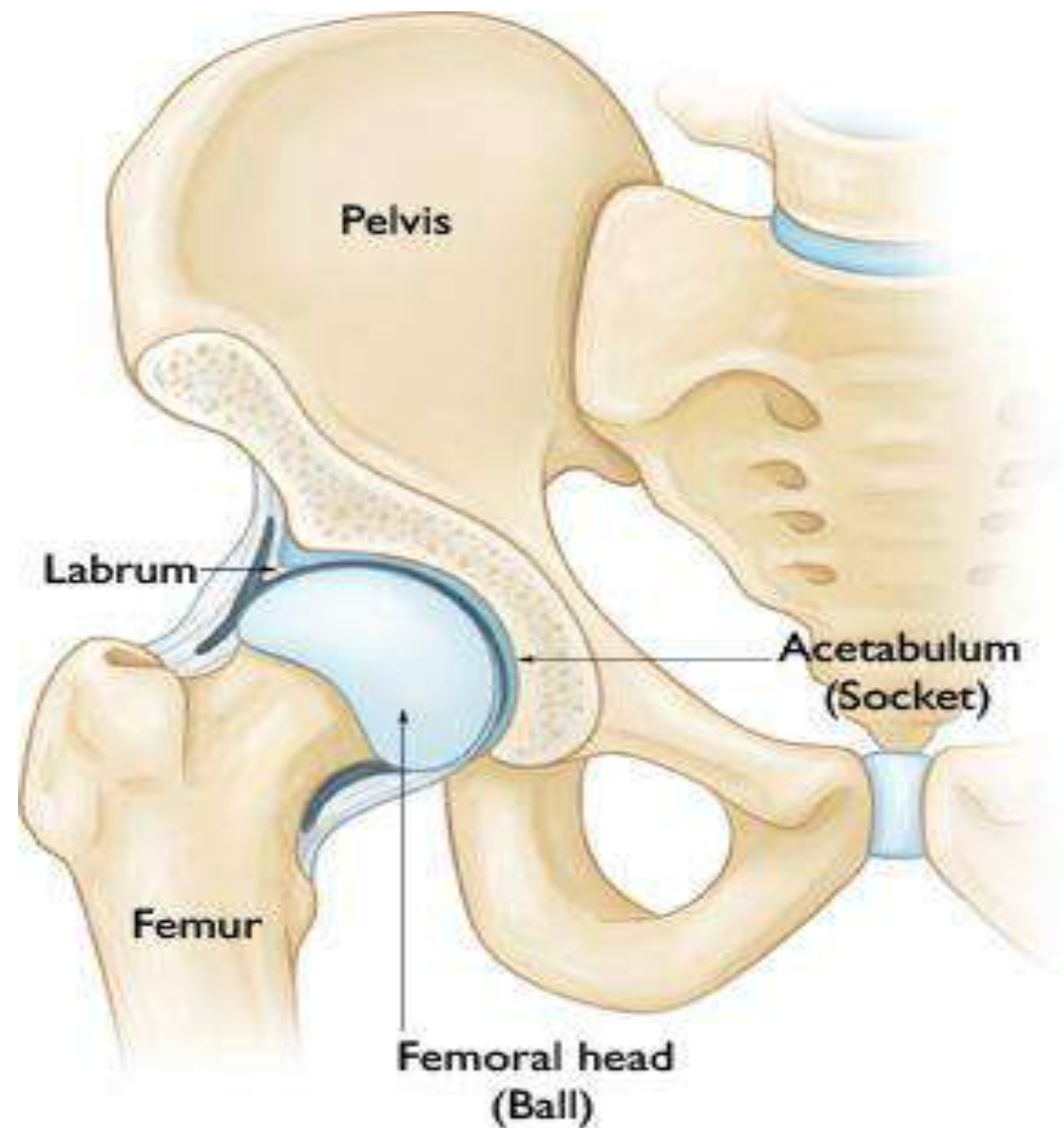


ischium pubis ilium

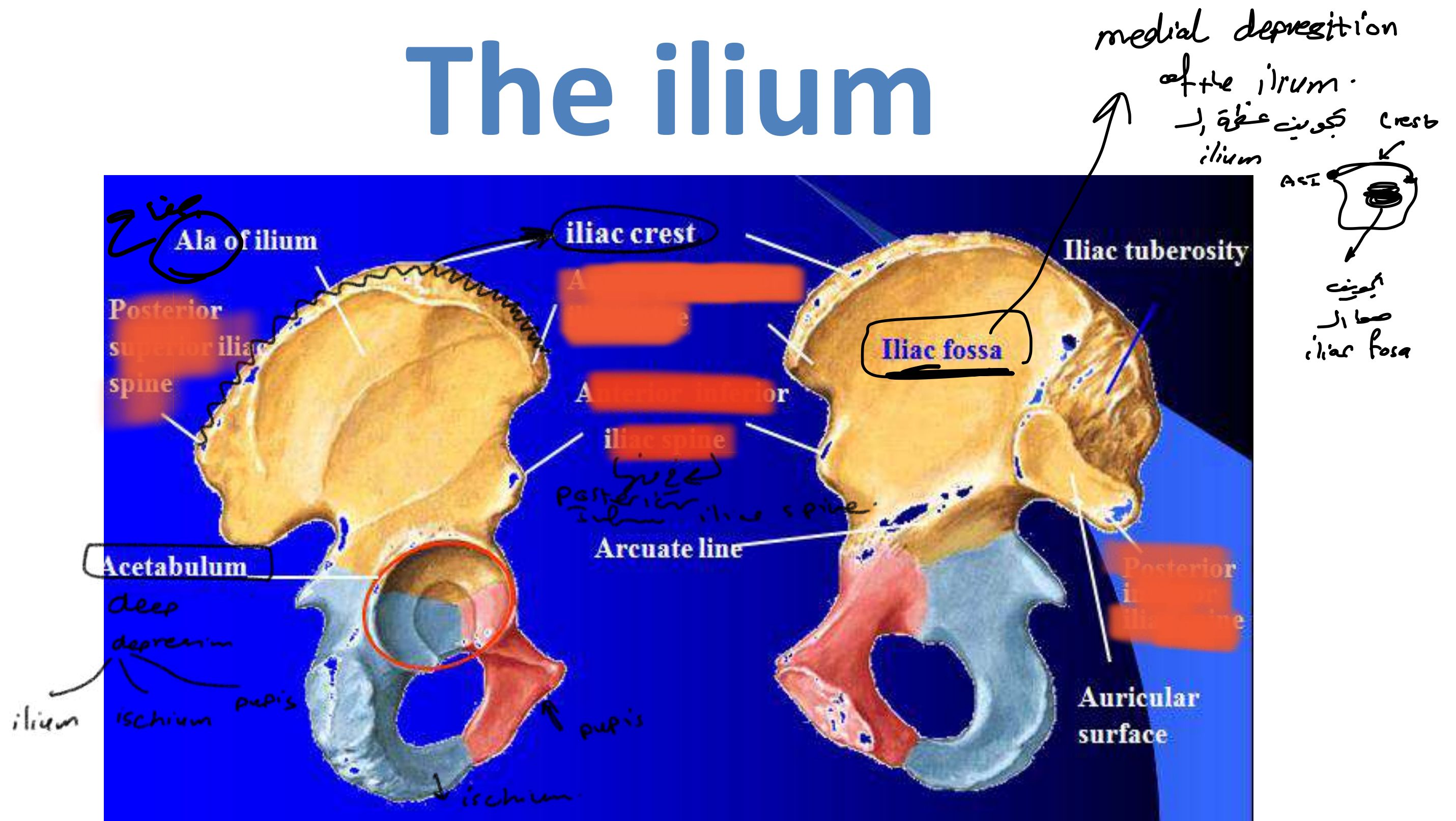
Hip Bone

- The three separate bones are **joined** at the **acetabulum**.
آسي تا بيولام.

- Acetabulum** is a **depression** on the **outer surface of the hip bone** which **articulates** with the **head of the femur**.
بجوفيه
groove
hip joint
Ball and socket joint
اللي توصل
له نوعه ال
synovial joint.



The ilium

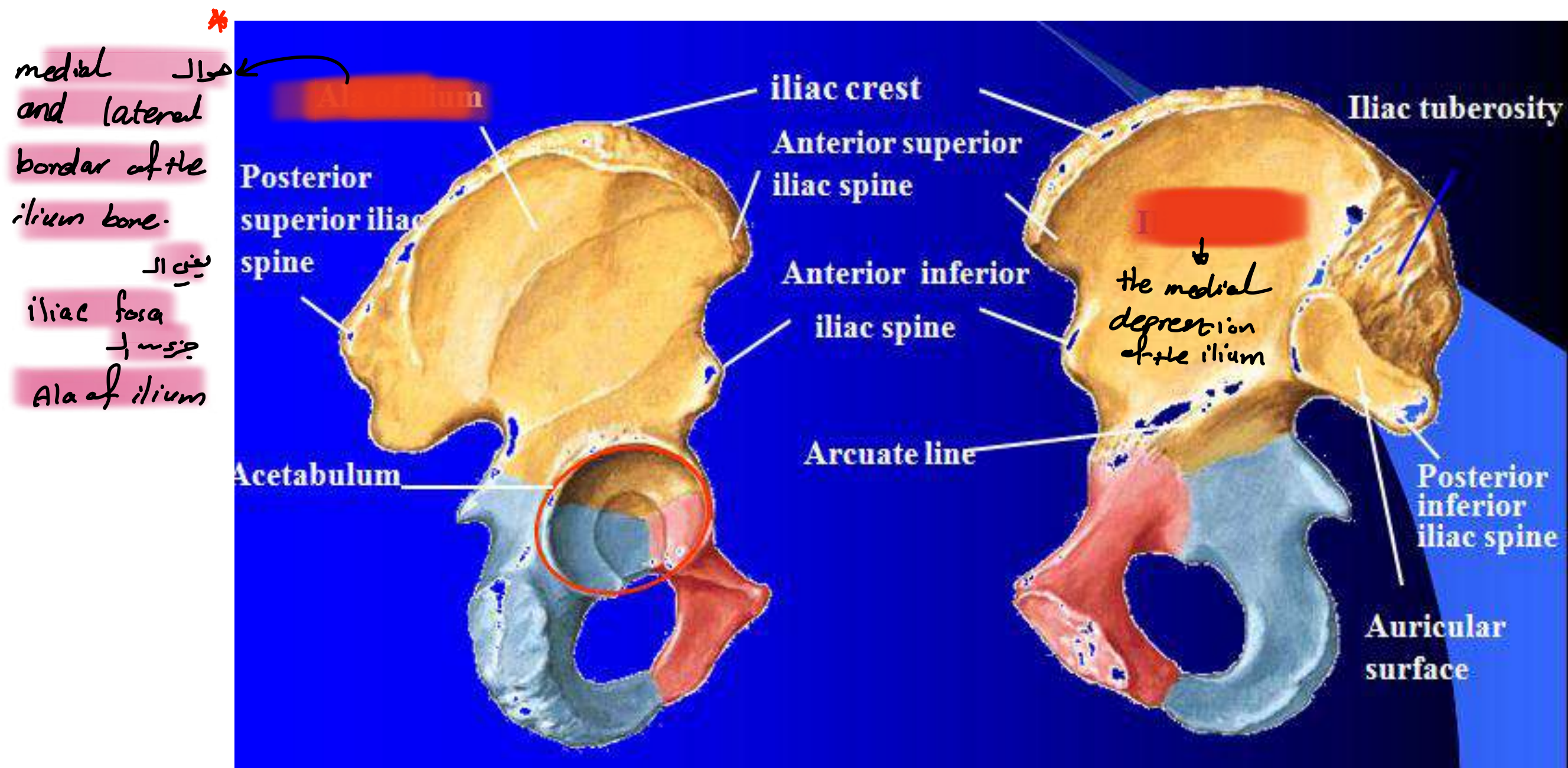


- It is the **upper flattened part** of the hip bone
- It possesses the **iliac crest**. → upper most part
- The iliac crest runs between the **anterior and posterior superior iliac spines**.



جناح
Ala = wing

The ilium



- Below these spines are the corresponding anterior and posterior **inferior iliac spines**.
- On the **inner surface** of the ilium is a surface for articulation with the **sacrum**.

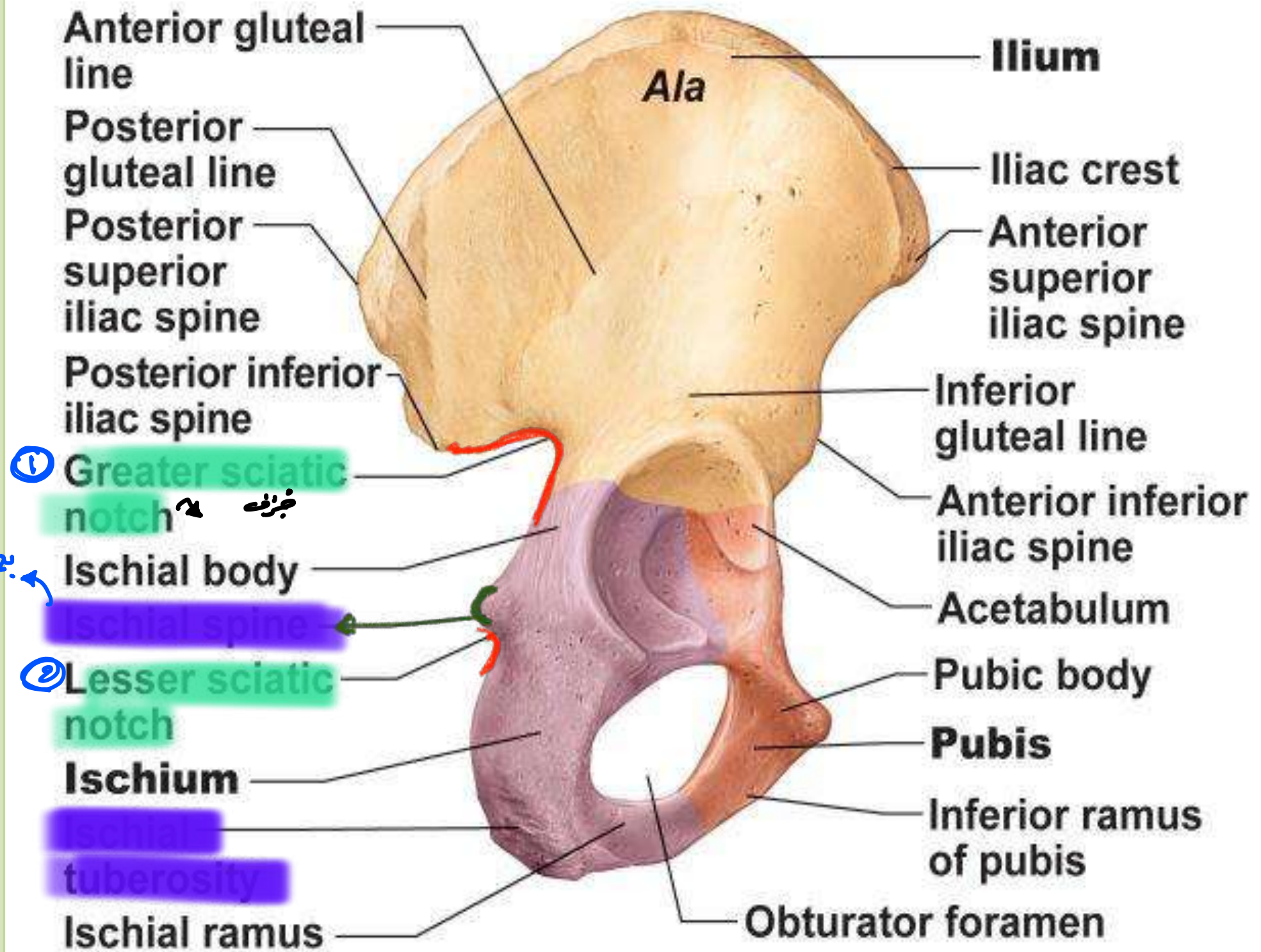
ilio sacral joint
type: plane synovial joint

The ischium

- The ischium is the inferior and posterior part of the hip bone.

هو افاضل
 2
 dtch
 grader lesser

- It possesses an **ischial spine** and an **ischial tuberosity**.

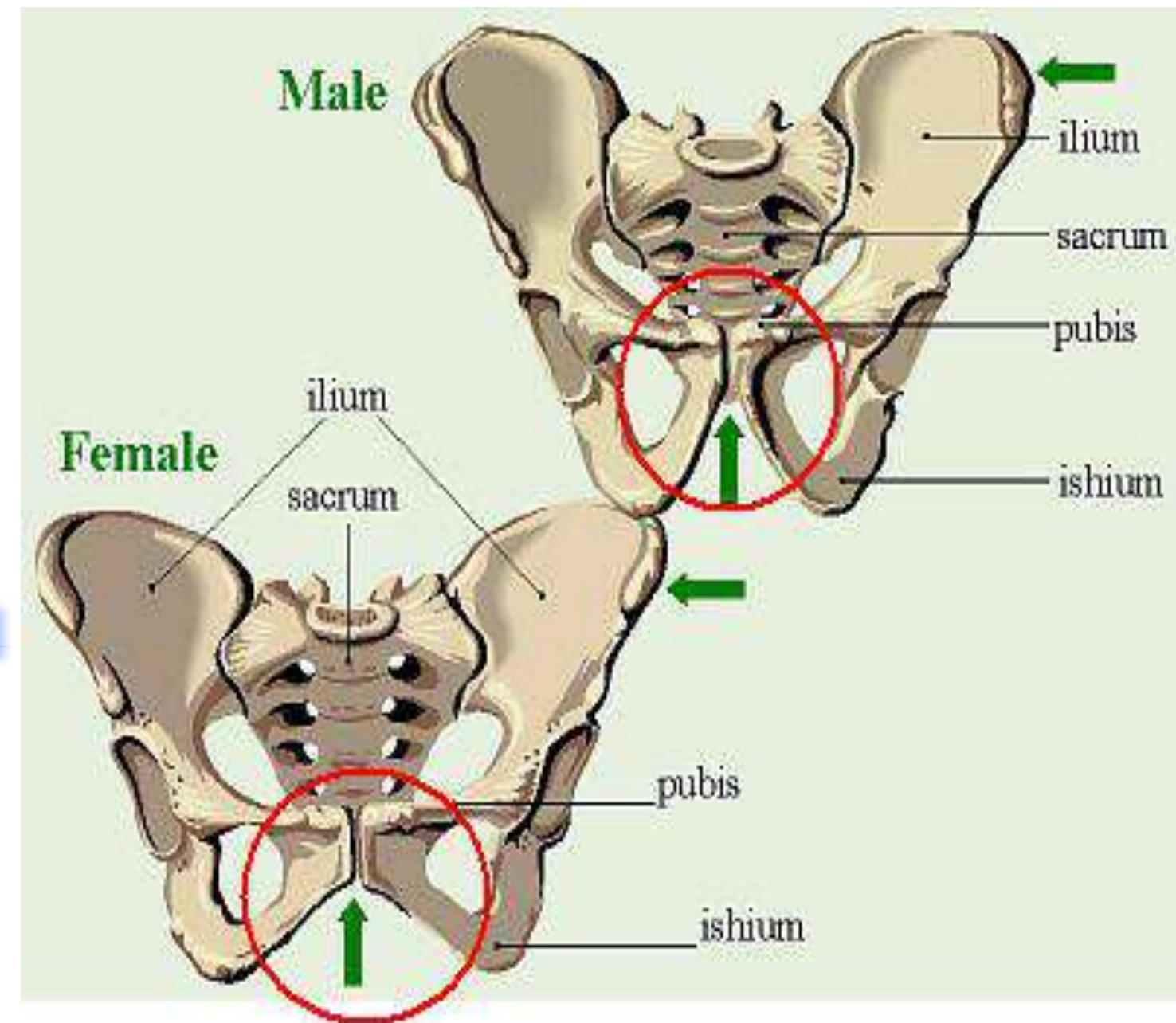


(a) Lateral view, right hip bone

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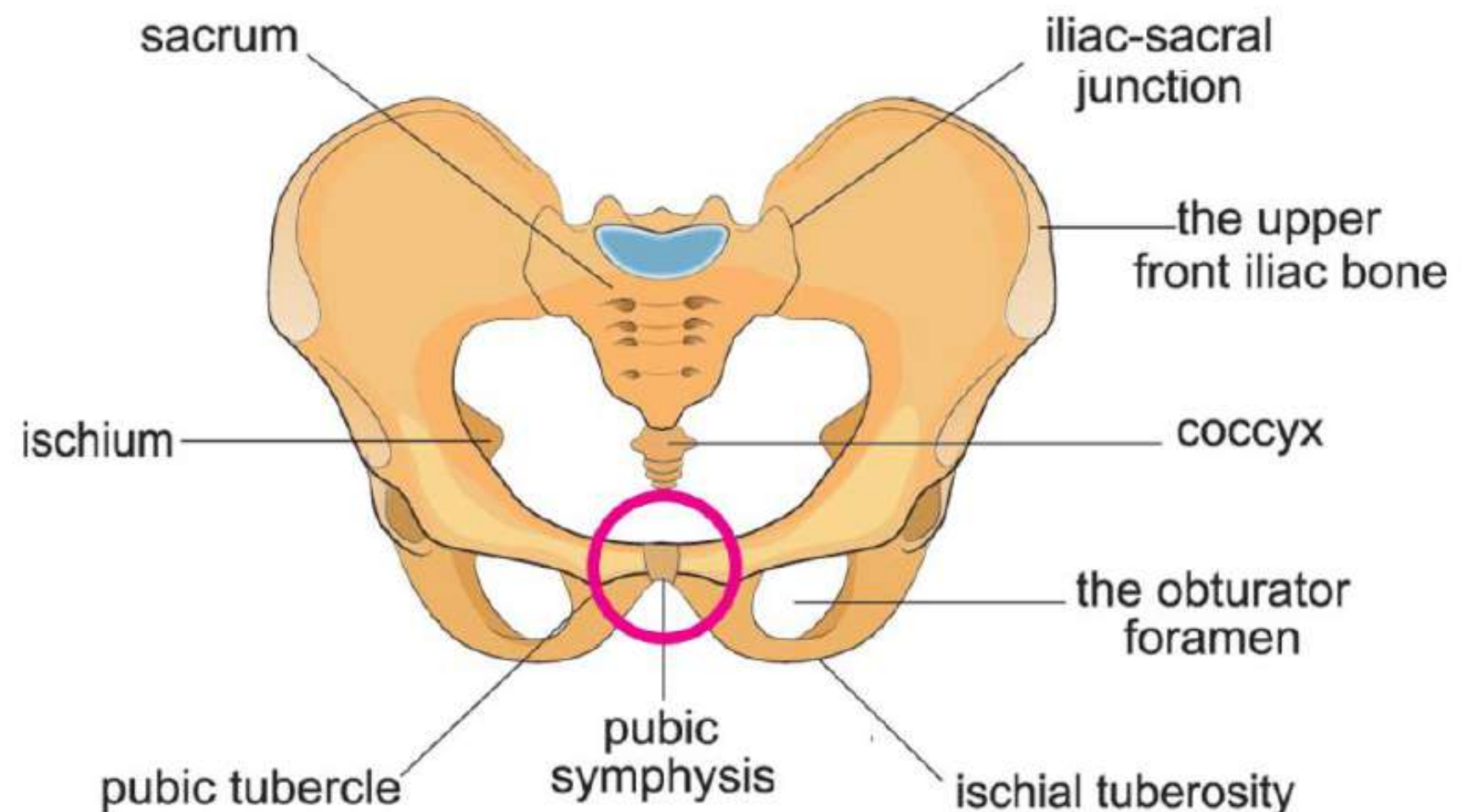
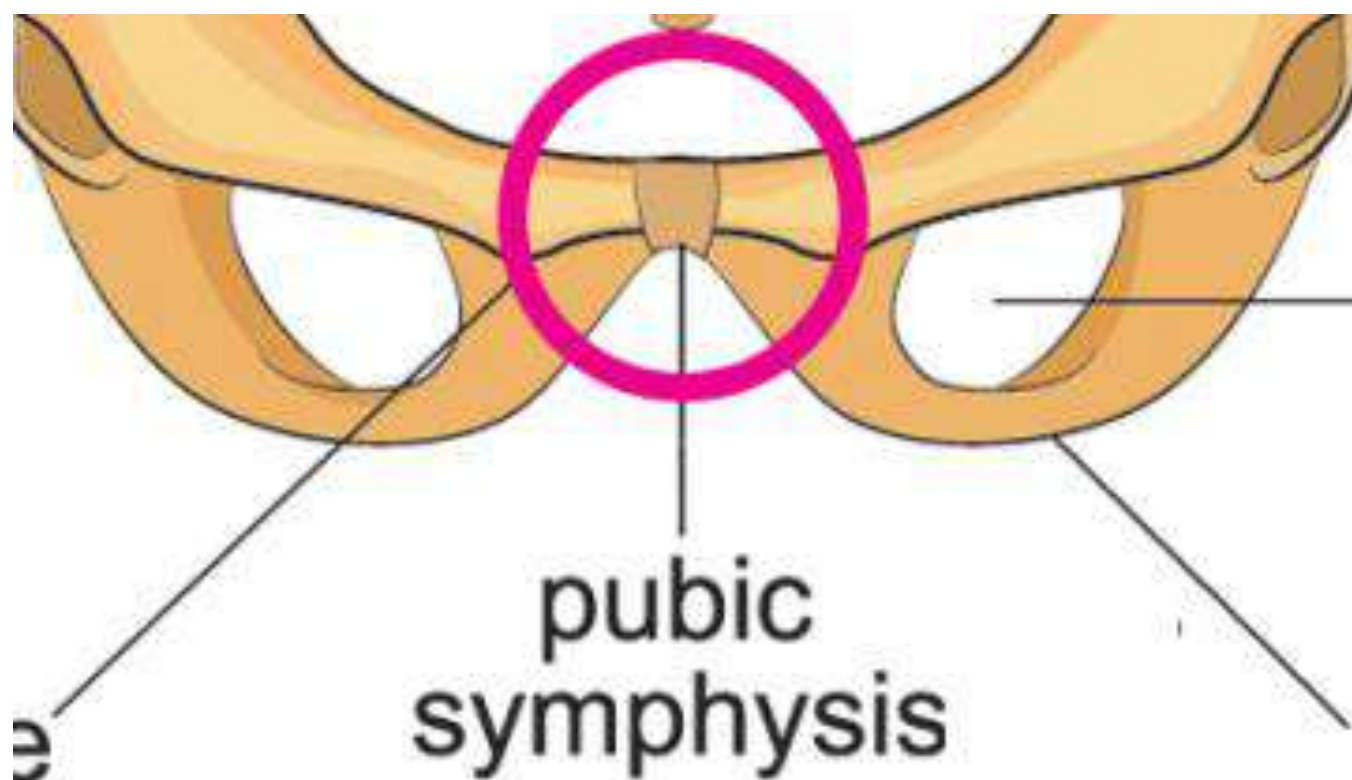
The pubis

- The pubis is the **anterior and inferior part** of the **hip bone**
- It has a **body** and **superior and inferior pubic rami**.
- The **body** of the pubis bears the **pubic crest** and the **pubic tubercle**.
- It articulates with the pubic bone of the opposite side at the **symphysis pubis**.



