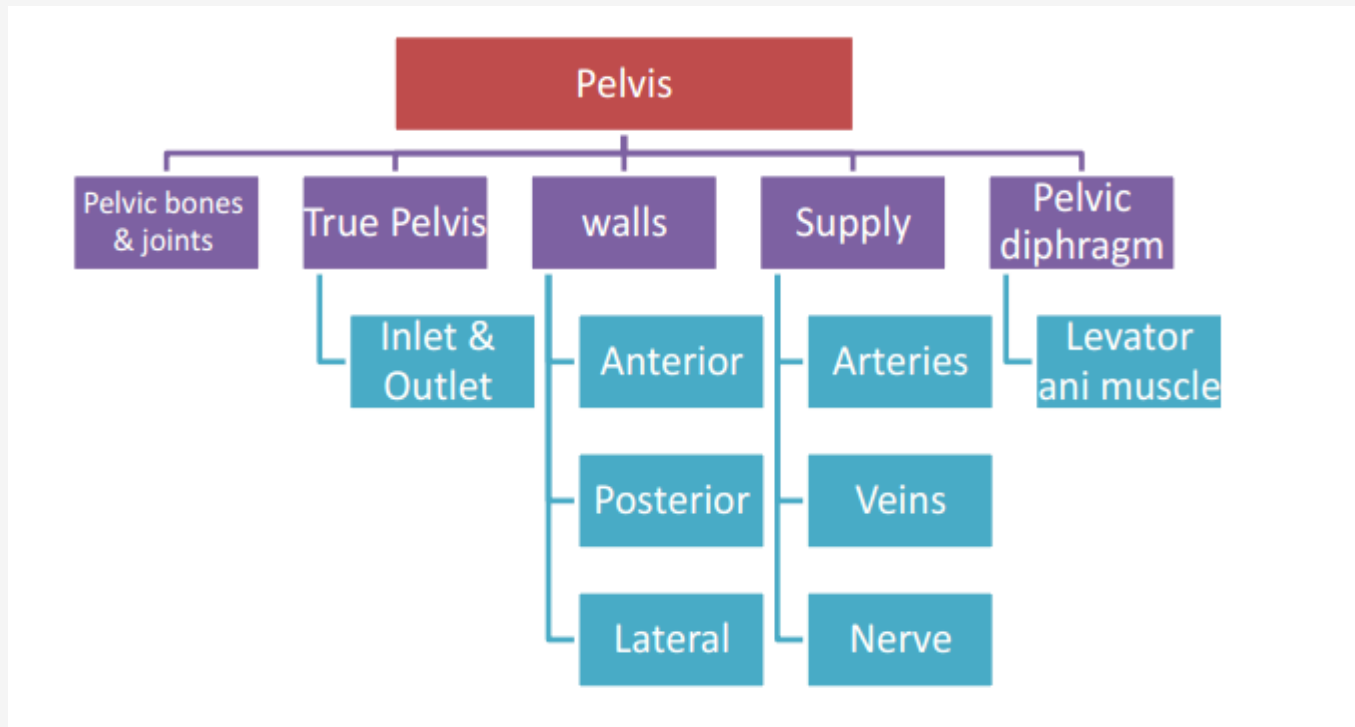


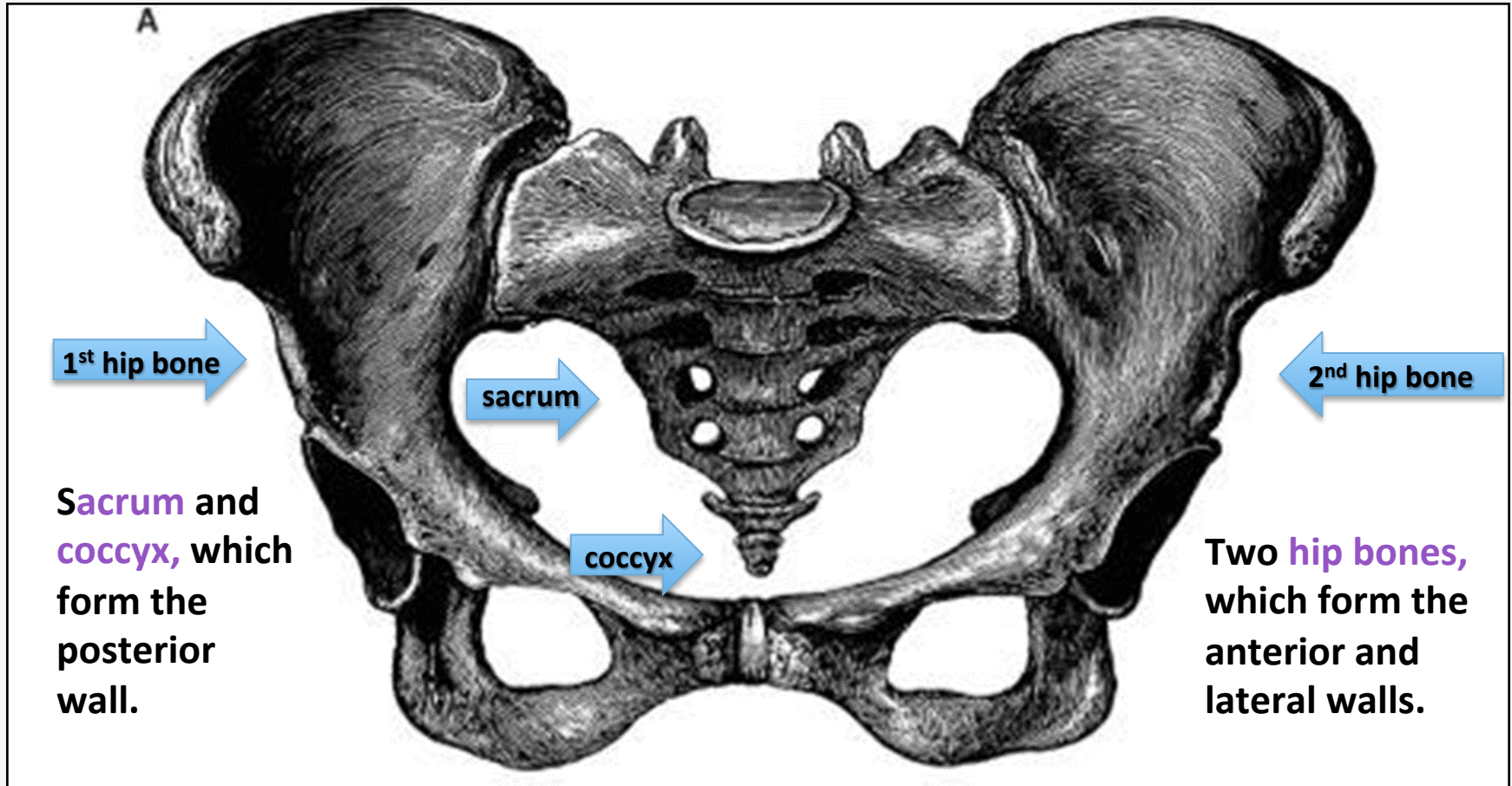


## 3 Female PELVIS

# MIND MAP



## The bony pelvis is composed of four bones:



These 4 bones are connected by 4 joints and lined by 4 muscles.

# FOUR JOINTS



The bony pelvis with its joints and muscles