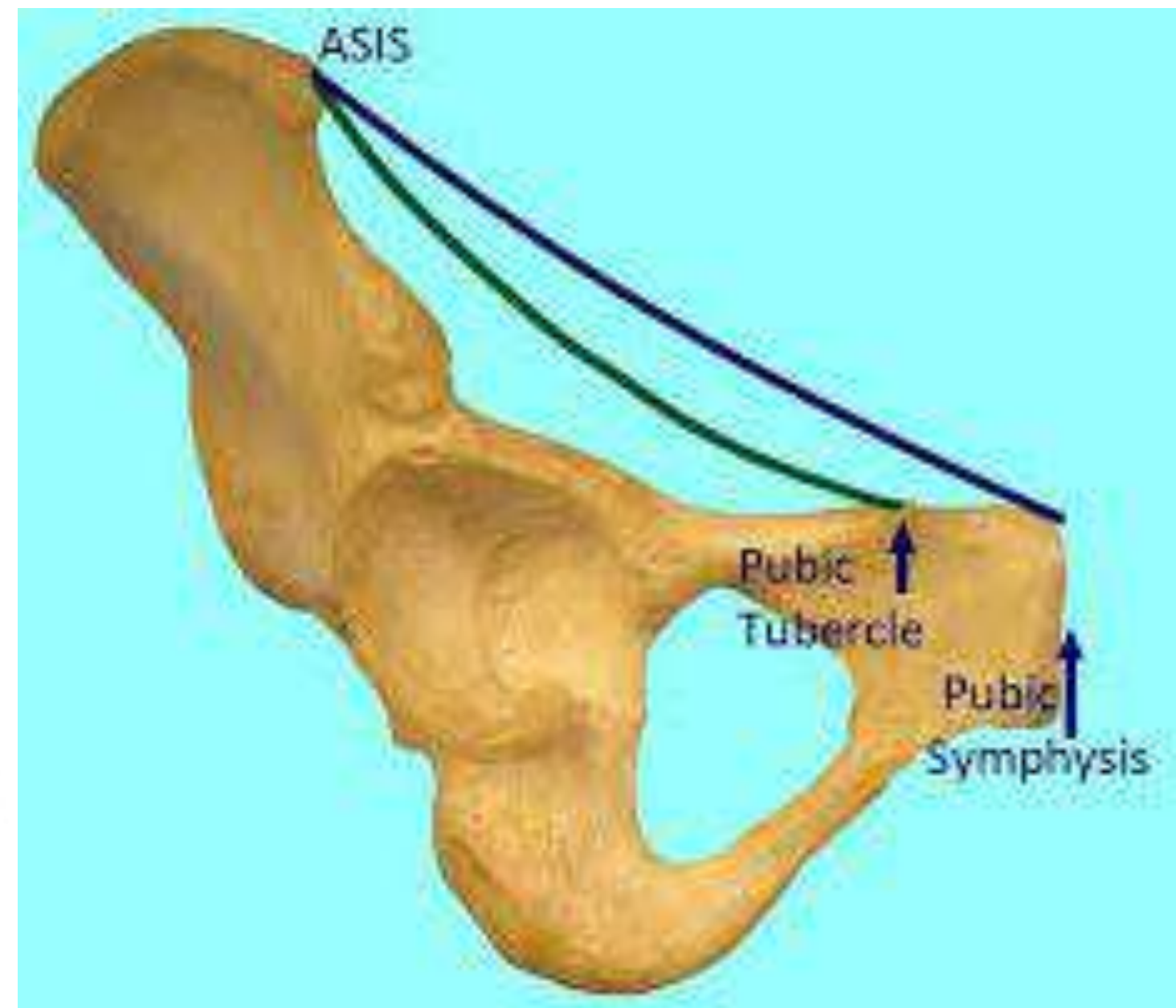
Symphysis Pubis

- is a ^{secondary} cartilaginous joint between the two pubic bones.
- The articular surfaces are covered by a layer of hyaline cartilage and are connected together by a fibrocartilaginous disc. (secondary)
- Almost **no movement** is possible at this joint.



Pubic tubercle ← نقطة! ← عظام بيبه فينار ← inguinal ligament

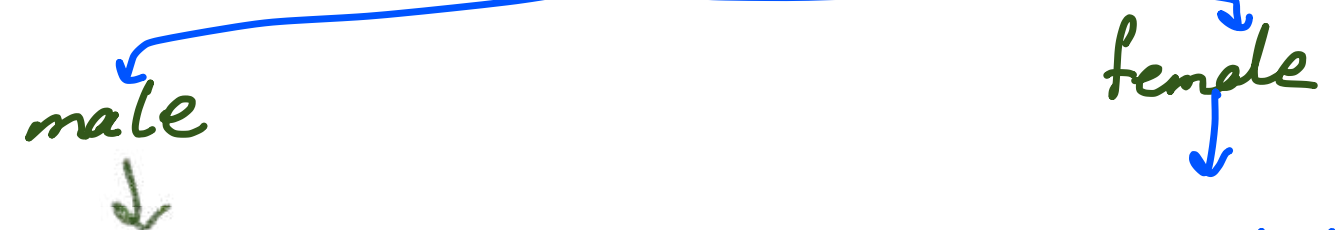
- It can be felt on the upper border of the pubis .
- The medial end of the inguinal ligament is attached to it.
- The tubercle can be palpated easily in the male by invaginating the scrotum from below with the examining finger.
- In the female, the pubic tubercle can be palpated through the lateral margin of the labium majus.



كيفية تحديد موقع الـ Pubic tubercle

* شرح طريقة السيد :

من عند منطقة الـ Pubic ~ أخذ



من عند neck of scrotum
بتفخ اصبعي، نتغل

invaginating

لتقلب الـ skin لجوا
منها يتجس الـ

(Pubic tubercle

طريقة مؤلة (١٠)

من عند Labia majora
ناحية الـ lateral
هنا الـ
Pubic tubercle

* طريقة أخرى :

لما تبجي تاخذ صنية واحدة
" التريبيعة "

بيظهر حول قاصي الـ بيظهر اضع عند الـ فقال

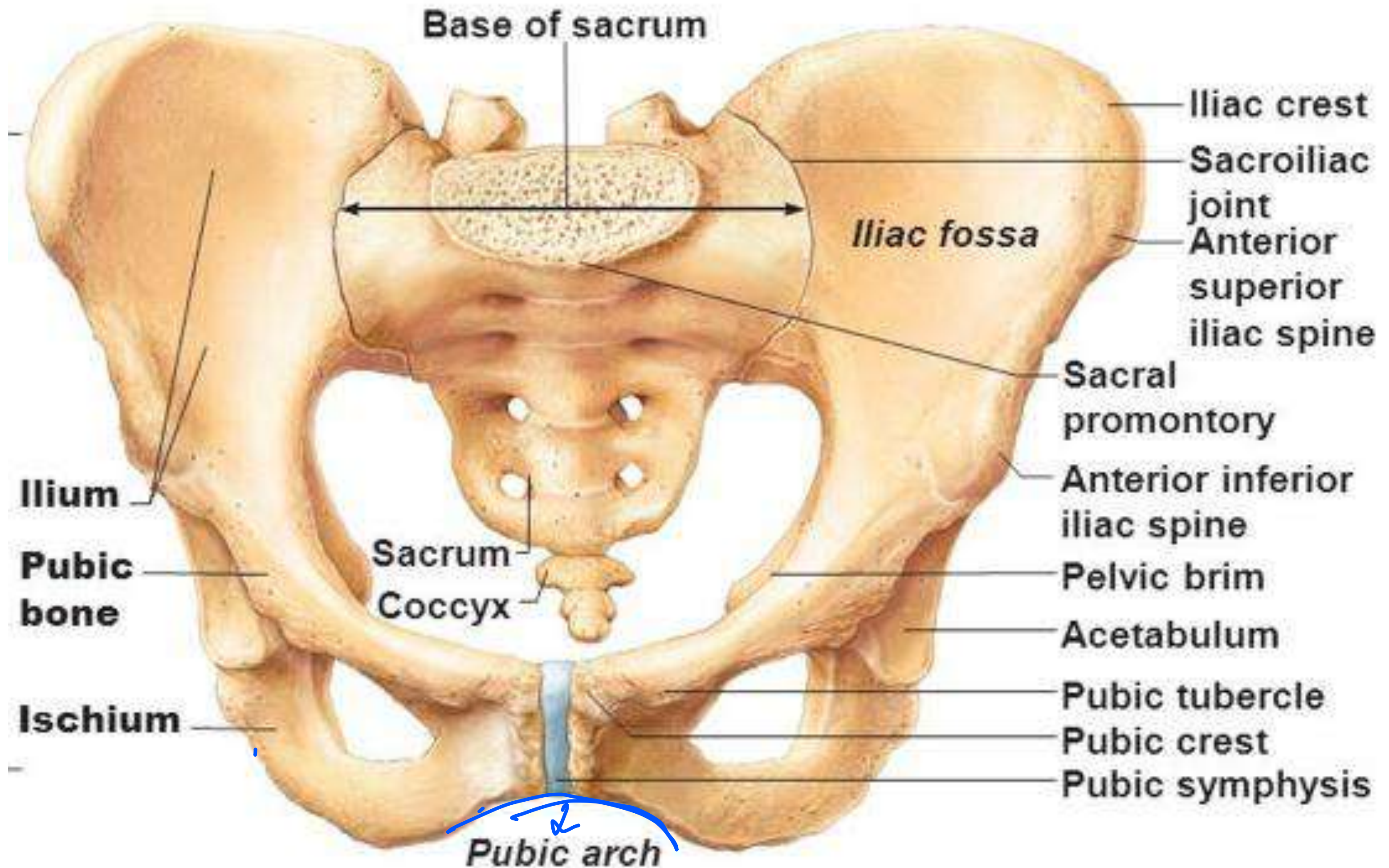
هاد tendon muscle

هاد يمسك بـ muscle ا ب

Adductor longus muscle

بتضلك شئ مع الـ tendon بيمسك الـ
Pubic tubercle

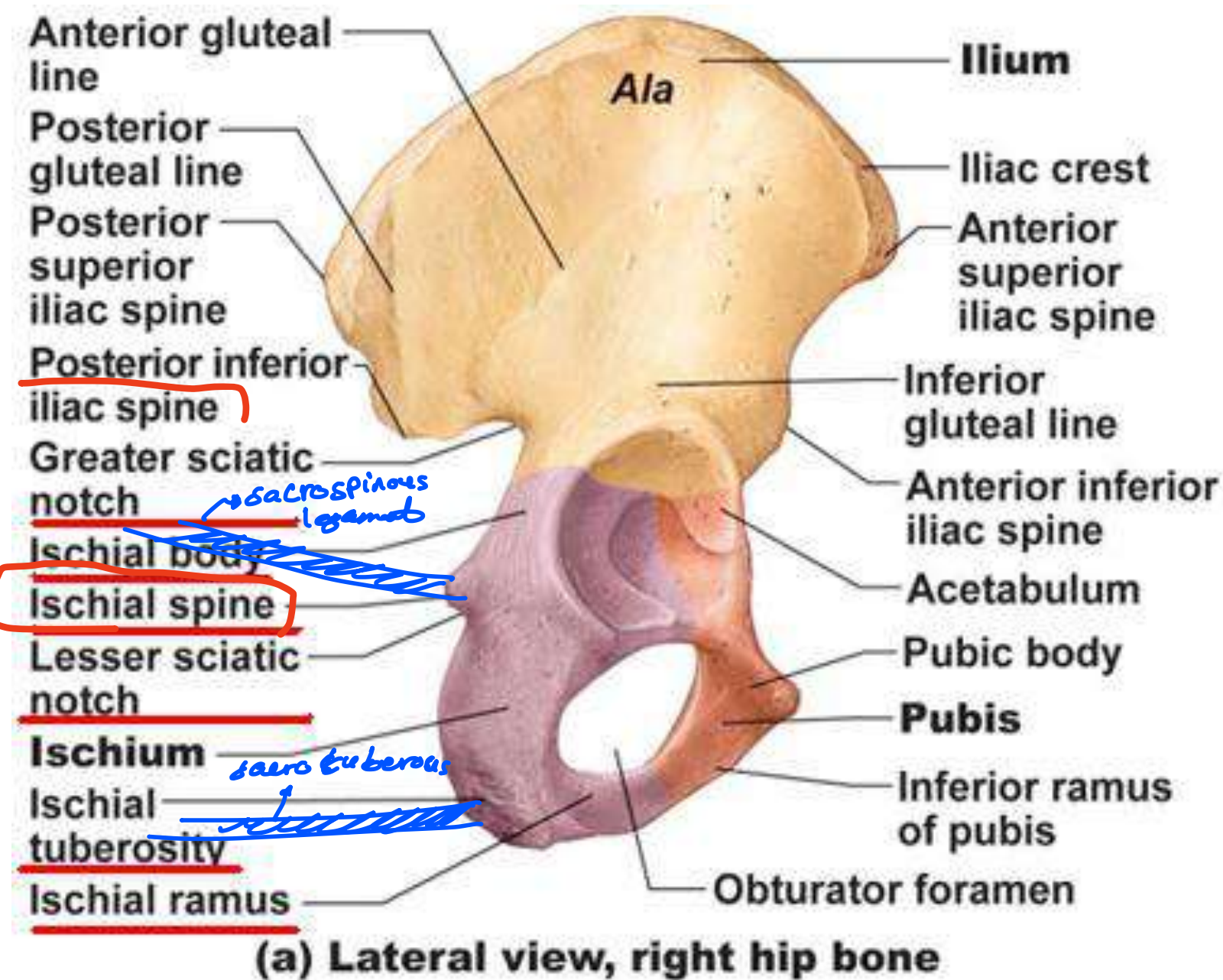
- **pubic crest** is the ridge of the bone on the superior surface of the pubic bone, medial to the pubic tubercle



Sciatic Notch

- Behind the acetabulum is a large notch, the **greater sciatic notch**, which is separated from the **lesser sciatic notch** by the **spine of the ischium**.

- The sciatic notches are converted into the **greater and lesser sciatic foramina** by the presence of the **sacrospinous** and **sacrotuberous** ligaments.



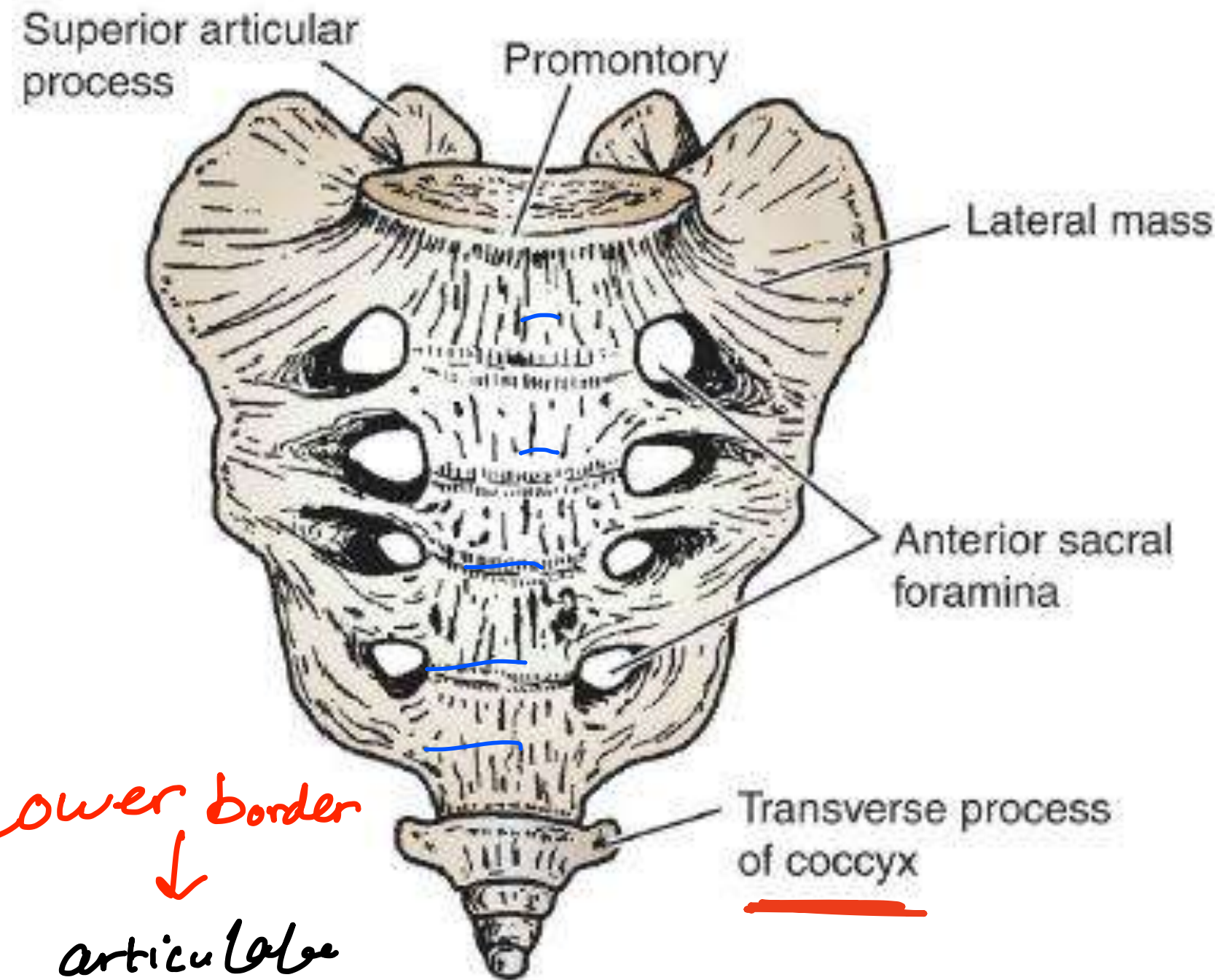
تقريباً يغطوا
على ال
greater , lesser
notches.

لا ينفصل بطل
notch
بعض
foramina.

Sacrum

لیٹن میں راسخہ ہنر کی تقراتے؟
 لیٹن کے راسخہ ہنر

- Consists of **(5)** rudimentary vertebrae **fused** together to form a single **wedge-shaped bone** with a **forward concavity**.
- The **upper border** or base of the bone articulates with the **5th lumbar vertebra**.



Lower border
 ↓
 articulates with
 coccyx

Sacrum

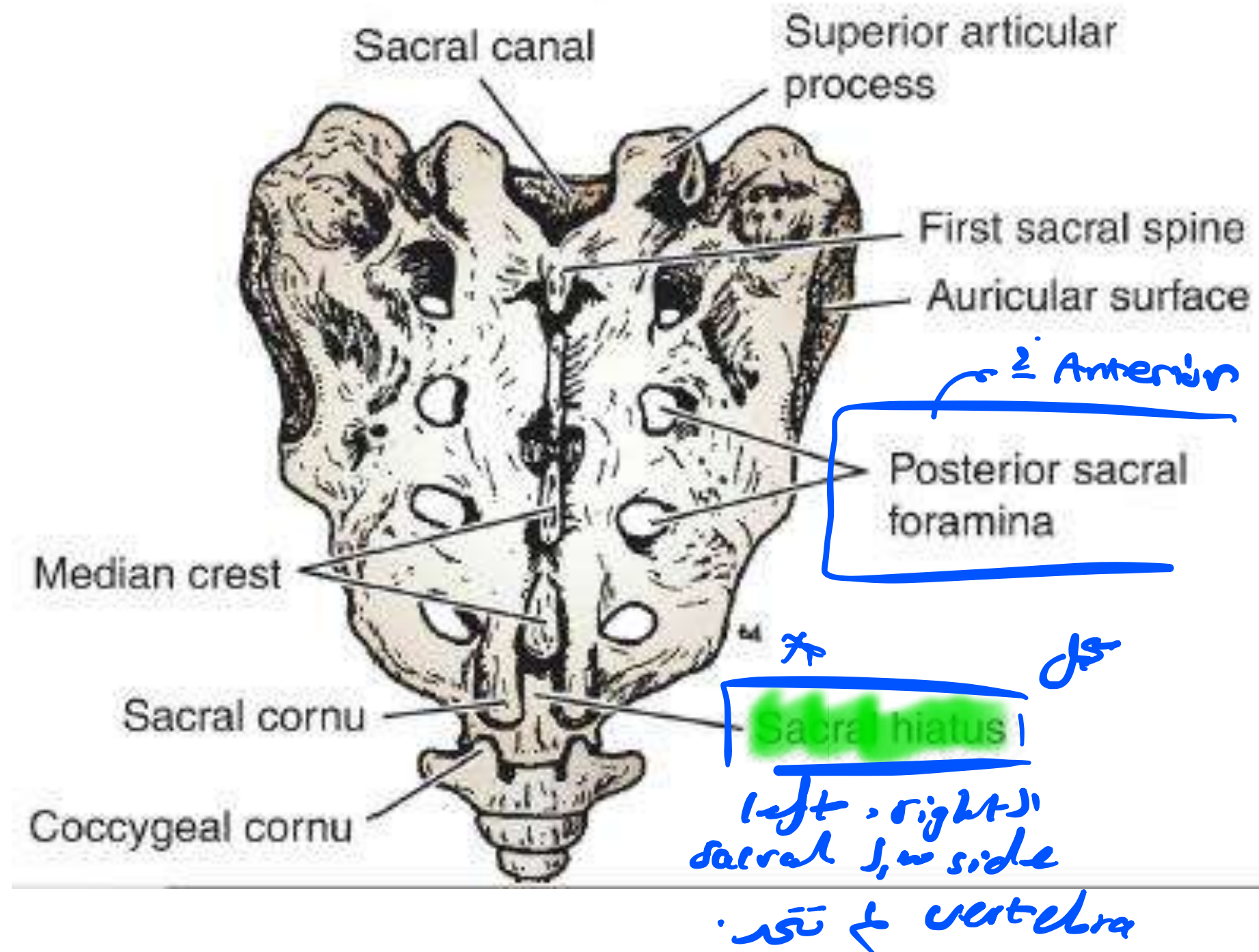
- The **narrow inferior border** articulates with the **coccyx**.

by sacrococcygeal joint

↳ type: secondary cartilaginous joint

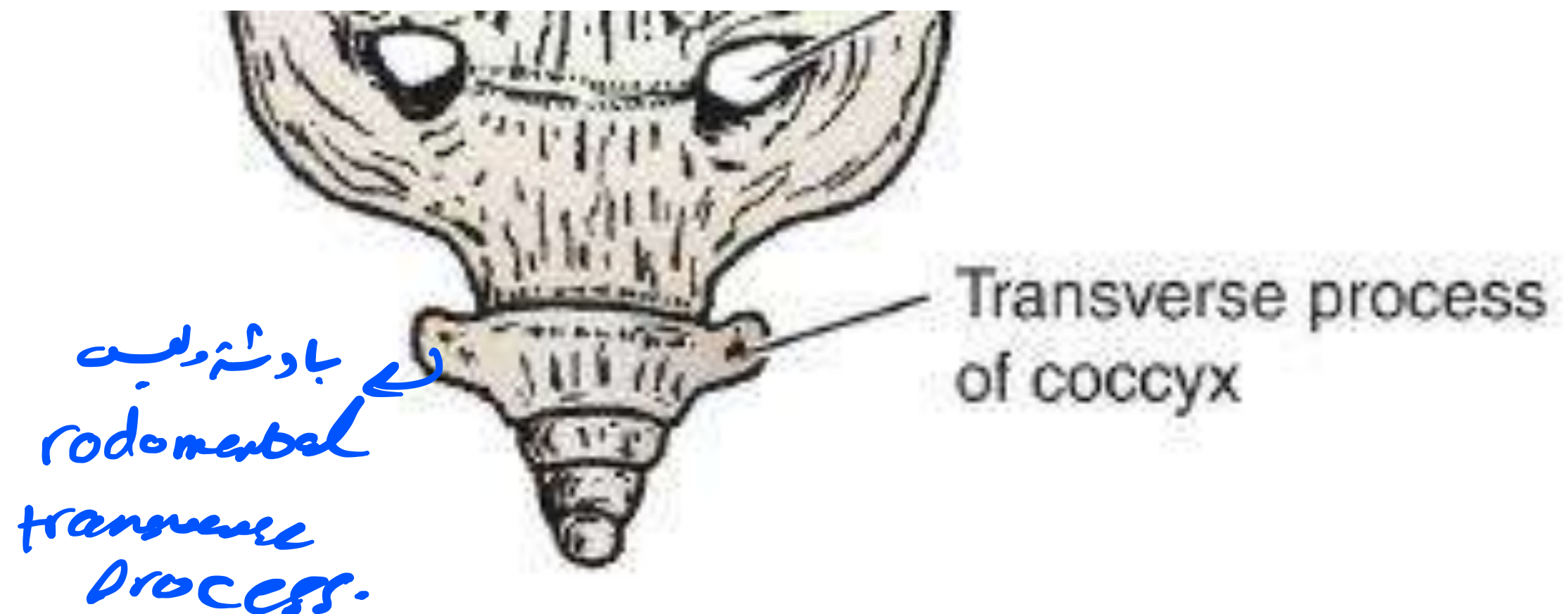
- Laterally**, the sacrum articulates with the two **iliac bones** to form **sacroiliac joints**.

↳ plane synovial



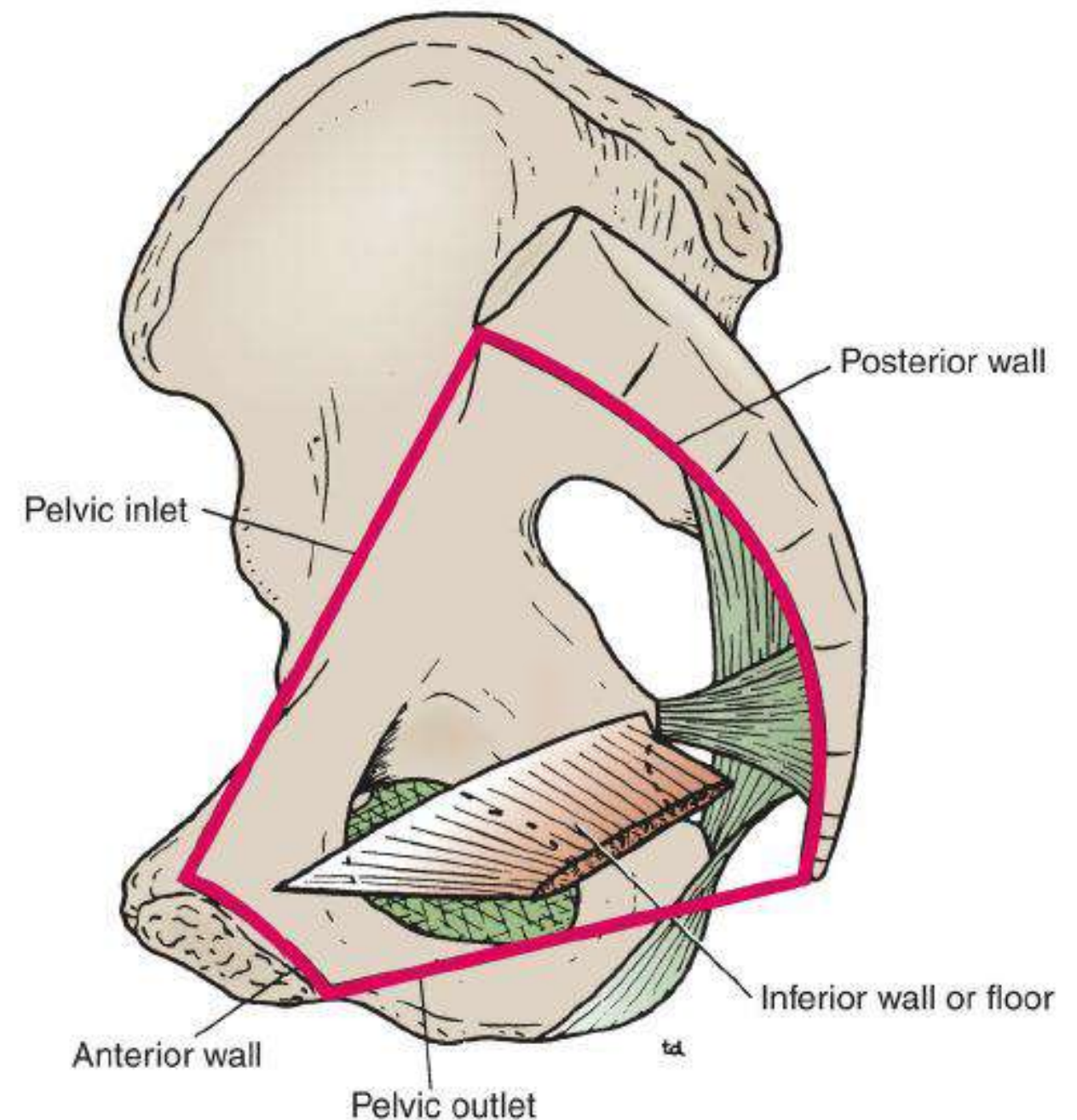
Coccyx

- It consists of **four vertebrae fused** together to form a small **triangular bone**.
- It articulates at its base with the **lower end of the sacrum**.
- The **coccygeal vertebrae** consist of **bodies only**.



Pelvic Walls

- The pelvic walls are formed of a framework of **bones** , **ligaments** , **joints** and **membranes** which **lined by muscles**



ليس مافي Superior wall ؟!

لأنه continuous مع Abdominal cavity

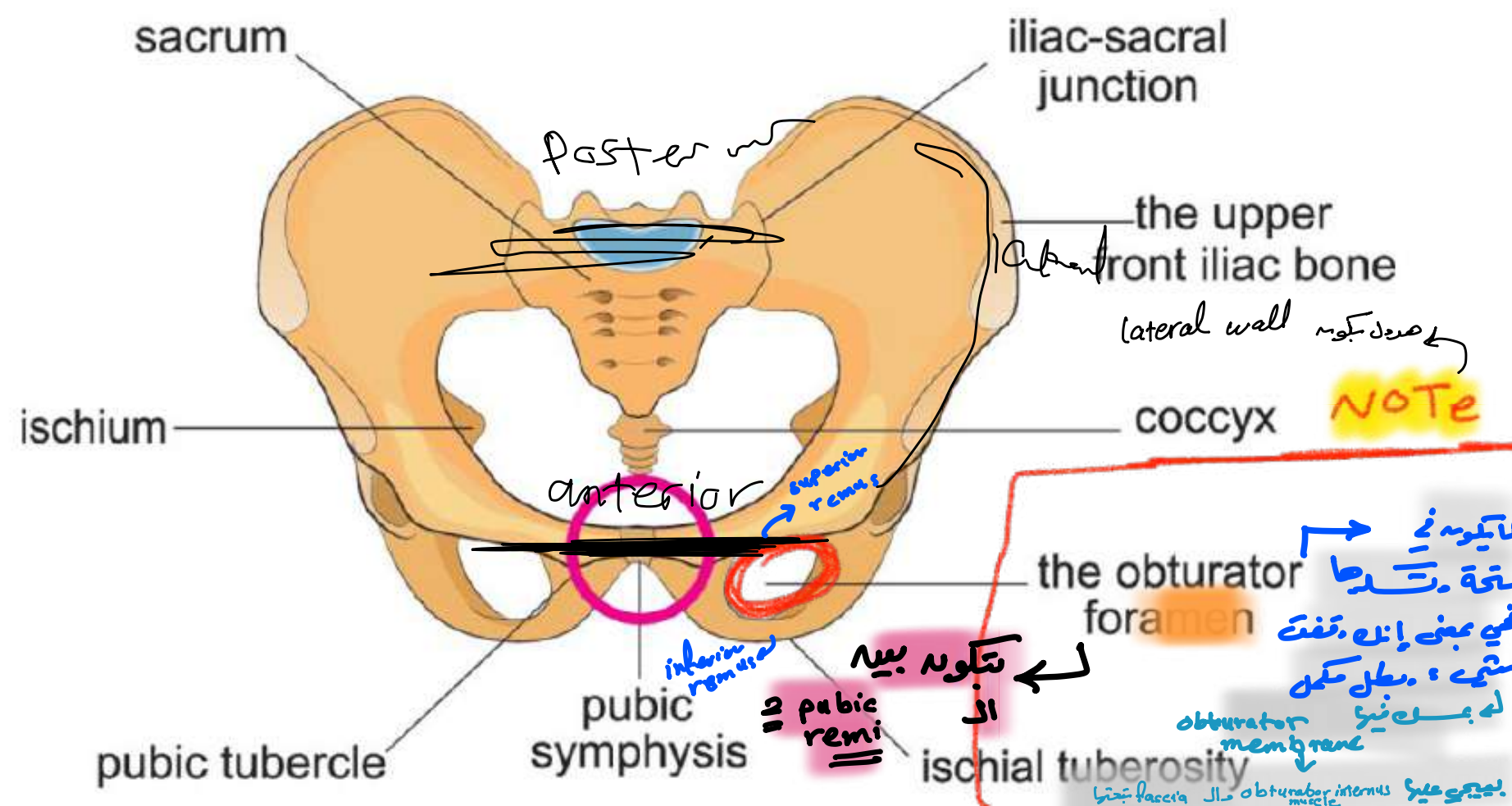
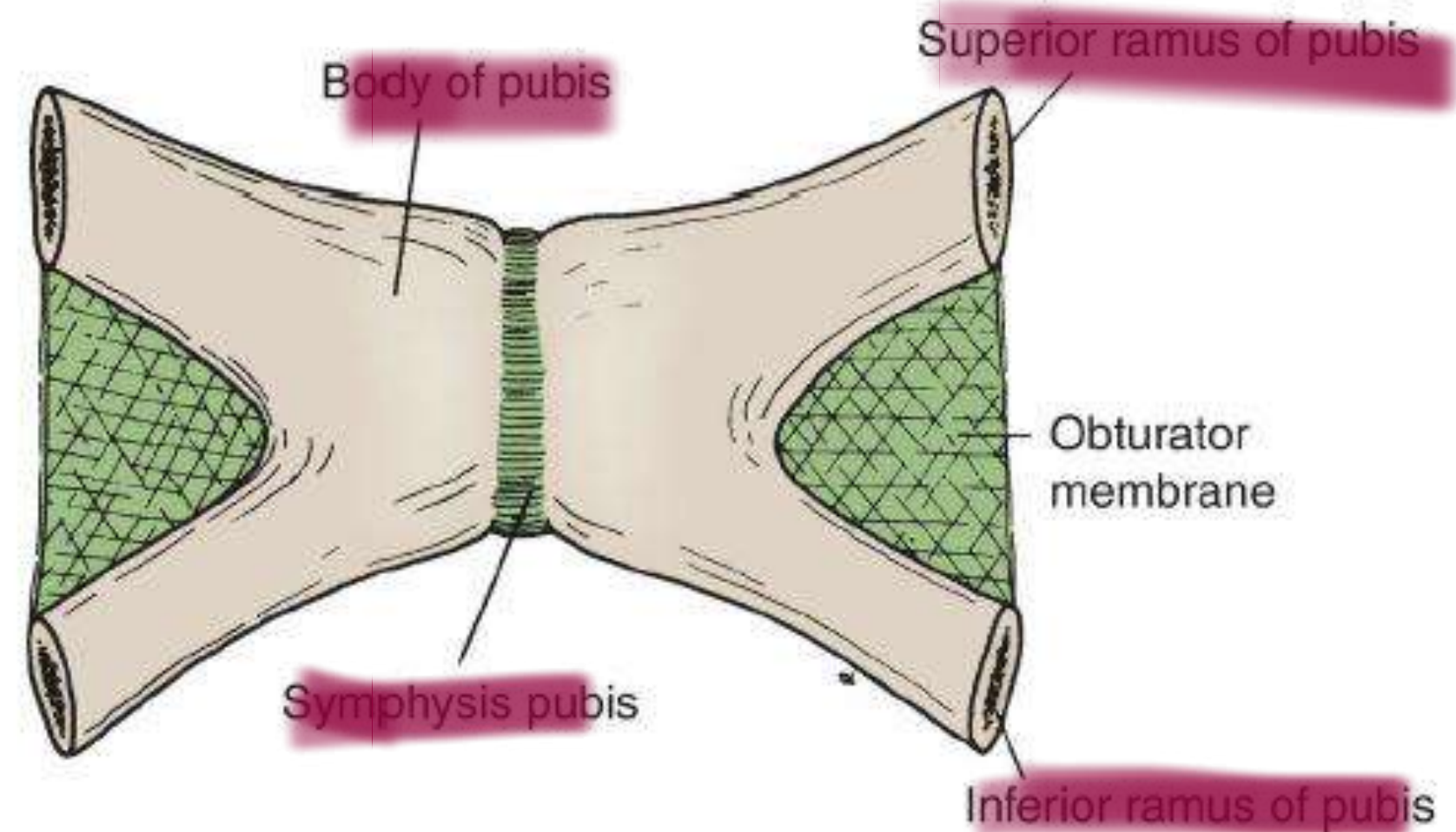
The pelvis has :

- Anterior wall
- Posterior wall
- Lateral walls
- Inferior wall (floor)

الجزء السفلي

Anterior Pelvic Wall

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



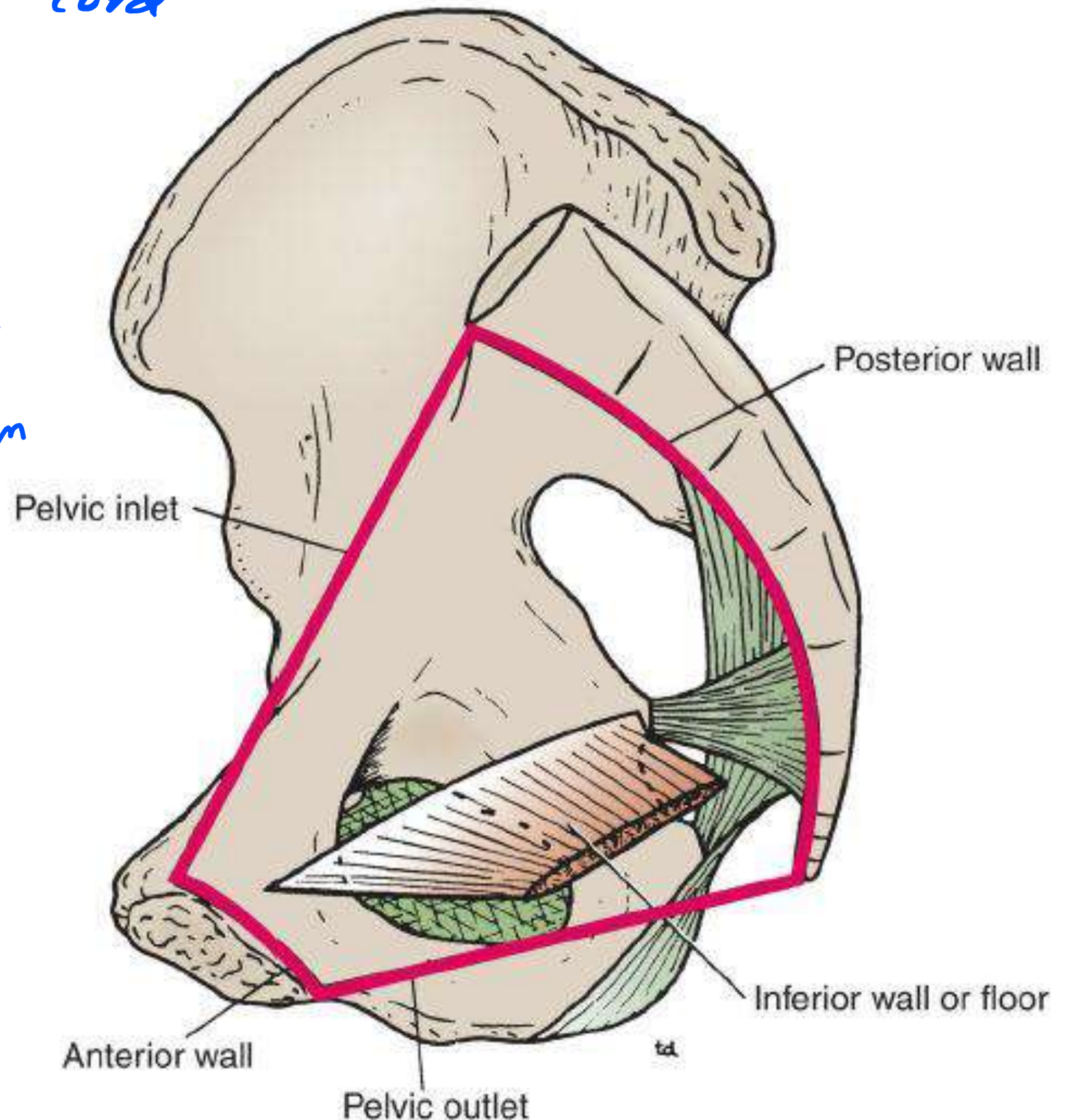
Posterior Pelvic Wall

roots spinal cord بعد صاعون

• sacral canal

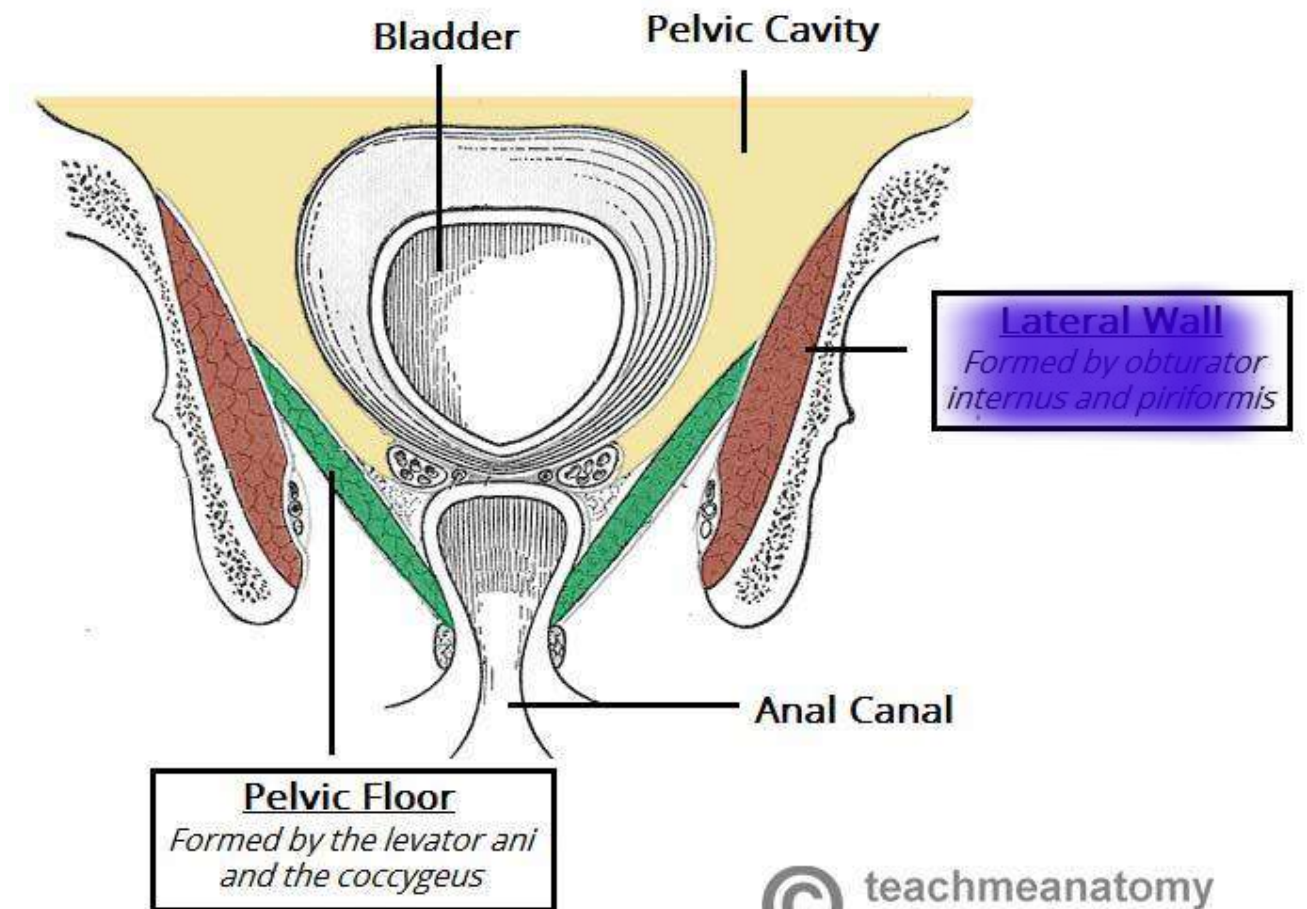
is extensive and is formed by the sacrum and coccyx and by the piriformis muscles and their covering of parietal pelvic fascia

تعلق 14
sacrum



Lateral Pelvic Wall

- is formed by :
 - part of hip bone below the pelvic inlet
 - ① - obturator membrane
 - ③ - sacrotuberous ligament
 - ④ - sacrospinous ligament
 - ② - the obturator internus muscle and its covering fascia.