form a strong basin-shaped structure (with multiple foramina),  
The pelvis contains and protects the lower parts of the alimentary & urinary tracts & internal organs of reproduction.

Anterior

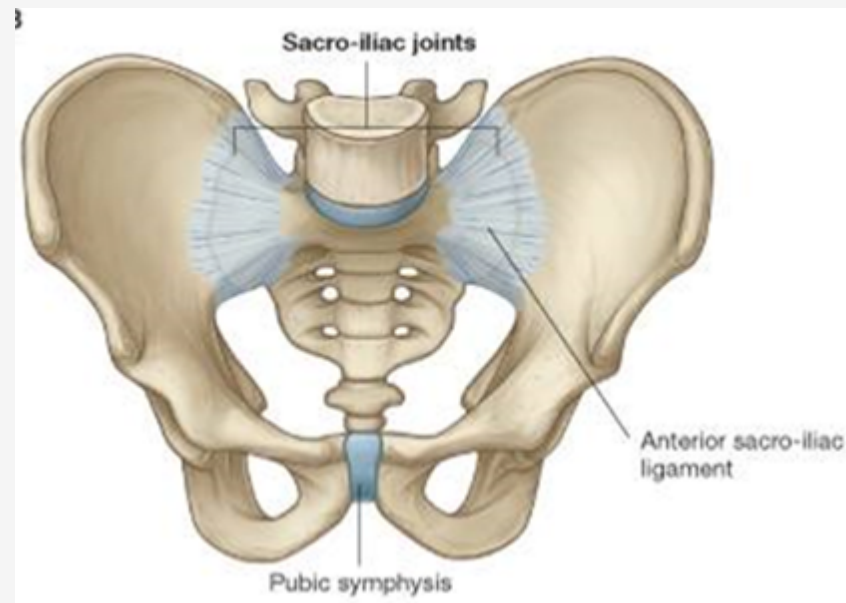
- **Symphysis pubis**
- (2ry cartilaginous joint).