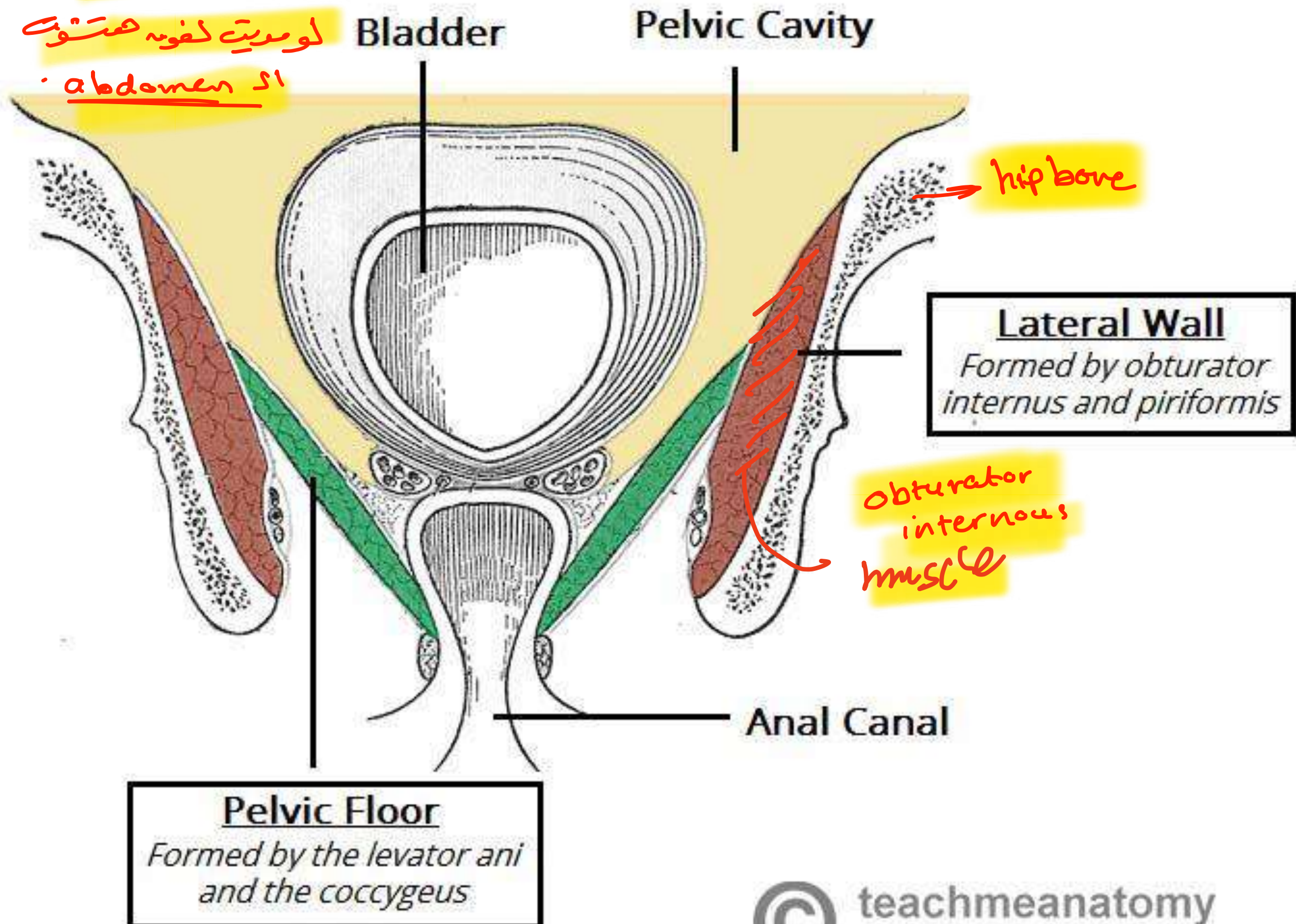


Lateral Pelvic Wall

له مقطع Coronal

لومديت لفوه هستوت

abdomen



teachmeanatomy

The #1 Applied Human Anatomy Site on the Web

uterus ← حديد حولي على منطقة
 vagina . bladder → intestine small large
 abdominal cavity ← في فوهة

Inferior Pelvic Wall (Pelvic Floor)

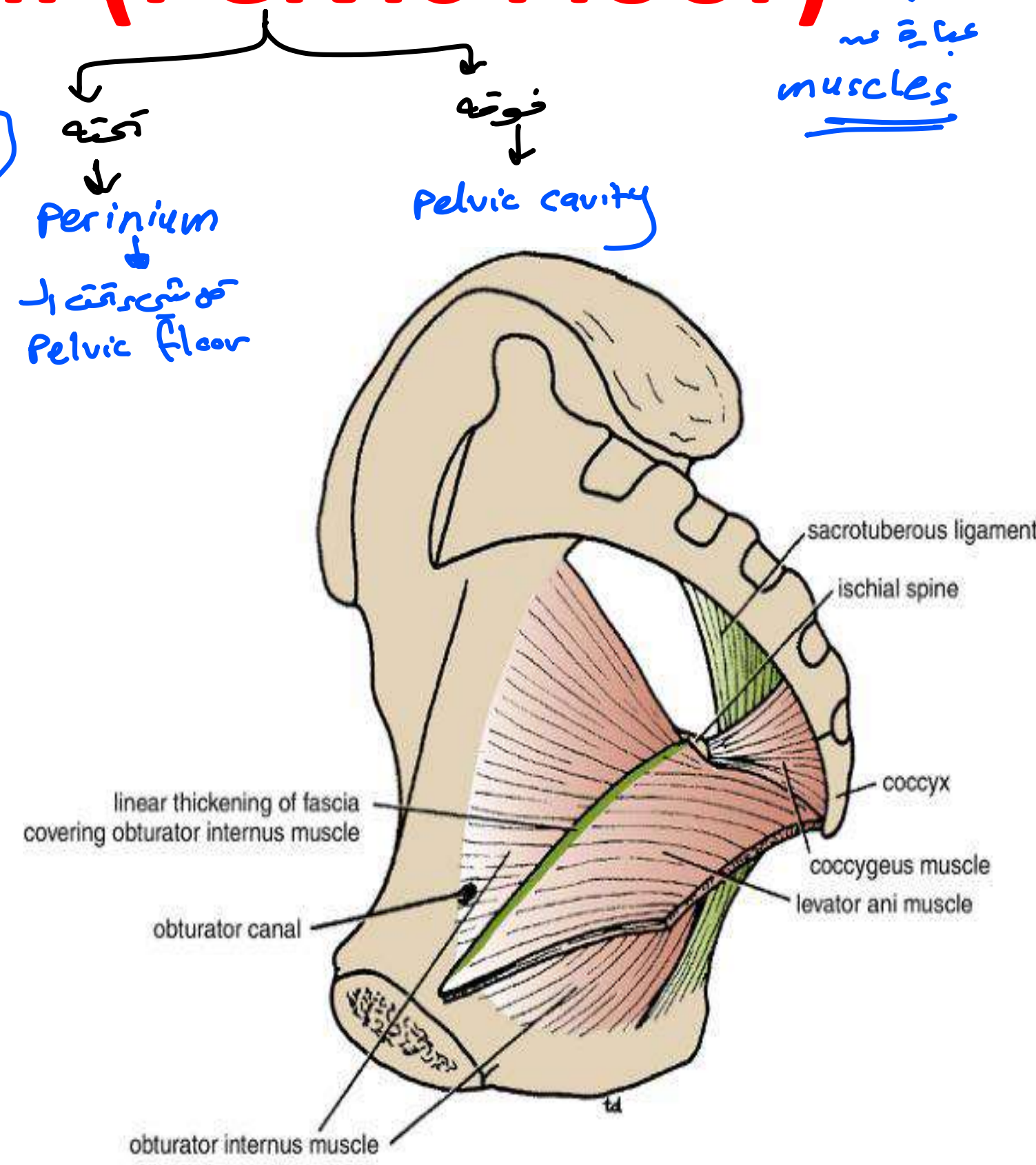
لـ لومته خفة حاي منطقة؟
 organs prolapse

pelvic cavity
 لأعضاء التي داخلها

عبارة عن
 muscles

- It supports the **pelvic viscera**
- It is formed by the **pelvic diaphragm**.
- The pelvic floor stretches across the pelvis and divides it into:

- The **main pelvic cavity** above, which contains the **pelvic viscera**.
- The **perineum** below.



Inferior Pelvic Wall (Pelvic Floor)

Pelvic Diaphragm

- It is formed by the important

بترفع كل
شيء في ال
pelvic
viscera

①

levator ani

له هاي ليفية
بترفع كل
شيء في ال
pelvic
viscera

②

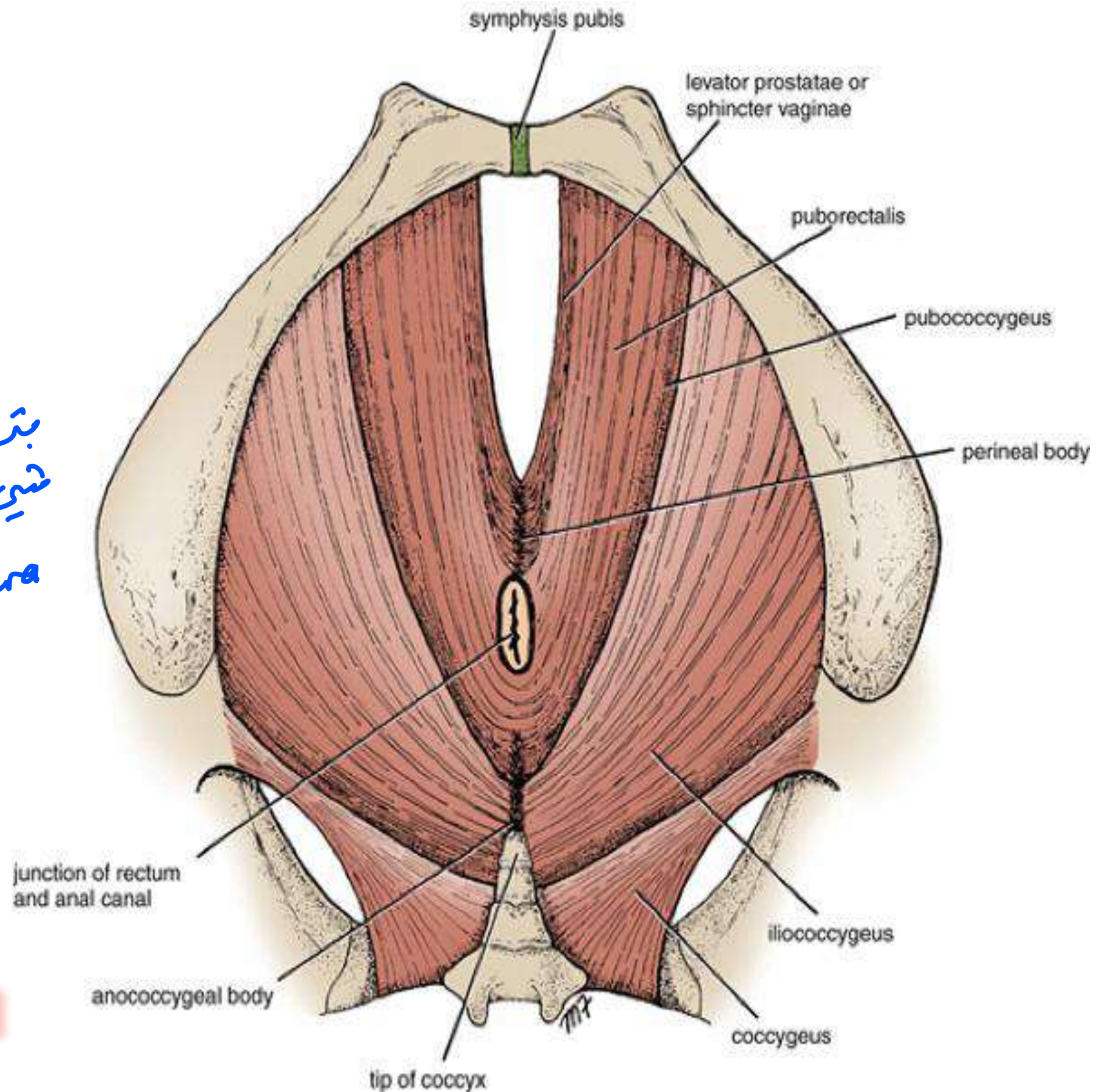
muscles and the

prolapse

لل
التي
فوقه

small coccygeus

muscles and their
covering fasciae.



Piriformis muscle

پير/ي
يعني بئر
نقطة لا يخالص

الخارجية
تفصلها

greater
gluteal
foramen

Inversion:?

greater
trochanter

femur

lesser
trochanter

لواء
Psoas
major
Iliacus

posterior

origin:
lateral
border
of the
sacrum

lesser

Ilium

Sacrum

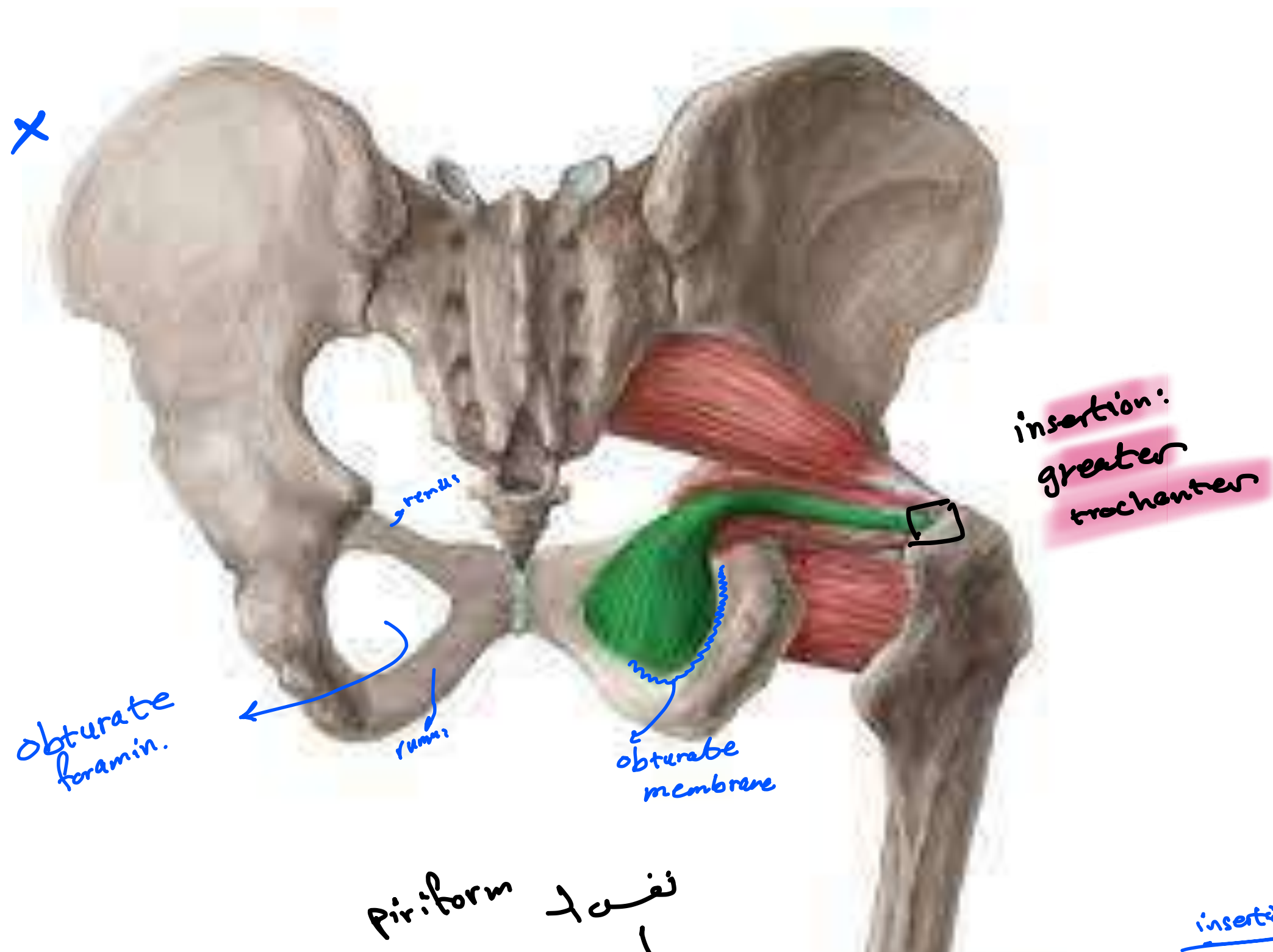
Piriformis
muscle

Greater
trochanter

lateral rotation of
the femur at the
hip joint.

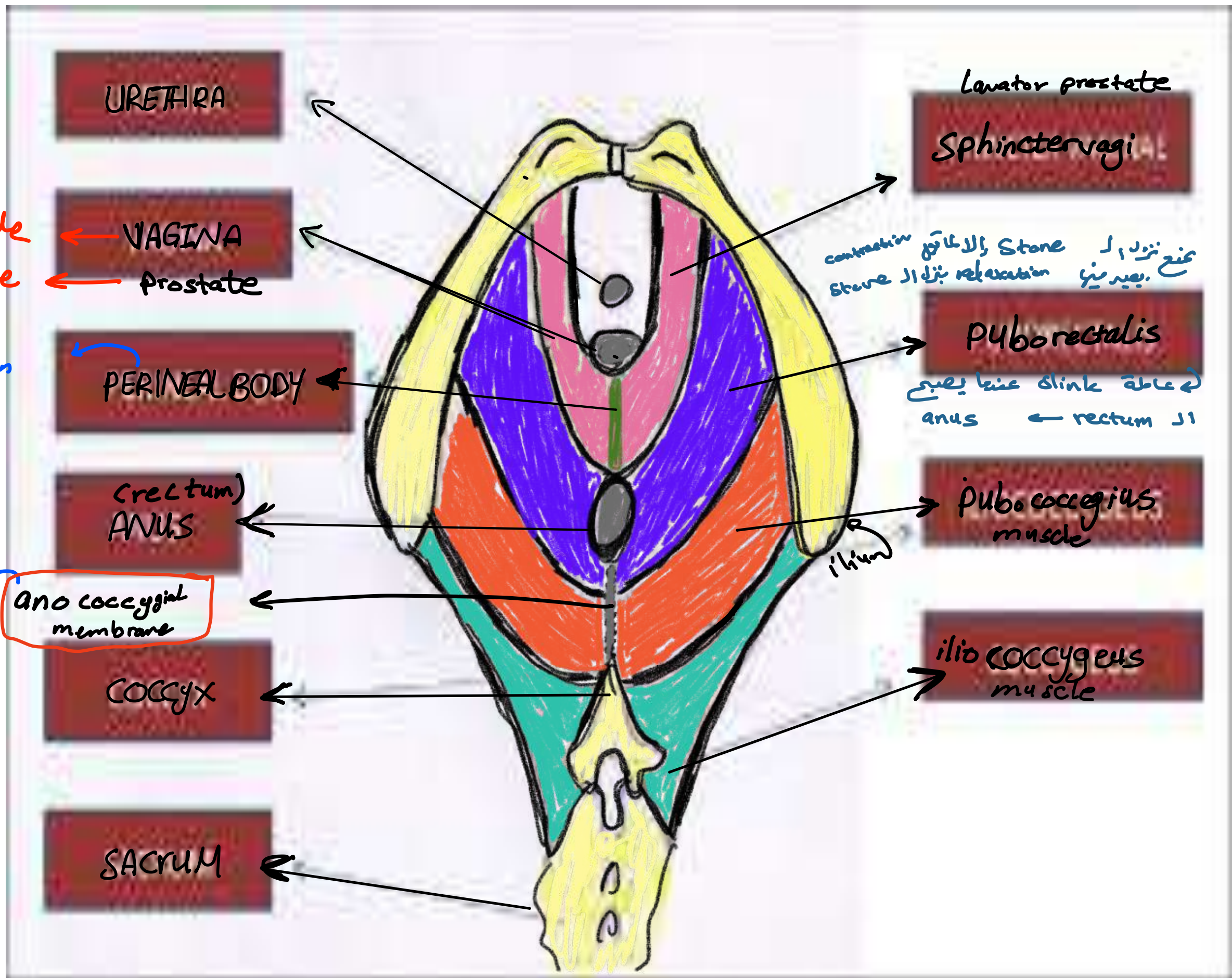
NAME OF THE MUSCLE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
Piriformis	Front of lateral mass of the sacrum	Greater trochanter of the femur	S1-S2 is	Lateral rotator of the femur at the hip

obturator internus muscle



نقطه پیوسته : insertion

NAME OF THE MUSCLE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
Obturator internus	Obturator membrane and adjoining part of the hip bone	Greater trochanter of the femur	Nerve to obturator internus from sacral plexus	Lateral rotator of the femur at the hip joint



Levator Ani Muscle

- **Origin:**

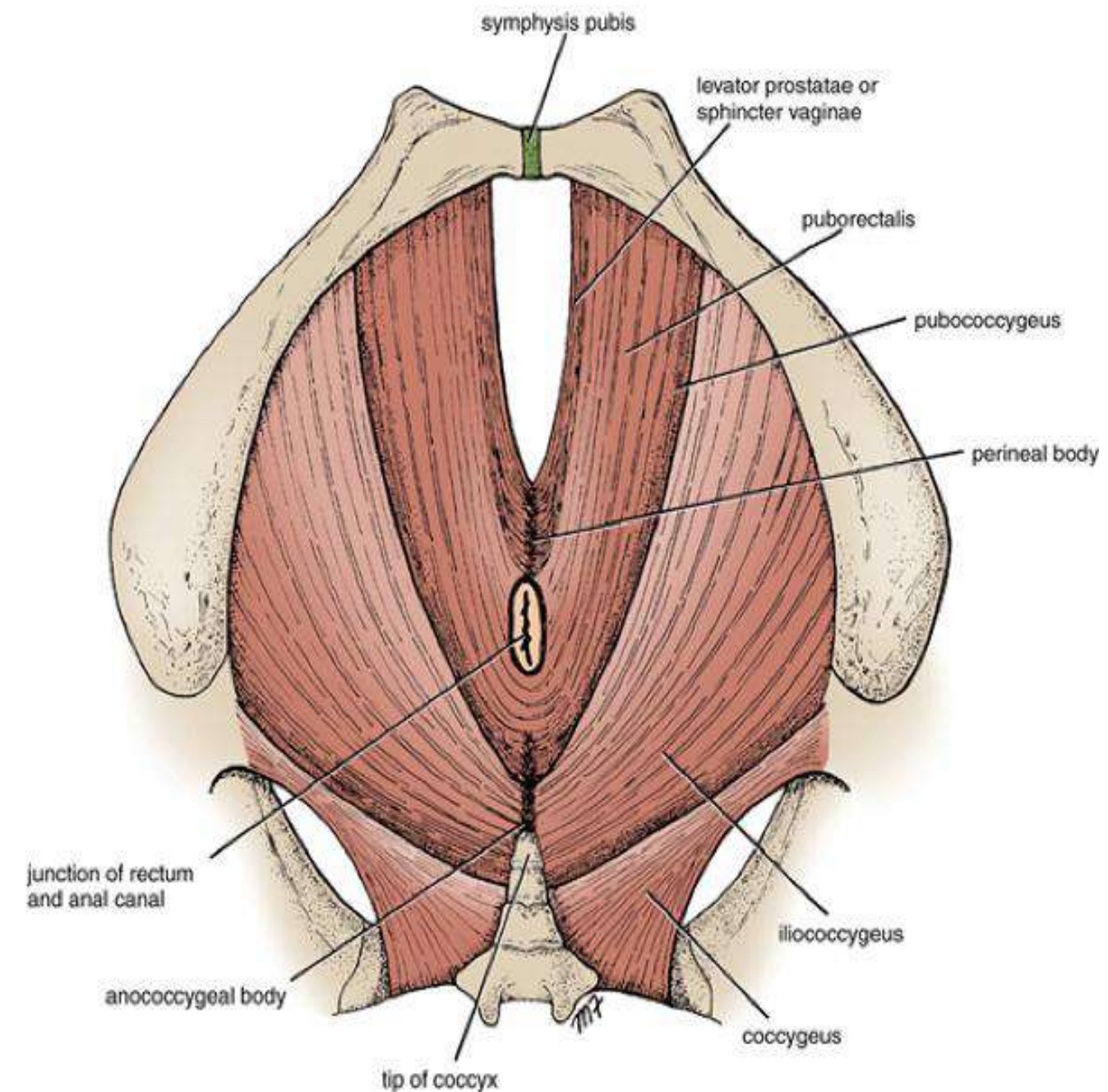
1. **Anterior fibers:** inner surface of body of pubis. (crest - tubercle)

2. **Middle fibers:** white line of thickened obturator fascia.

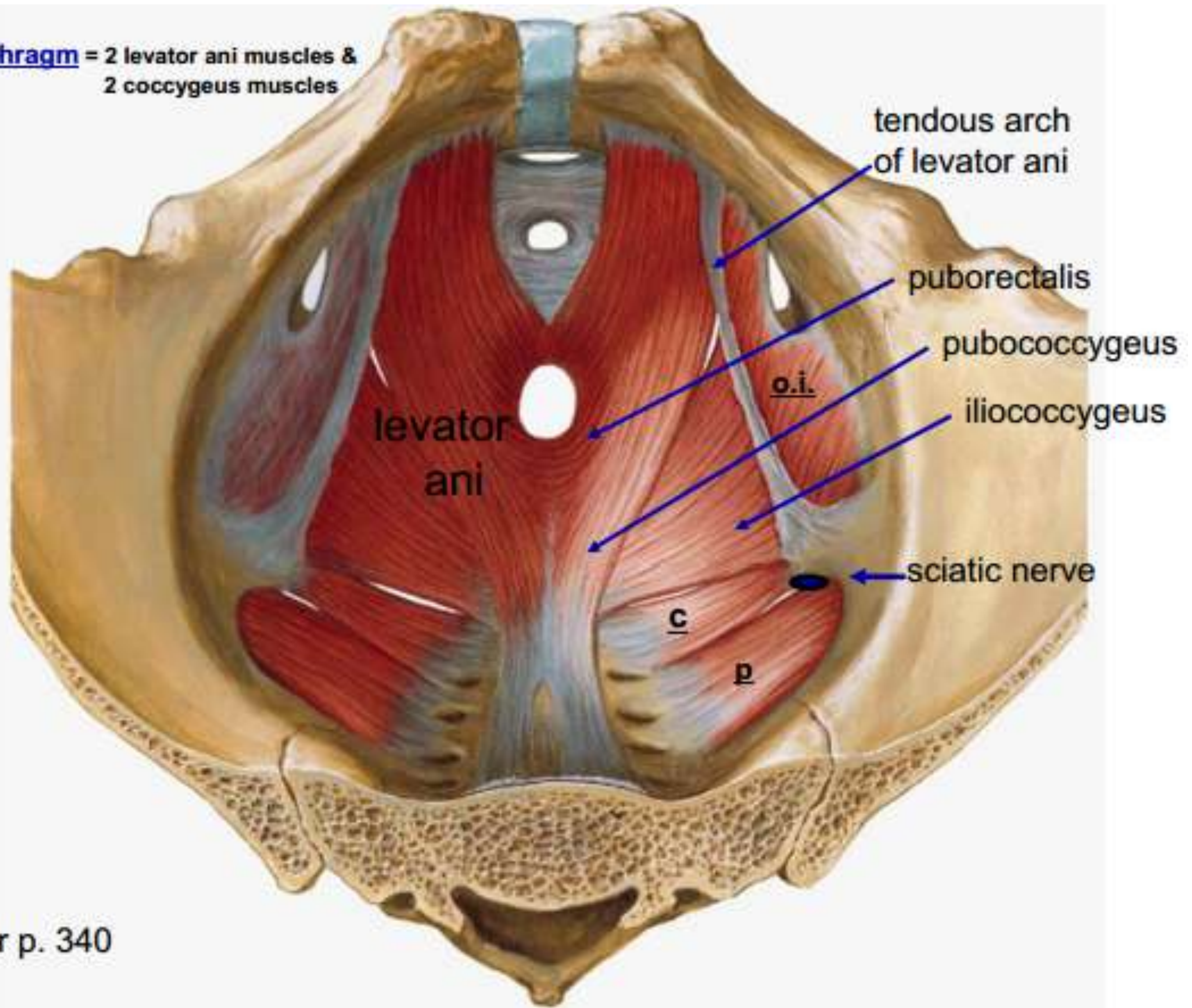
3. **Posterior fibers:** inner surface of the ischial spine.

- **Course of fibers:**

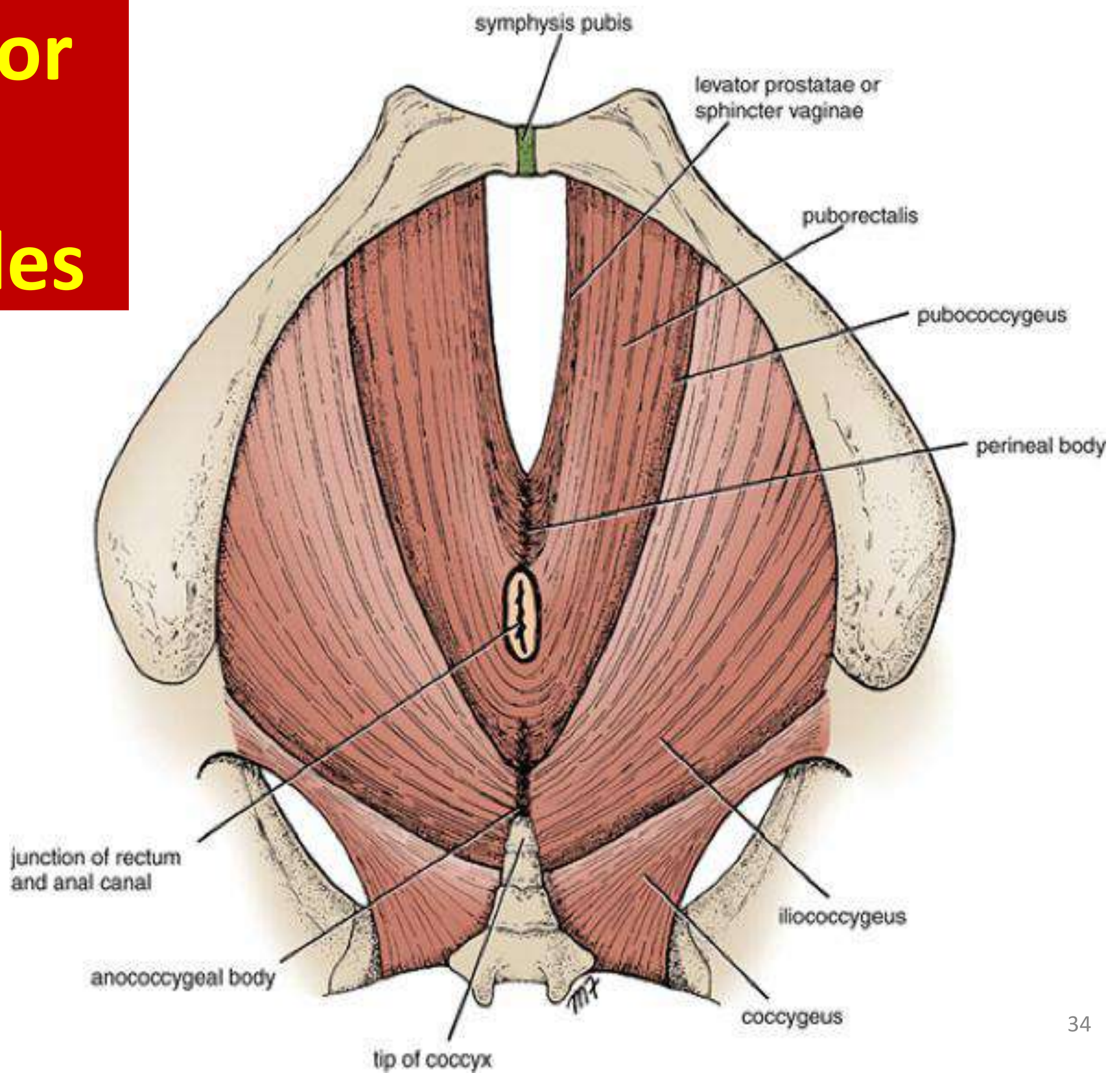
Downwards, backwards and medially.



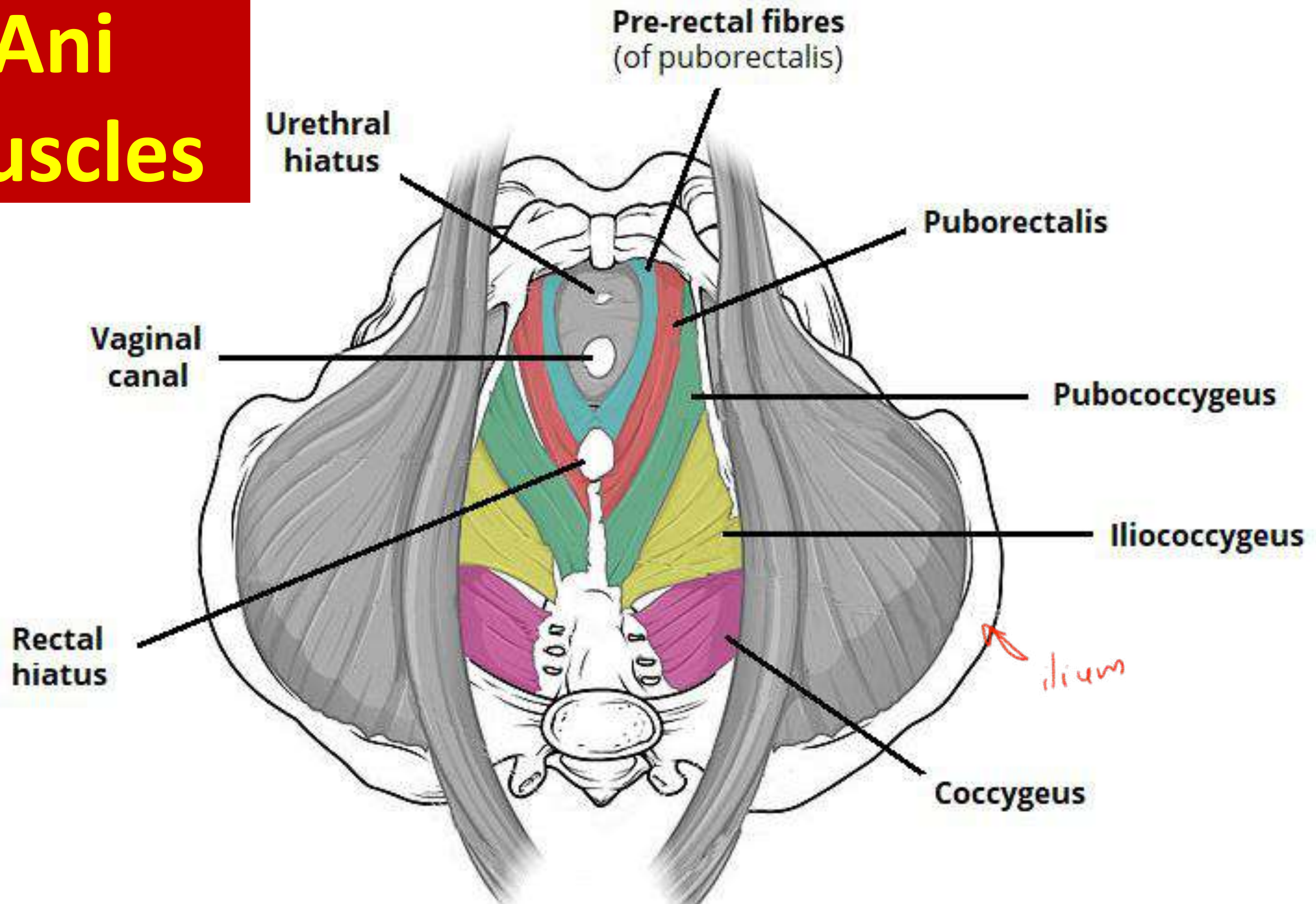
pelvic diaphragm = 2 levator ani muscles &
2 coccygeus muscles



Levator Ani Muscles



Levator Ani Muscles



Levator Ani Muscle

- **Insertion:** The muscle consists of three parts:

1. Anterior fibers

the levator prostatae or sphincter vaginae form a sling around the prostate gland or vagina and insert into a mass of fibrous tissue, called the perineal body, in front of anal canal.
يعني شكل (عقارعة)
thick fibrous tissue

2. Intermediate fibers:

the puborectalis forms a sling around the junction of the rectum and anal canal. The pubococcygeus passes posteriorly to insert into a small fibrous mass, called the anococcygeal body, between the tip of the coccyx and the anal canal.
① rectum - Anus } ~.
②

3. Posterior fibers:

iliococcygeus inserts into the anococcygeal body and coccyx.

Pelvis
 caelvic surface
 perineal
 surface

Levator Ani Muscle

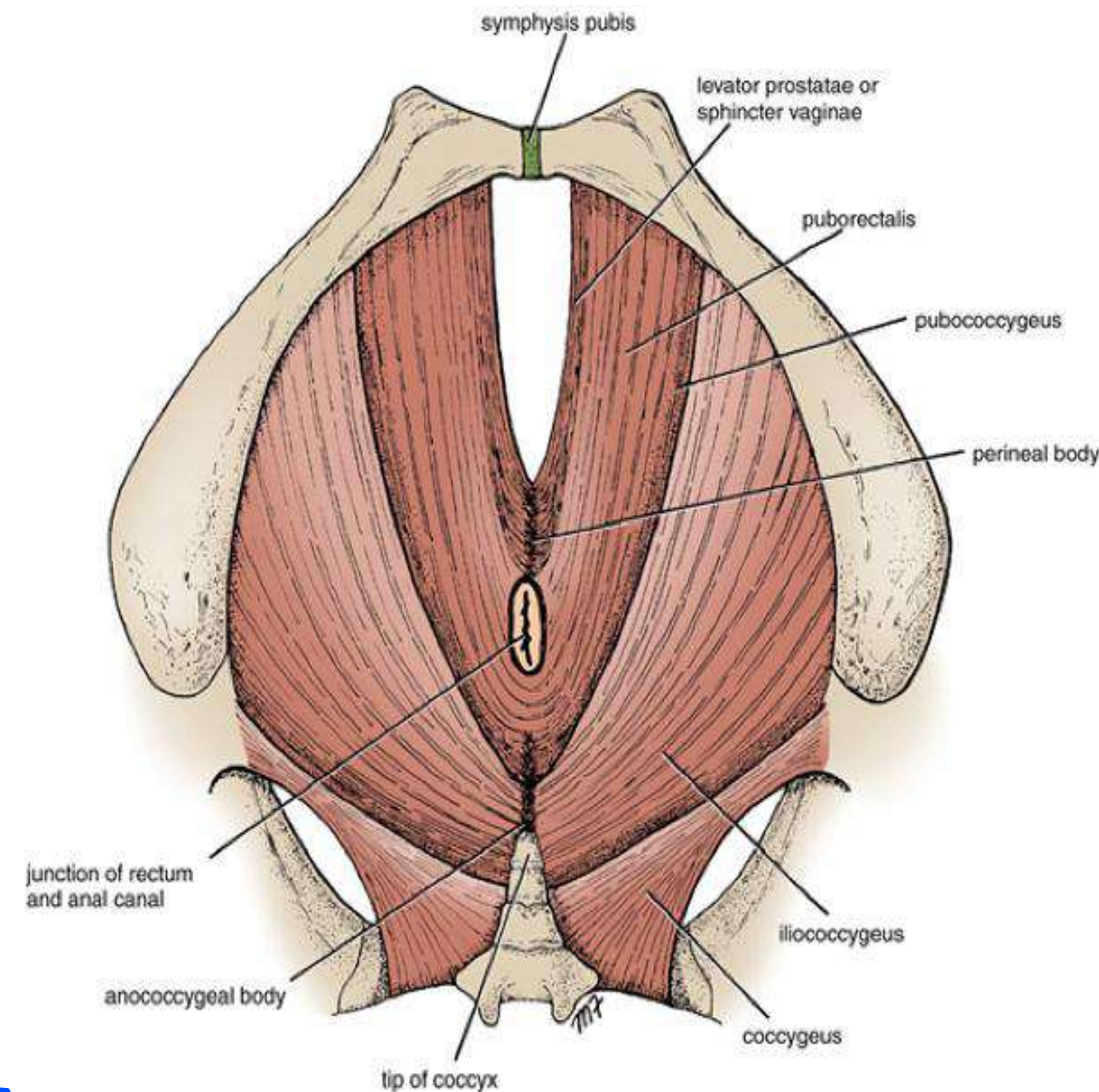
• Nerve supply:

1. Upper (pelvic) surface: S4 nerve.
2. Lower (perineal) surface: Inferior rectal N.

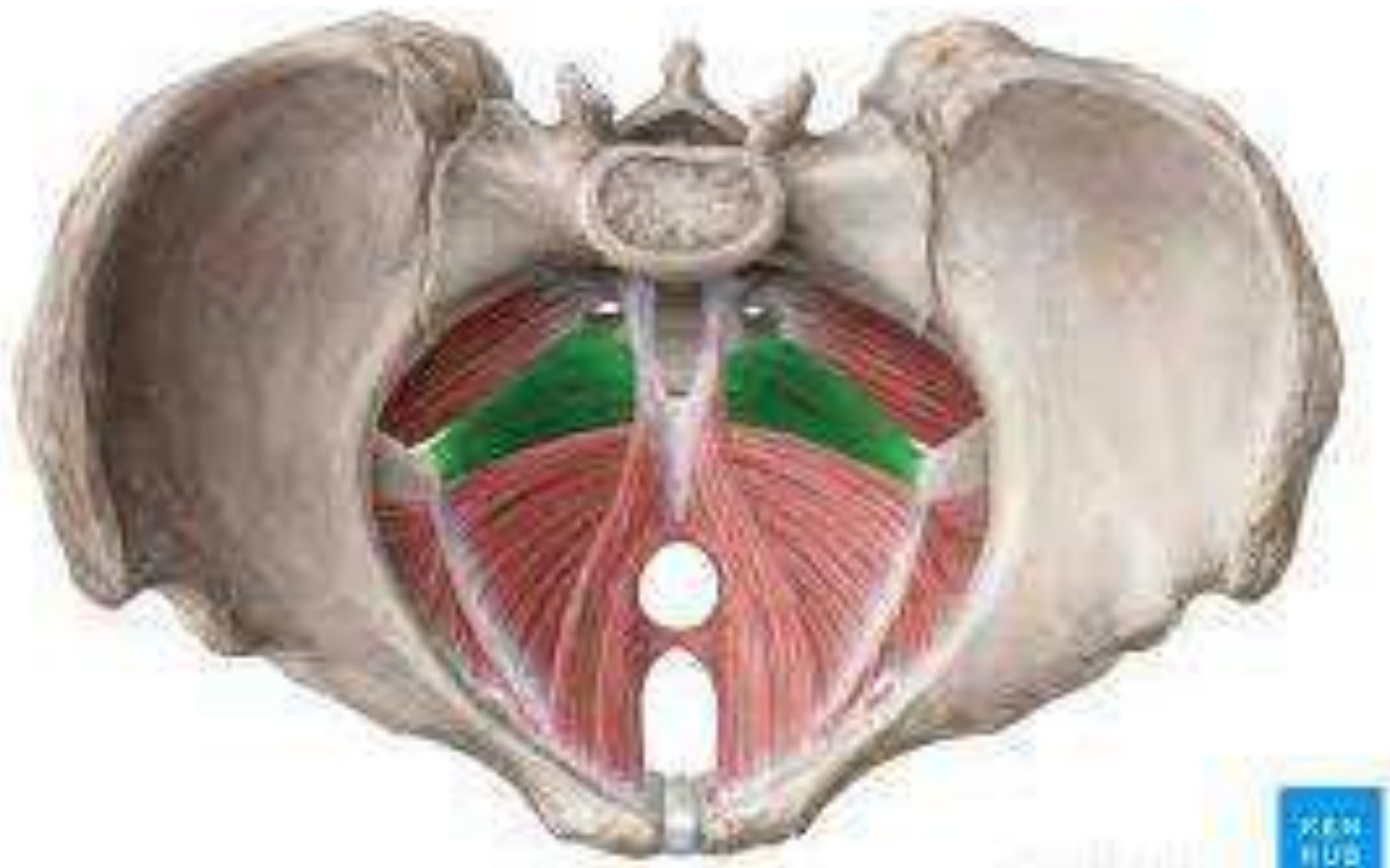
Sacrum
 branch
 pudendal nerve ~

• Actions:

1. It supports the pelvic viscera.
2. It increases the intra-abdominal pressure, so it's used in defecation, micturition & labour.
3. The puborectalis is an additional anal sphincter.
4. It is a sphincter for the vagina.



Coccygeus muscle



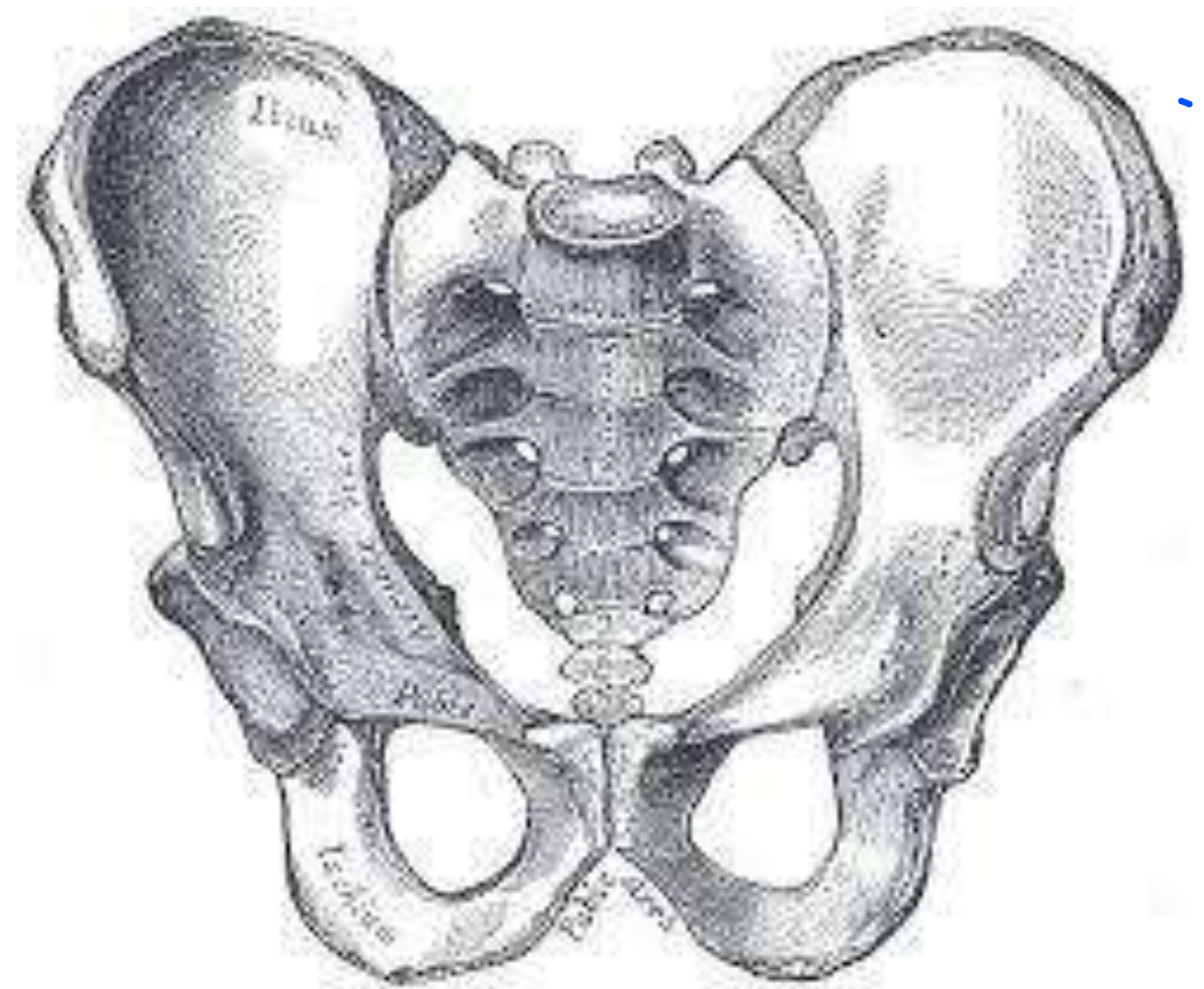
NAME OF THE MUSCLE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
Coccygeus	Spine of the ischium origin posterior border of levator Ani	Lower end of the sacrum coccyx	Fourth and fifth sacral nerve	Assists levator ani to support the pelvic viscera; flexes coccyx

Pelvic Walls and Floor Muscles

NAME OF THE MUSCLE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
Piriformis	Front of lateral mass of the sacrum	Greater trochanter of the femur	Sacral plexus	Lateral rotator of the femur at the hip joint
Obturator internus	Obturator membrane and adjoining part of the hip bone	Greater trochanter of the femur	Nerve to obturator internus from sacral plexus	Lateral rotator of the femur at the hip joint
Levator ani	Body of the pubis, fascia of obturator internus, and spine of ischium	Perineal body; anococcygeal body; walls of the prostate, vagina, rectum, and anal canal	Fourth sacral nerve, pudendal nerve	Supports pelvic viscera; sphincter to the anorectal junction and vagina
Coccygeus	Spine of the ischium	Lower end of the sacrum; coccyx	Fourth and fifth sacral nerve	Assists levator ani to support the pelvic viscera; flexes coccyx

Joints of the Pelvis

- Sacro-iliac joint
plane synovial
- Symphysis Pubis
secondary cartilaginous
- Sacro-coccygeal Joint
secondary cartilaginous



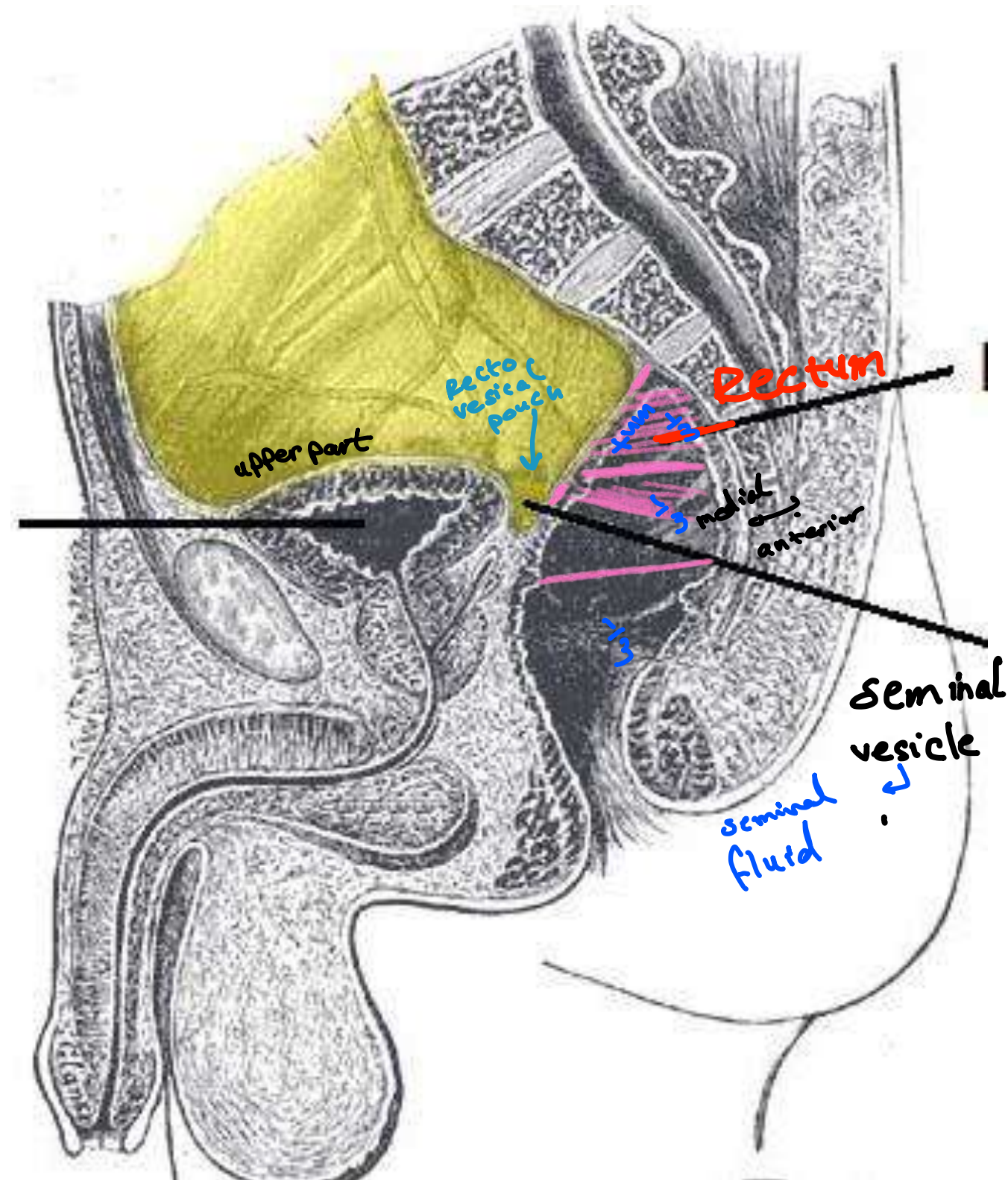
abdominal wall
pelvis
organs

abdominal wall
pelvis
organs

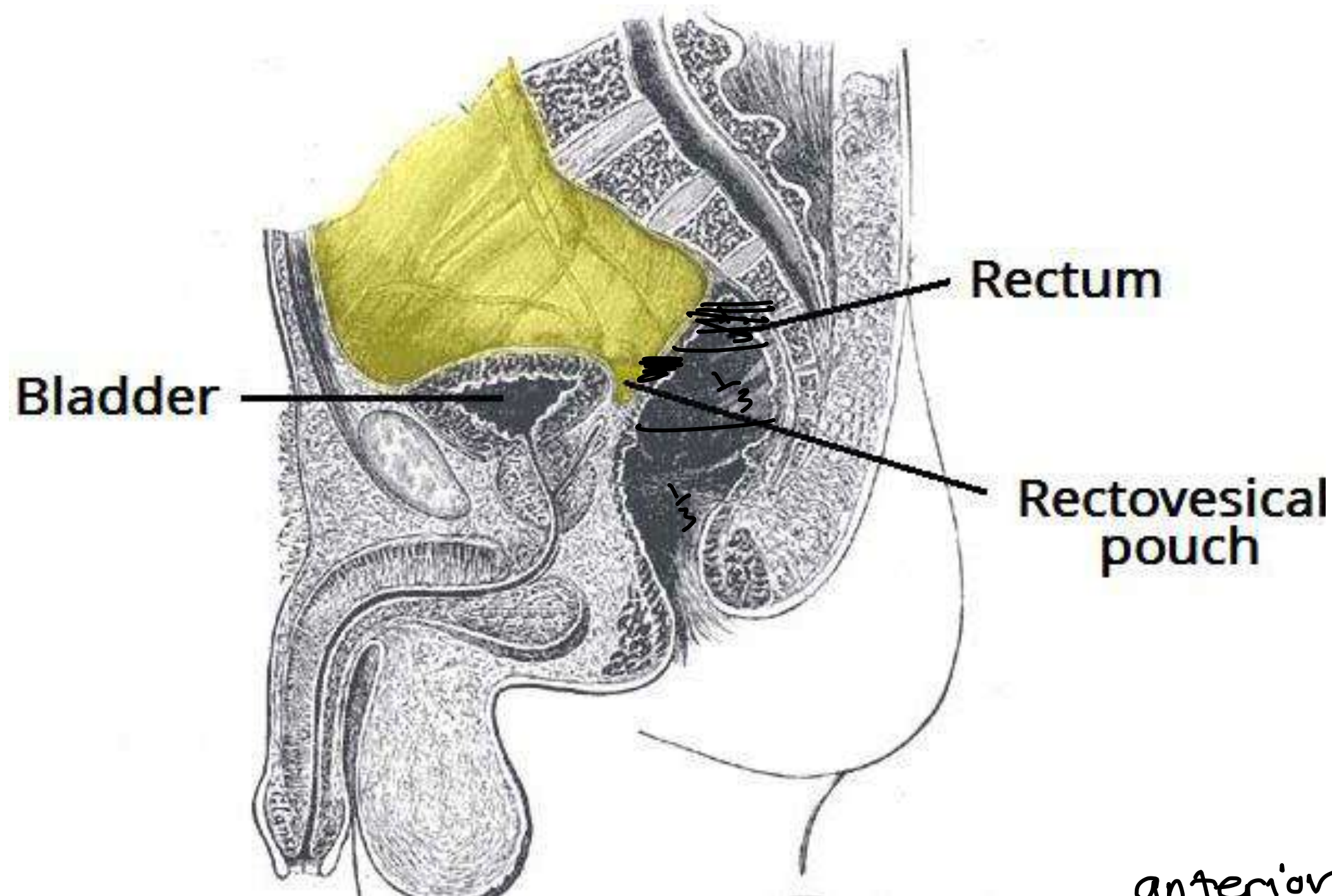
abdominal wall
pelvis
organs

Pelvic Peritoneum (male)

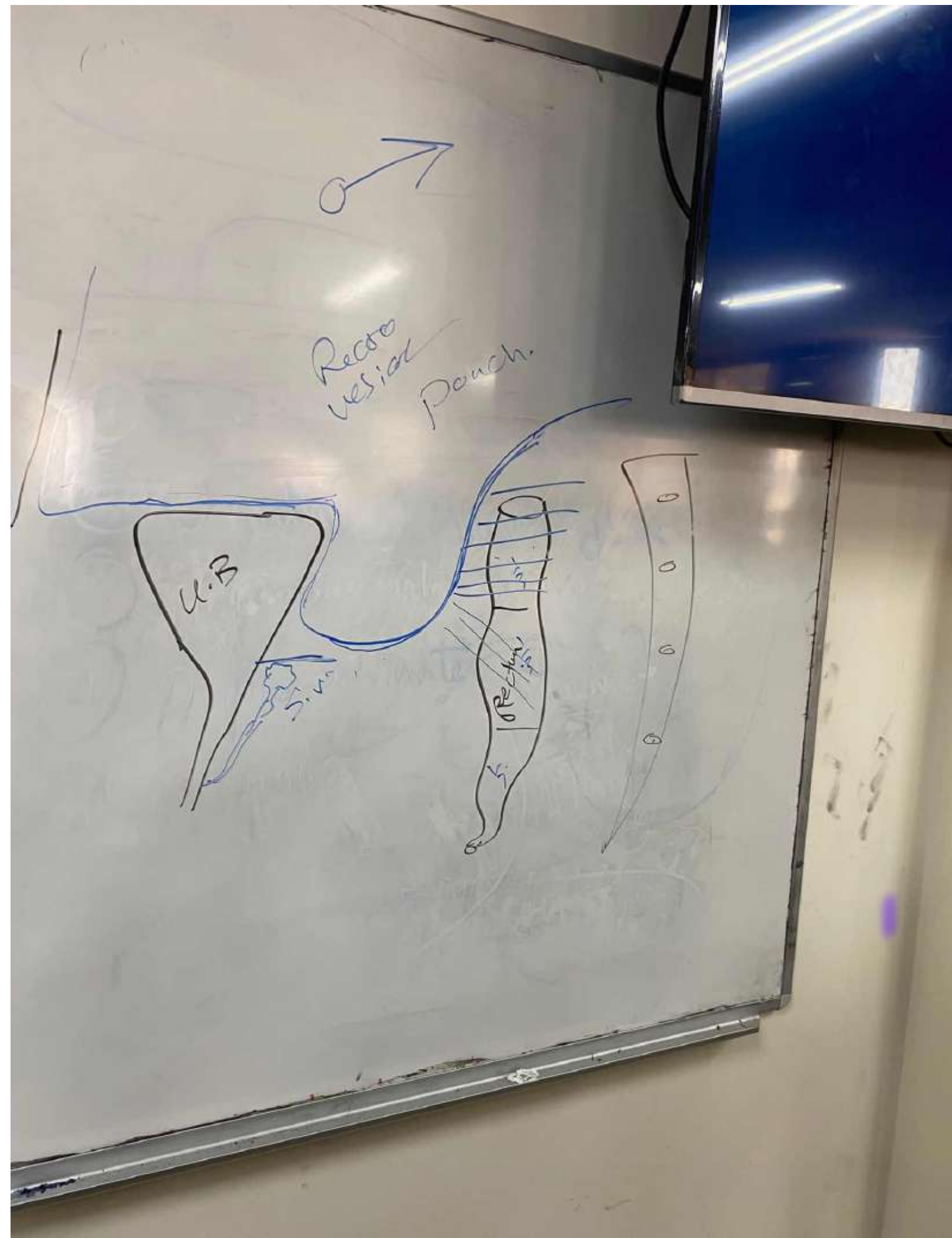
- The peritoneum lining the lower part of the anterior abdominal wall is reflected backwards to cover the **upper surface** of the **urinary bladder**
- The peritoneum is then reflected **backwards & downwards** **above** the **seminal vesicle** forming recess called **(Recto-vesical pouch)**



Pelvic Peritoneum (male)

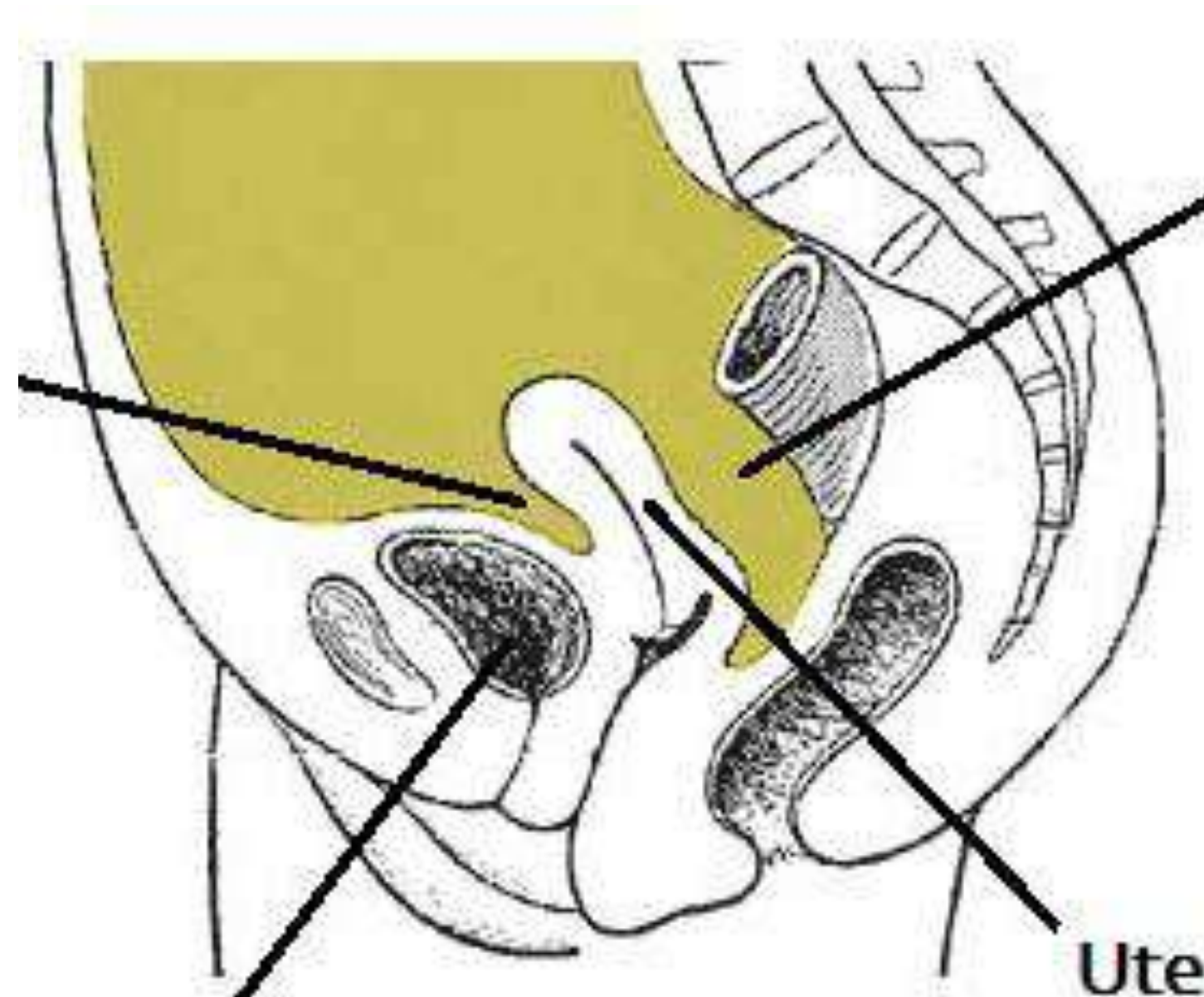


- Then it is reflected upwards to cover the front of the middle 1/3 of the rectum then covers the front & sides of the upper 1/3 of rectum.
- anterior
- lateral



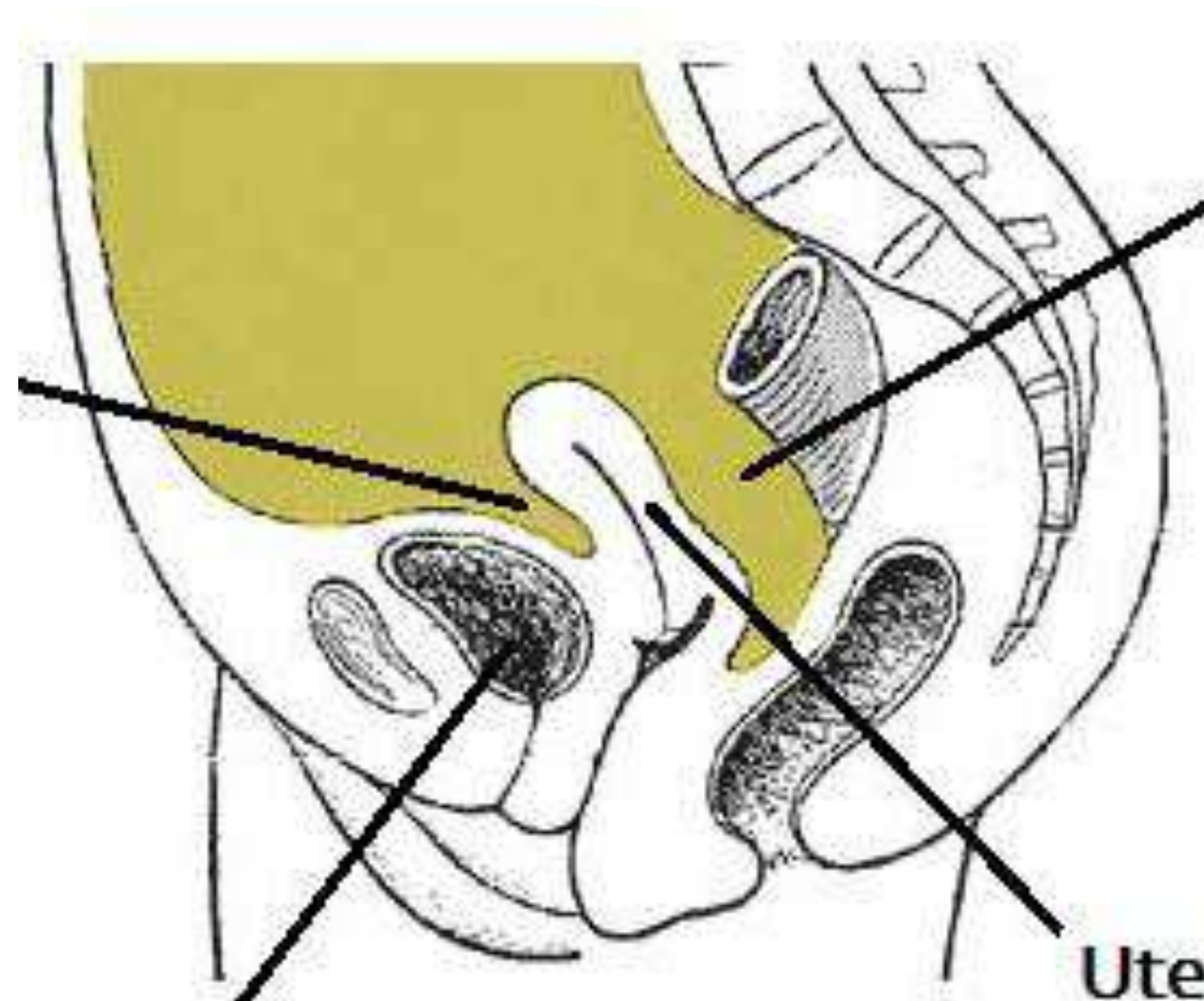
Pelvic Peritoneum (female)

- The peritoneum is reflected from the lower part of the anterior abdominal wall to cover the upper surface of urinary bladder (as in male).
- from the upper surface of urinary bladder the peritoneum passes backwards to the front of uterus at the junction of the body with the cervix of uterus.

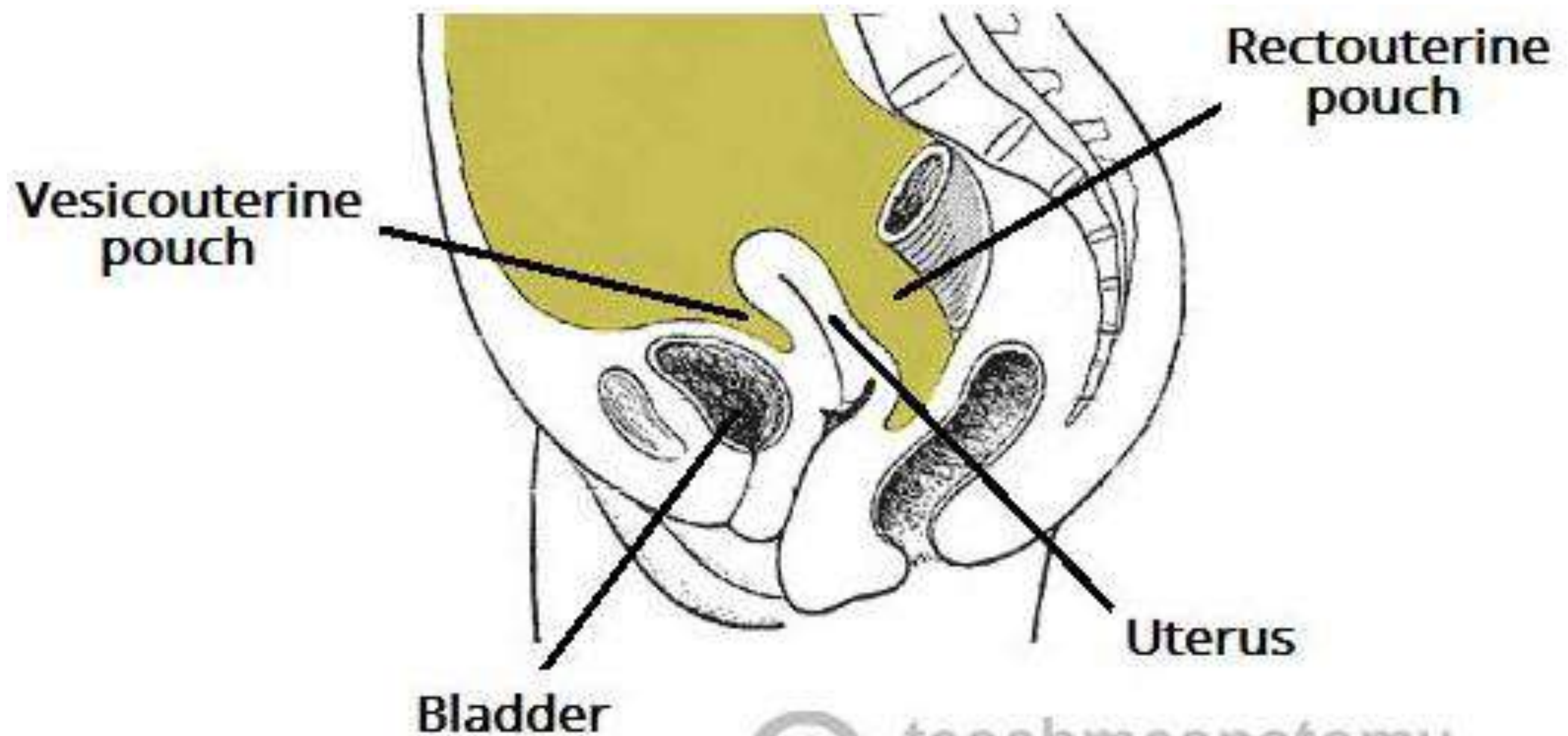


Pelvic Peritoneum (female)

- Then it is reflected forwards on the undersurface of uterus forming recess (**Utero-vesical pouch**).
- Then peritoneum covers the following surfaces :
 - Anterior surface of body uterus
 - Fundus of uterus
 - Posterior surface body and cervix of uterus
 - Upper $\frac{1}{4}$ the posterior surface of the vagina

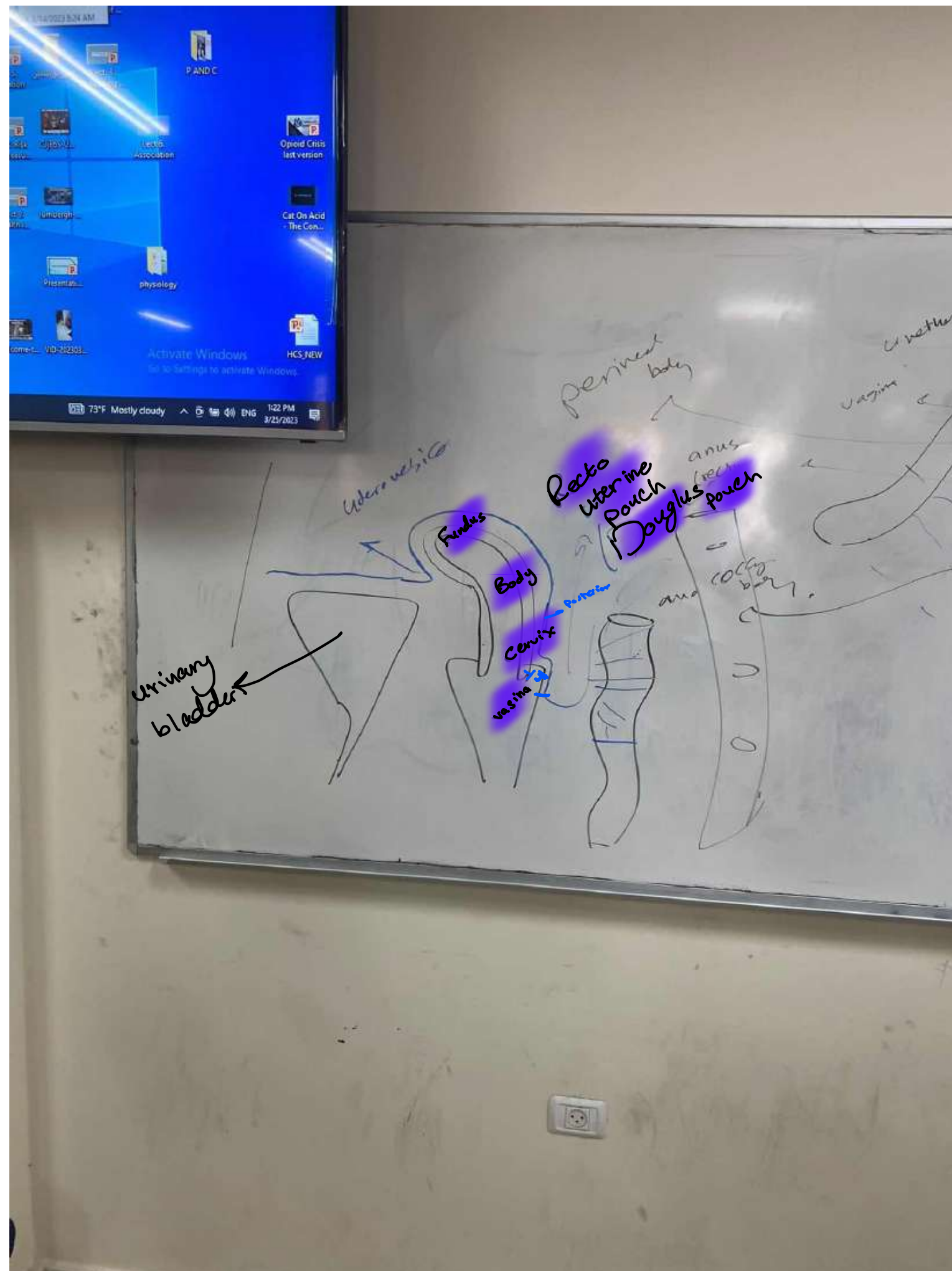


Pelvic Peritoneum (female)



- Then it is reflected on to the front of the middle 1/3 of rectum forming deep recess (**Recto-uterine pouch = Douglas pouch**)

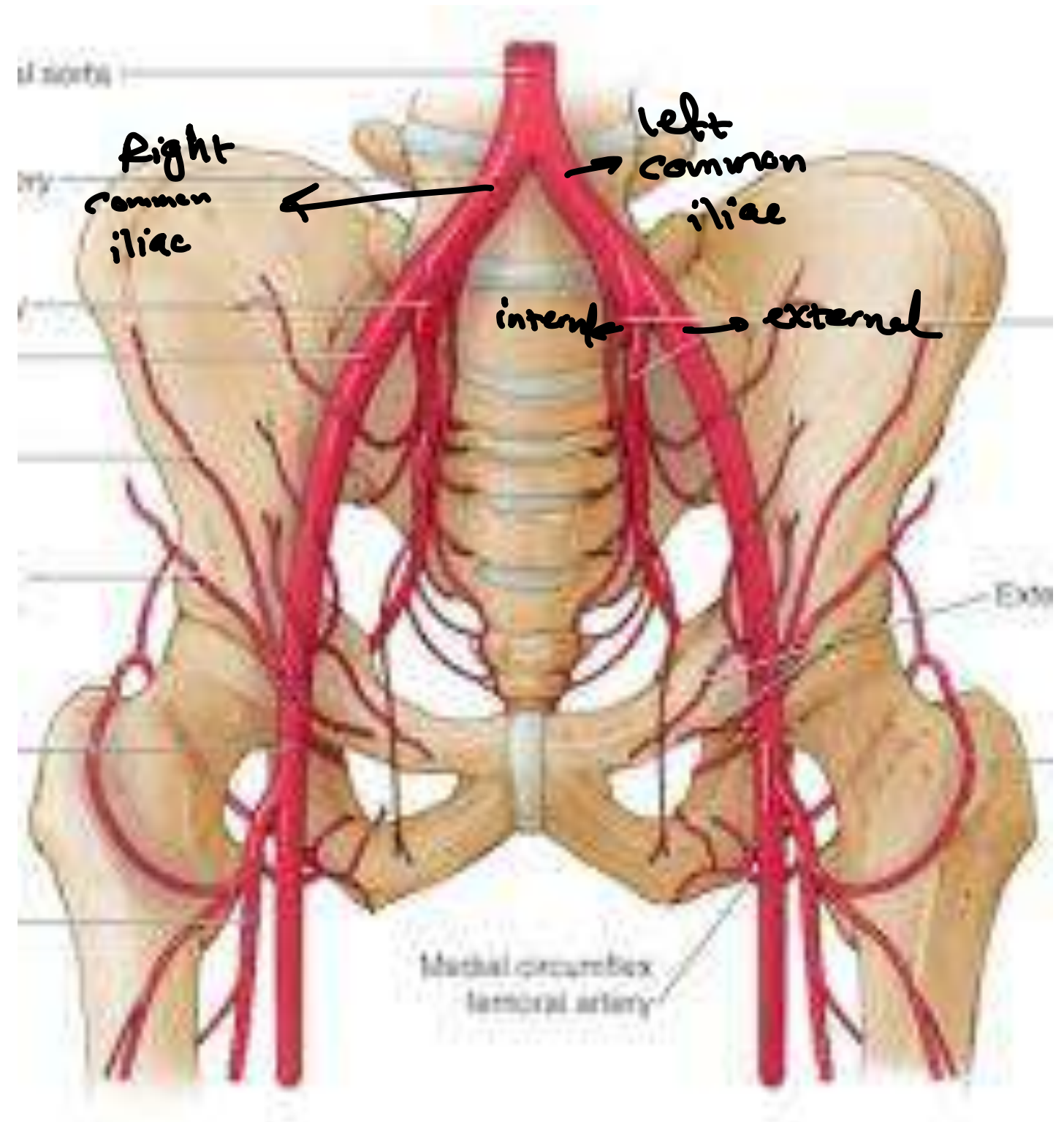




Arterial Supply of Pelvis

Internal iliac artery

- **ORIGIN** : At sacroiliac joint as the smaller of the 2 terminal branch of common iliac artery
- It divides into anterior & posterior divisions which gives the terminal branches



Umbilical

Note
هذا الذي يكونه طالع سه الجبل لسري
وبعد الولادة يصير الـ
oblitration وانه بطل يفرج الجنين

umbilical
Artery

external iliac

internal
iliac

Posterior
division

Anterior
division

R. common iliac

L. common iliac

iliolumbar
Artery

بغذي نقطة
الـ
Psoas
major
والـ
iliacus muscle

Lateral
sacral
artery

Sacrum

superior
gluteal
Artery

inferior
gluteal
Artery

gluteal
muscle

Rectum

middle
rectal
artery

uterine
artery

inferior
vesical
Artery

Superior
vesical
Artery

urinary
Bladder

obturator
Artery

obturator
muscle

Symphysis
Pupis

obturator
foramen

uterus

vagina

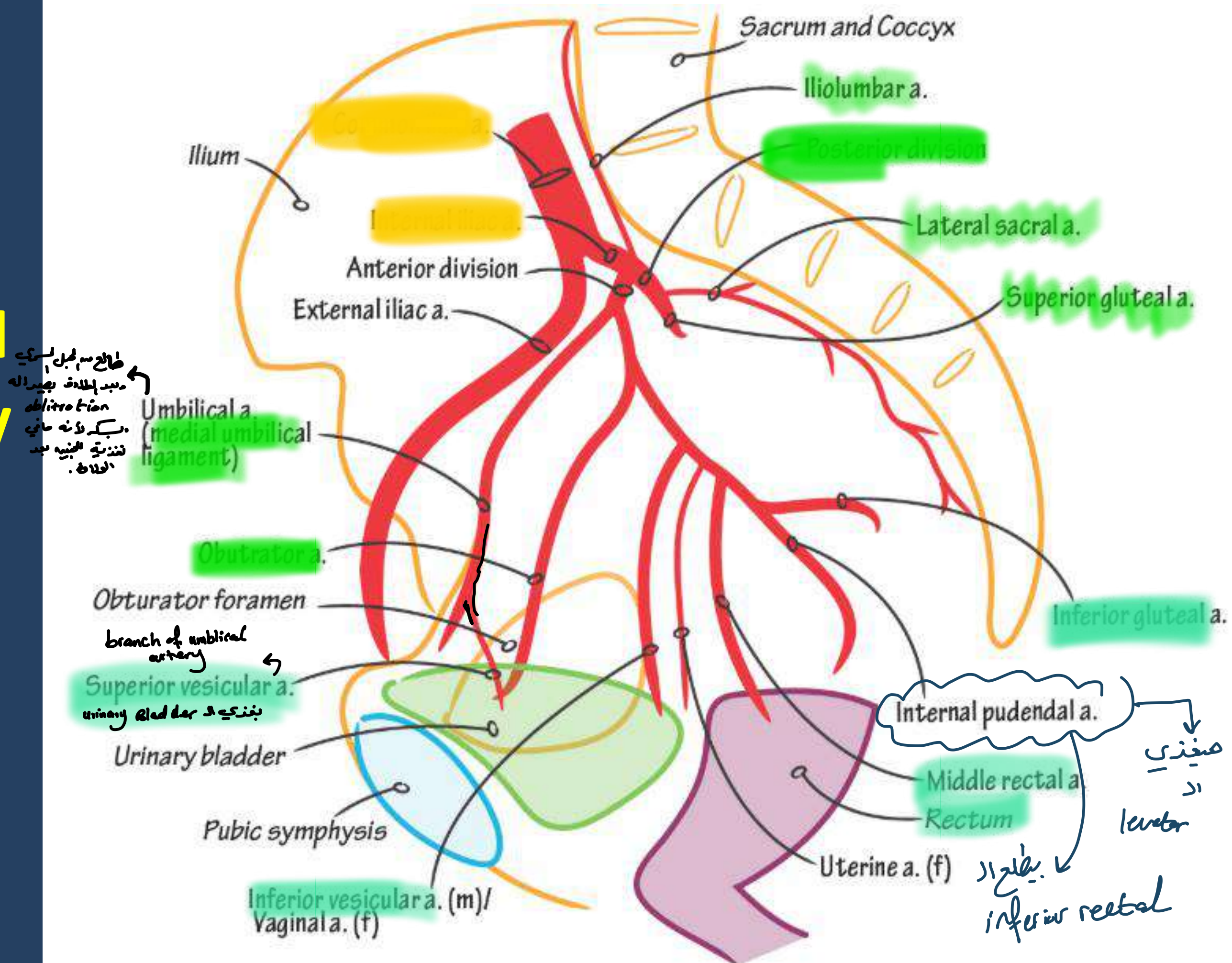
Vaginal
Artery

لنفسه يوصل
الـ middle
لانه الـ superior
بغذي الـ
Inferomesenteric artery

artery
of
vas deferens
عند الـ male.

Arterial Supply of Pelvis

Branches of Internal iliac artery



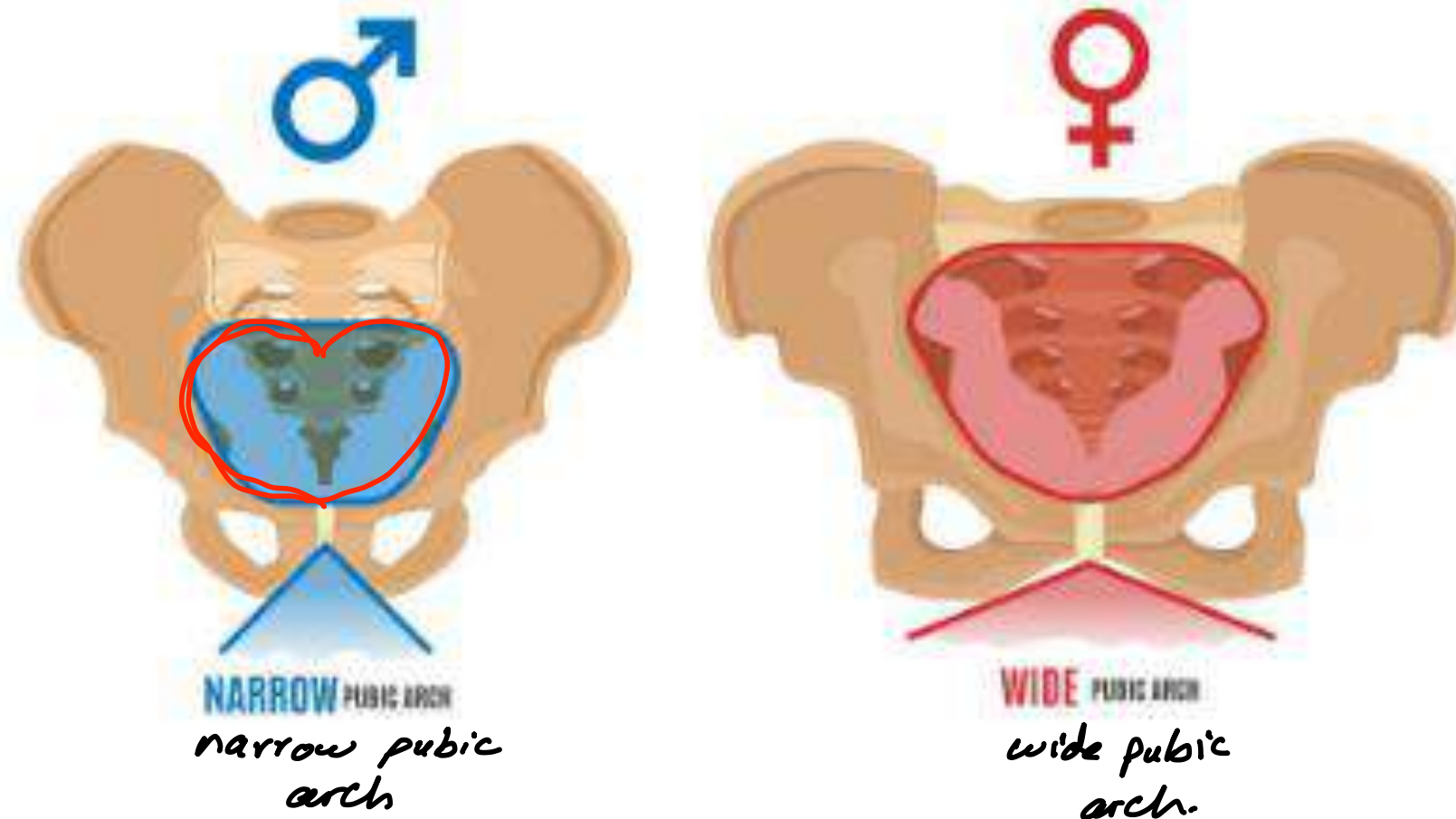
Biologic Sex Differences

- The more obvious differences result from the adaptation of the **female pelvis for childbearing.**

الإنجاب

- The **stronger muscles** in the **male** are responsible for the **thicker bones** and **more prominent bony markings**

Male Vs Female Pelvis



Biologic Sex Differences

	Male pelvis	Female pelvis
General	Heavier & stronger	Lighter & thinner
False pelvis	deep	shallow
Pelvic inlet	♥ heart shaped	transversely oval
Pelvic cavity	Deep and funnel-shaped	Shallow & tubular
Pelvic outlet	Smaller (narrower)	Larger (wider)
Ischial spine	More inverted	Less inverted
Sacrum	Wide , short , flat	Narrow , long , curved
Pubic arch	Narrow	Rounded & wide

أخف
بعض
بعض

خفيفة

أما شكله عظمي ال
ilac خاتمة (سطوة)
شدة ضامة بعضه

بعضها ع

لستين؟

anterior posterior diameter

عنا، الجنبين

عنا ما يعطيه الجيب

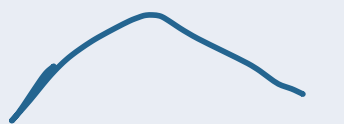
Promenat

عنا ما تات قد كل منطقة

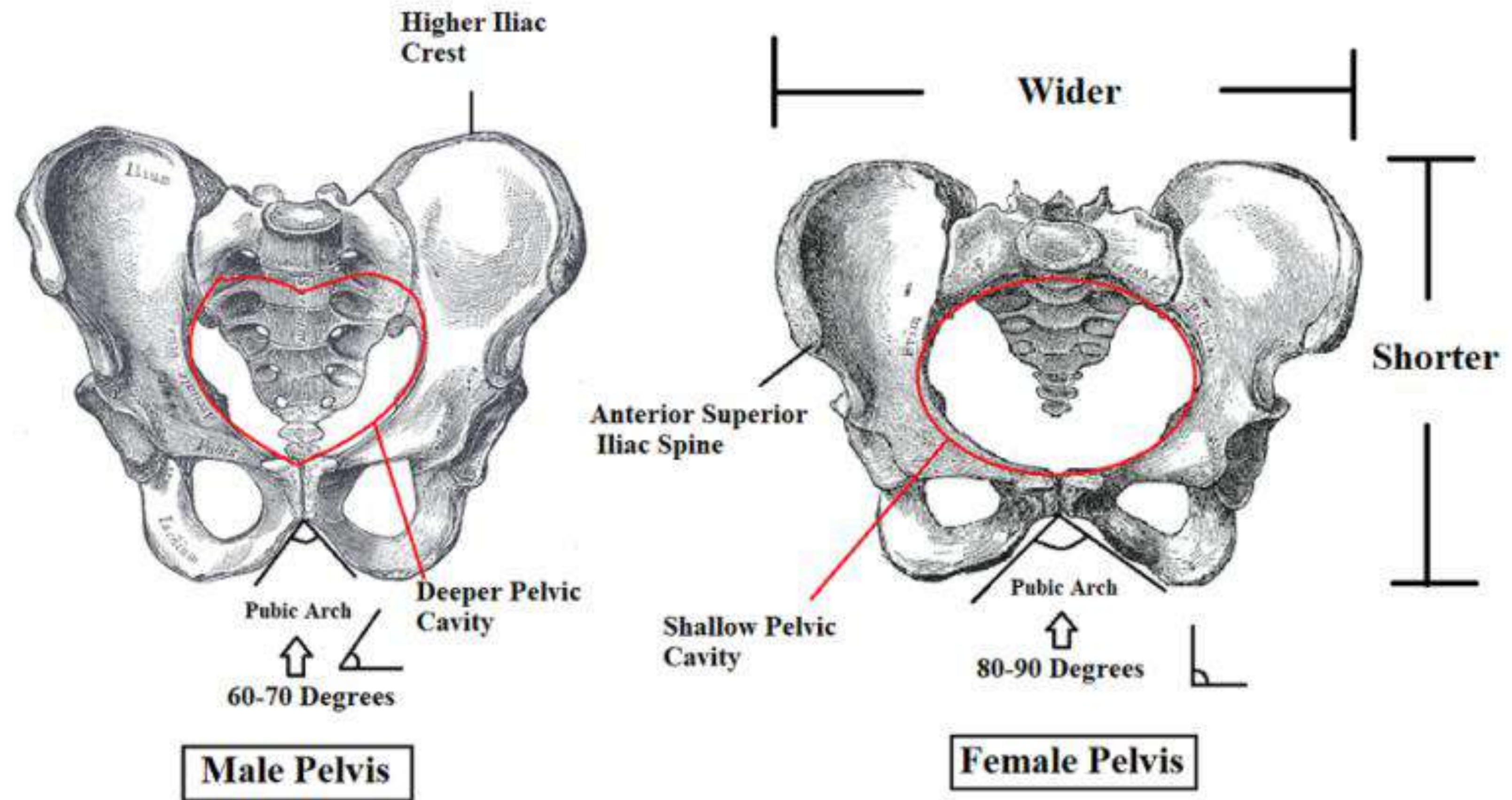
عنا ما يعطيه الجيب

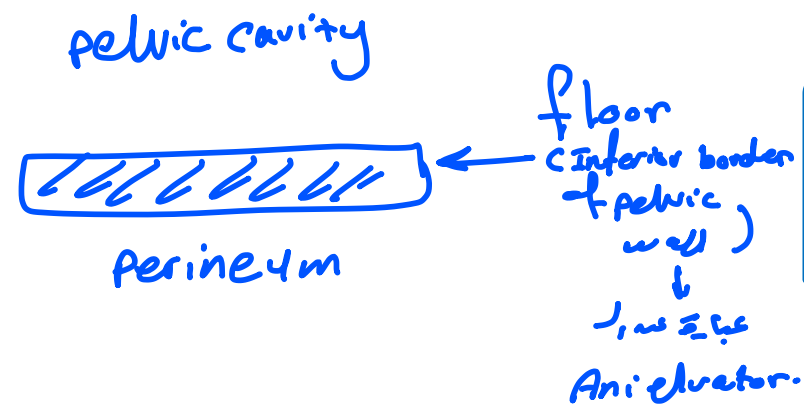
لعمري تيرطو على الجيب

بزاوية 90



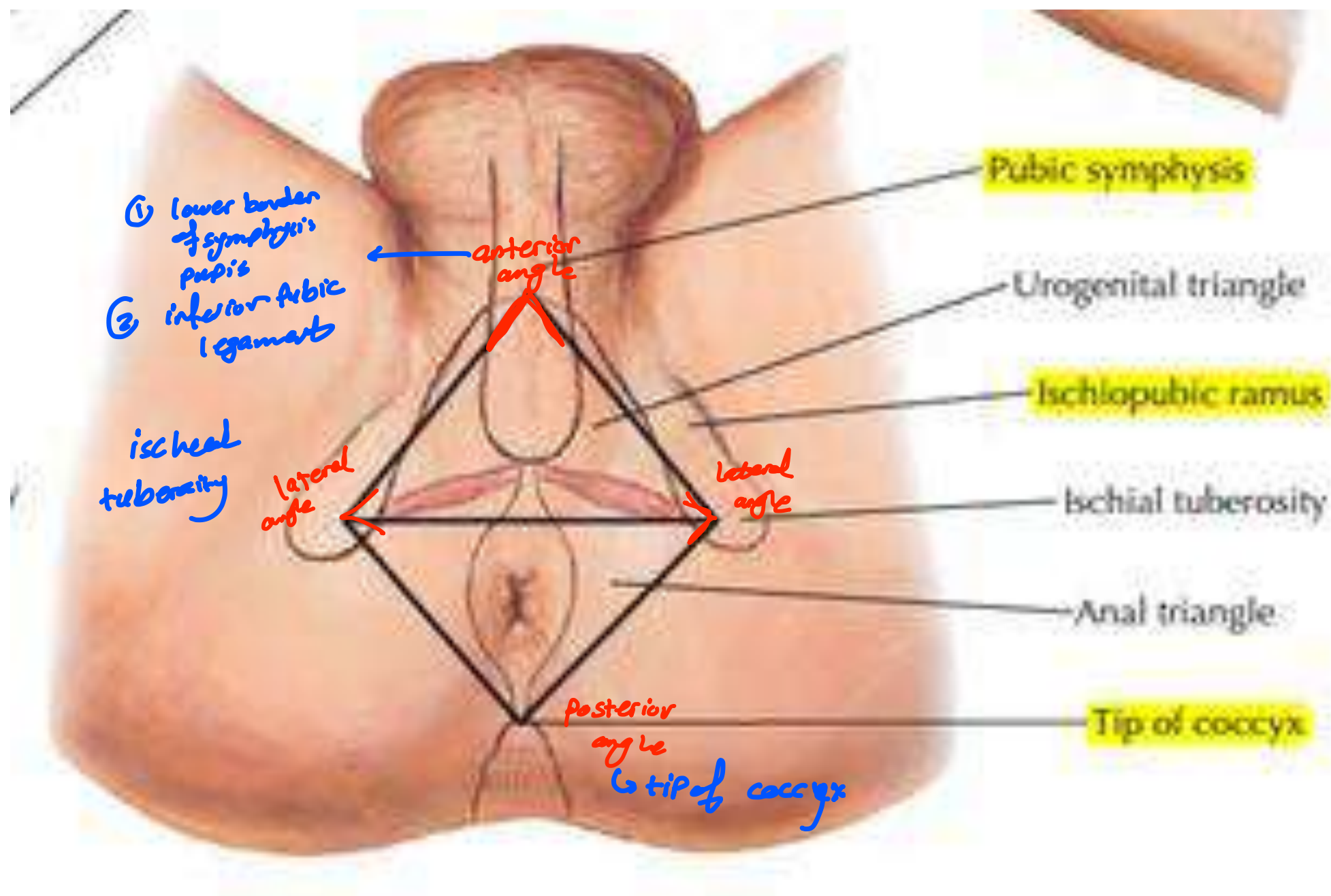
Biologic Sex Differences





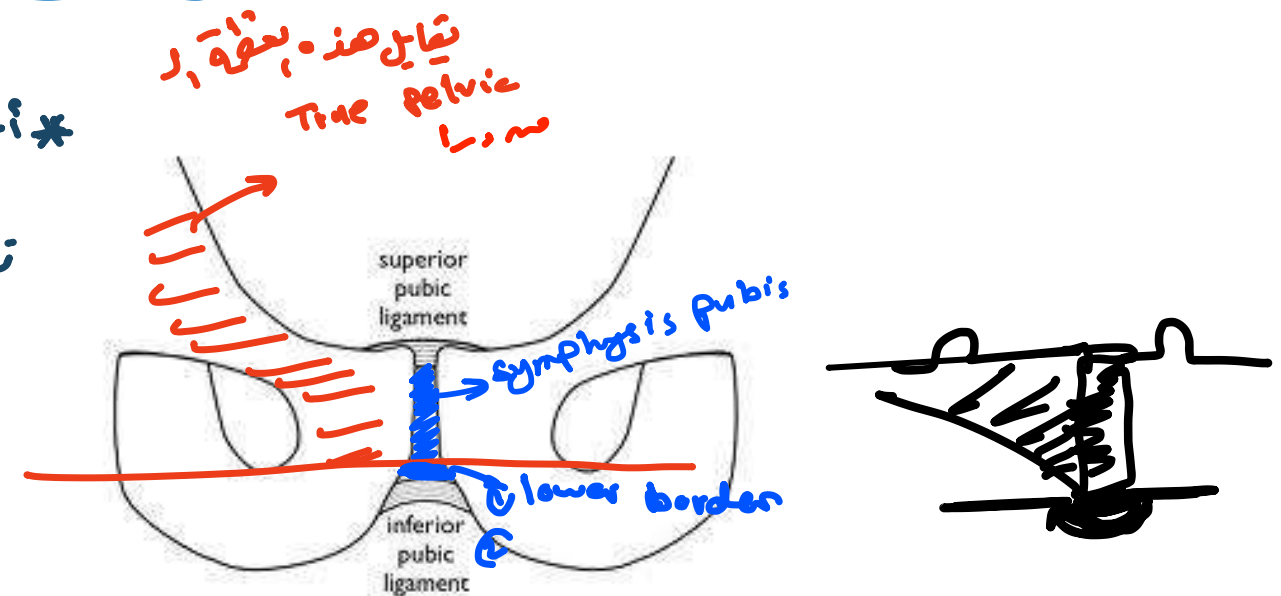
Perineum

- It is the region which overlies ^{منطقة} the pelvic outlet.
- It has a ^{مميز} diamond-shaped outline



Perineum

- **Boundaries :** *Legaments joints * أغلب ال*
نعمل على زيادة الاستقرار stability

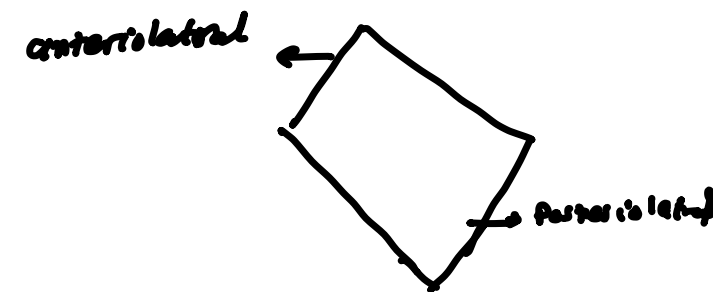


Angles

- **anterior Angle** : formed by lower border of symphysis pubis and inferior pubic ligament
- **posterior angle** : formed by tip of coccyx
- **lateral angles** : formed by ischial tuberosities

Boundaries

- **anterolateral** : formed by pubic arch
- **posterolateral** : formed by sacrospinous ligaments

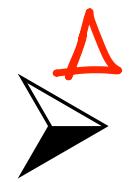
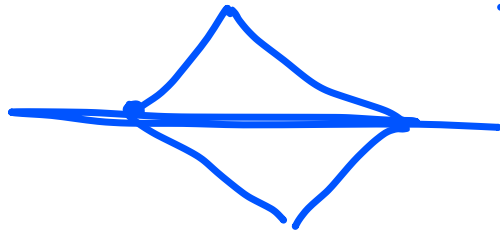


Perineum

- Divisions :**

خط تخیلی

line between 2 ischial
tuberosities divides the
peineum into 2 triangles

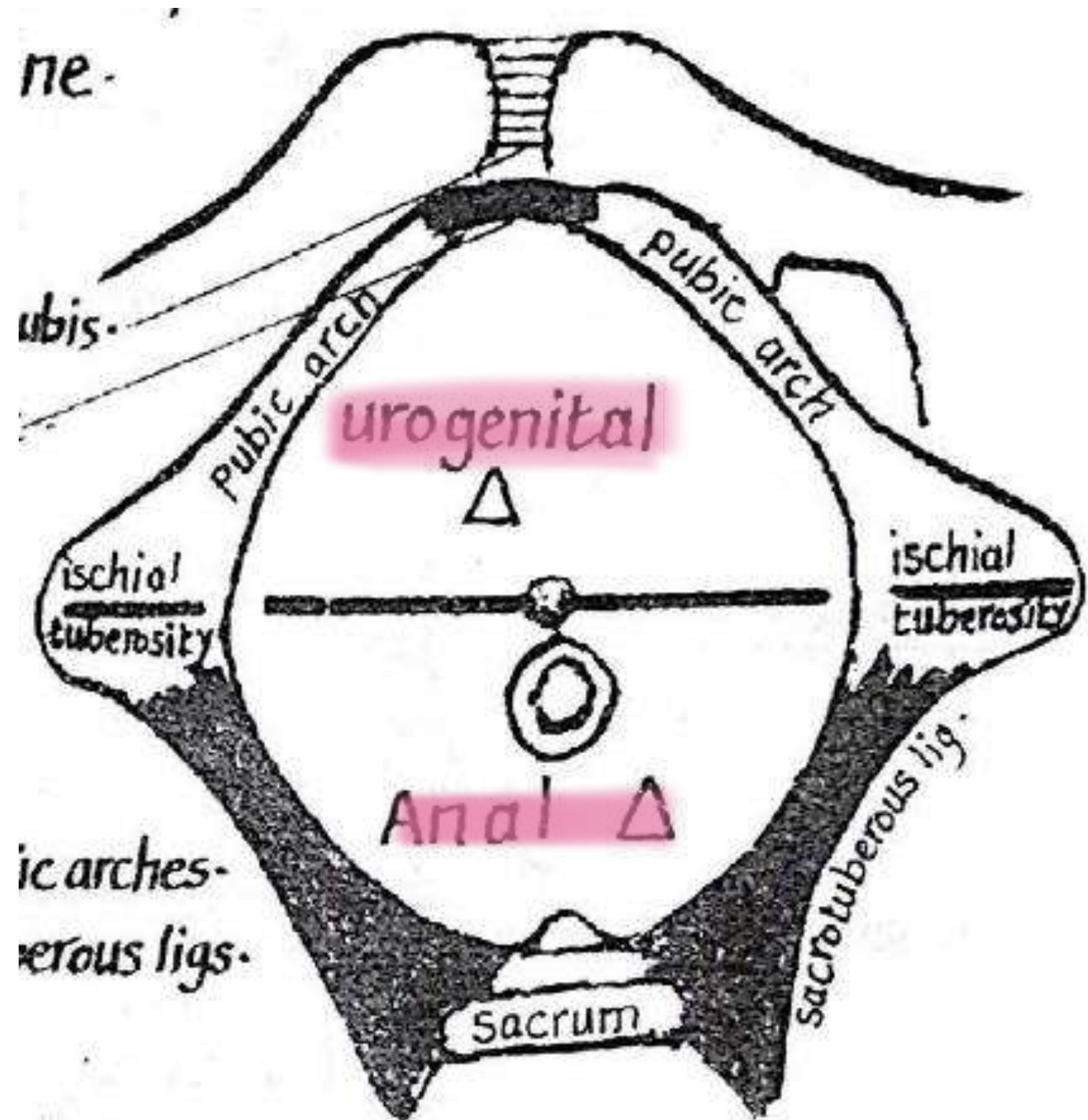


Uro-genital triangle

urthra (vagina) genitalia

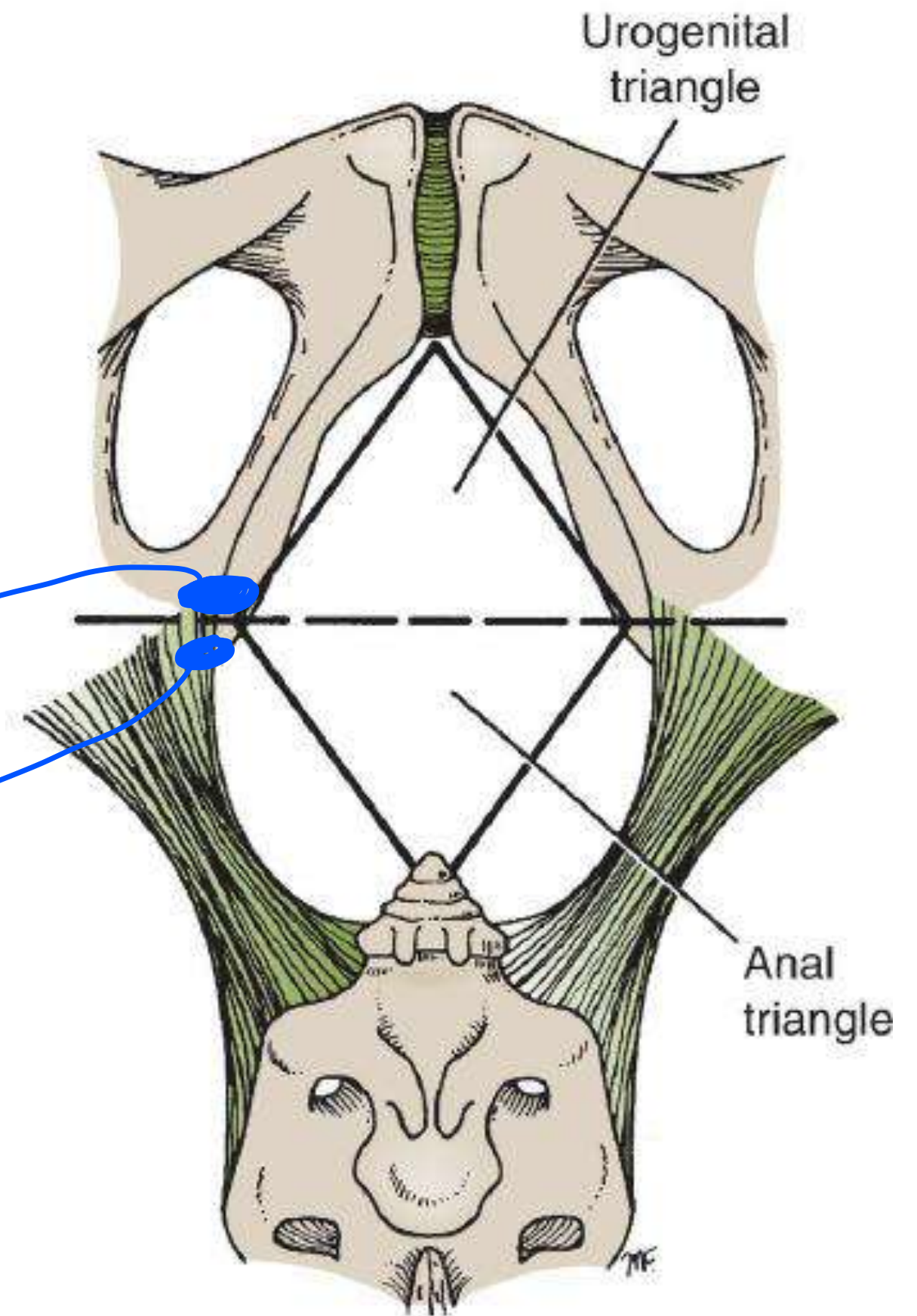


Anal triangle



*UROGENITAL TRIANGLE

- is the anterior half of the perineum.
- **Boundaries :** *antero lateral border* *من هنا انقسم* *ال perineum*
anterior >> the pubic arch
lateral >> ischiopubic rami and ischial tuberosities.
- The urogenital openings lie in the midline, in close relation to external genitalia



UROGENITAL TRIANGLE

The urogenital triangle is organized into several layers:

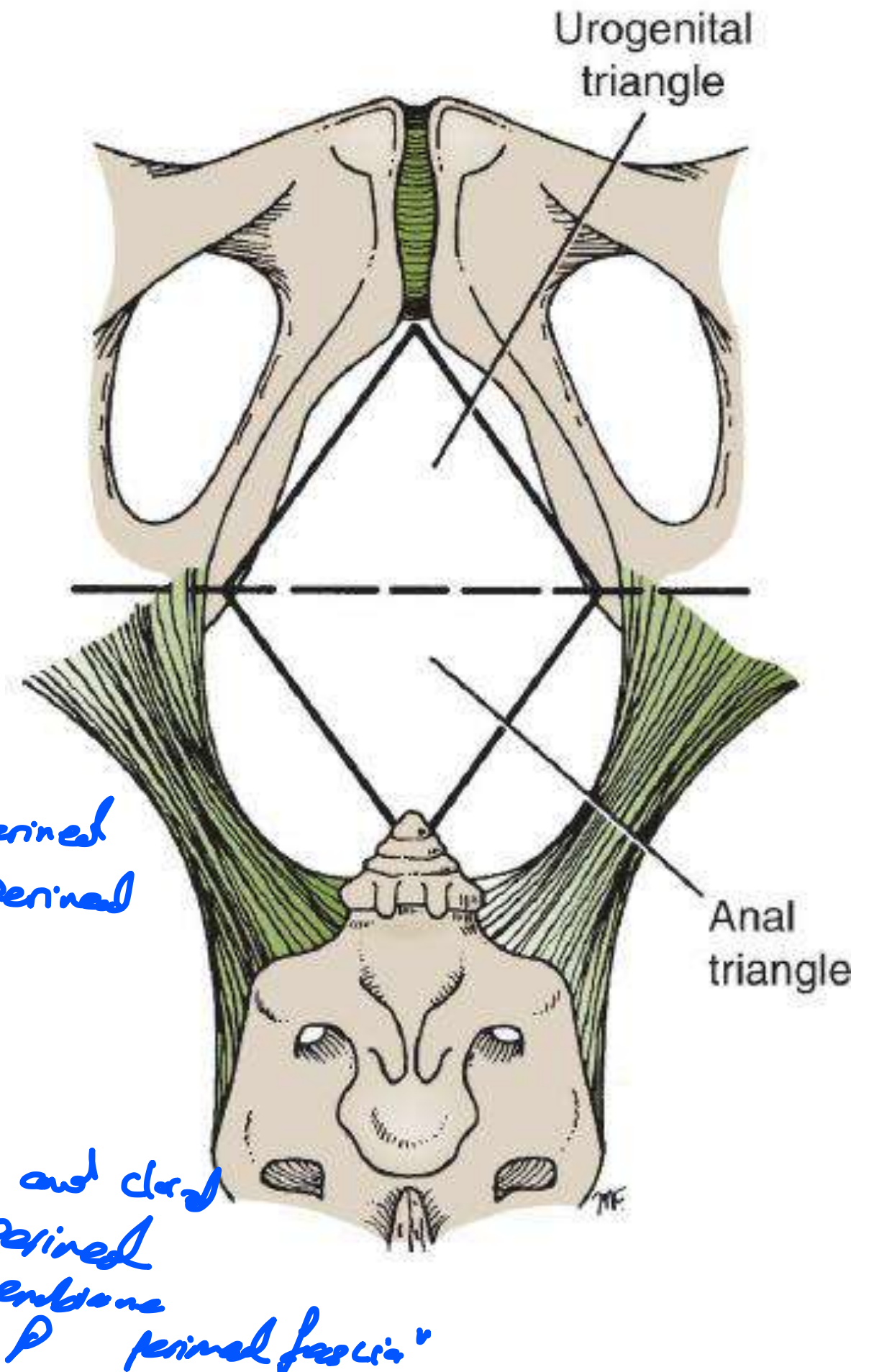
- 1- • Skin
- 2- • Superficial perineal fascia
- 2- • Deep perineal fascia ??

• **Superficial (inferior) perineal space (pouch)**

• **Deep (superior) perineal space (pouch)**

between
perineal membrane
uro-genital
diaphragm.

above and close
to perineal
membrane
"deep perineal fascia"



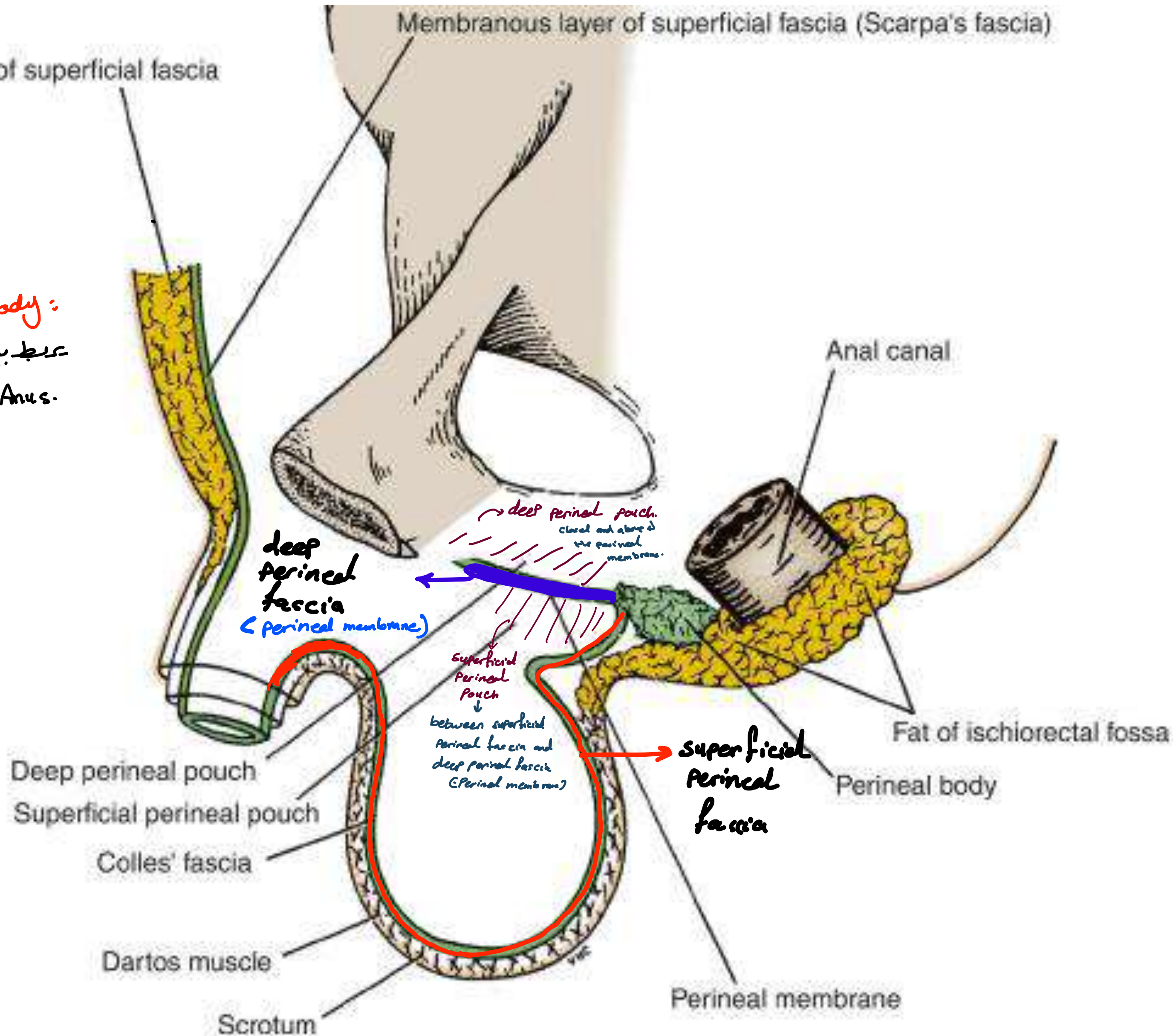
Fatty layer of superficial fascia

Membranous layer of superficial fascia (Scarpa's fascia)

* Perineal Body:

منطقة بين

vagina و Anus.



د. أمجد شرح الفا في شاترال

Abdomen أنه ← لا

scarpa fascia

← scrotum بغيرها

dartos fascia

colles fascia

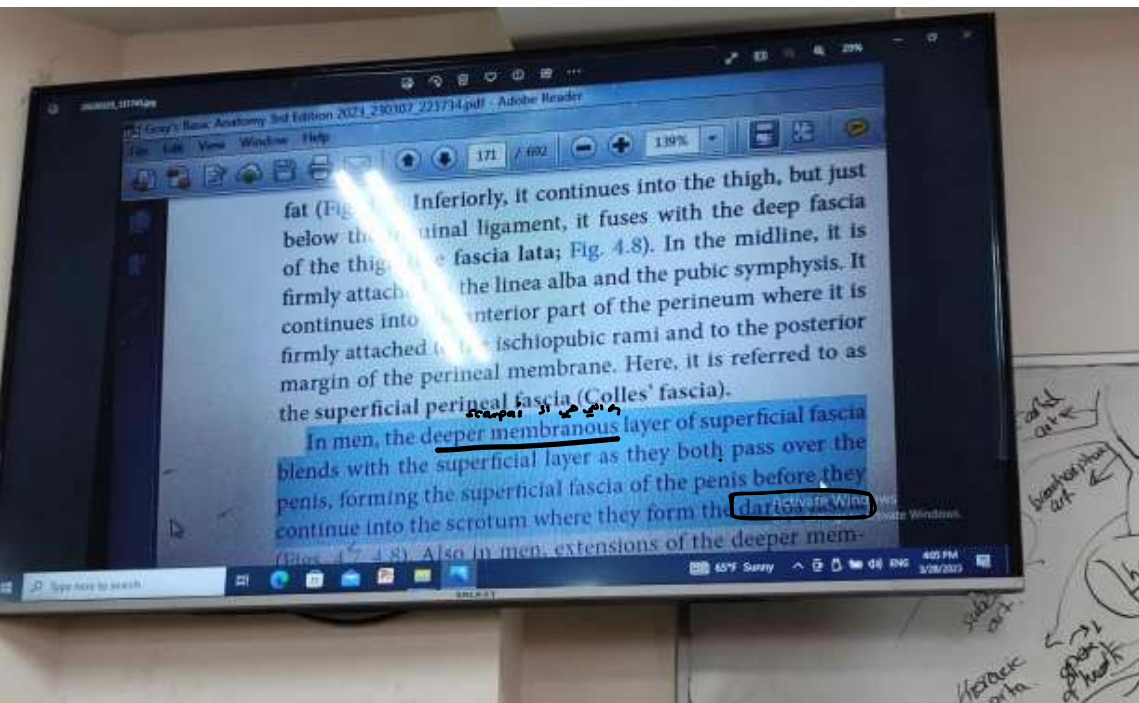
← perinium بغيرها

* هاد التصامم ما الشرح السنة لما صنية رويه الدكتور شرح على كتاب SNELL

شرح السنة لما صنية، اللي هنعبره عنها إمتحانه

Camper's → Dartos

Scarpas → Colles



* طيب لست غير الدكتور صرامه؟!

له عساه نزل كتابه Gray's Basic Anatomy 3rd Edition 2023

الليل على - Gray اصعب من السهل - لا scrotum ماين صيغة fat

Superficial perineal space (pouch)

- is the zone between the superficial perineal fascia (Colle's fascia) and the perineal membrane

deep perineal fascia

Deep perineal space (pouch)

- It is a closed space, lies between perineal membrane & urogenital diaphragm (that lies deep (superior) to the superficial perineal space)

~~~~~

cm

#

[Signature]