posterior

- **Sacrococcygeal joint (cartilaginous)**

posterolaterally

- **Two Sacroiliac joints.**
- (Synovial joints)

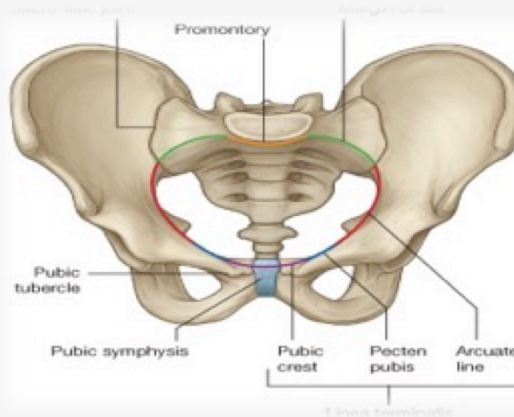


# Pelvic brim



**Pelvic brim** divides the pelvis into two parts:

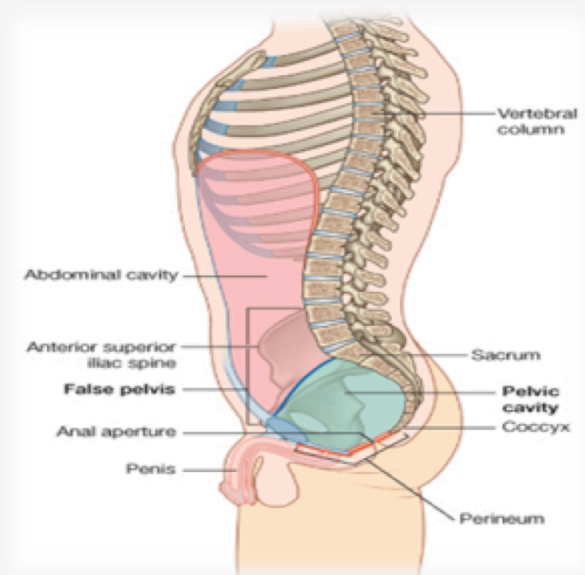
**1-False or greater pelvis** cavity Above the brim which is part of the abdominal.



**2-True or lesser pelvis** Below the brim.

## The False pelvis is boundaries

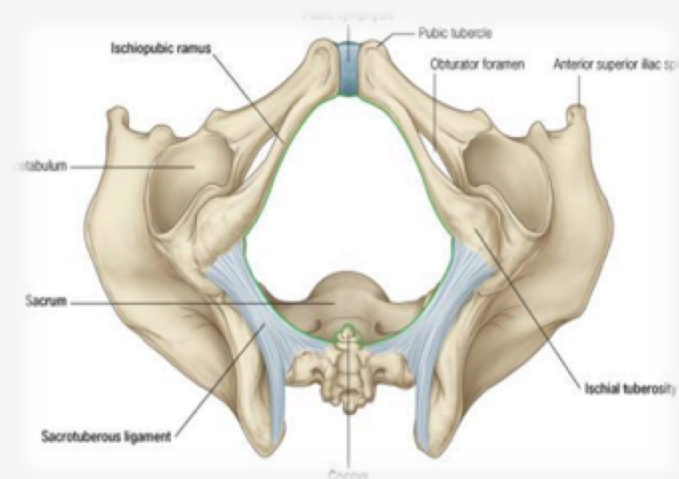
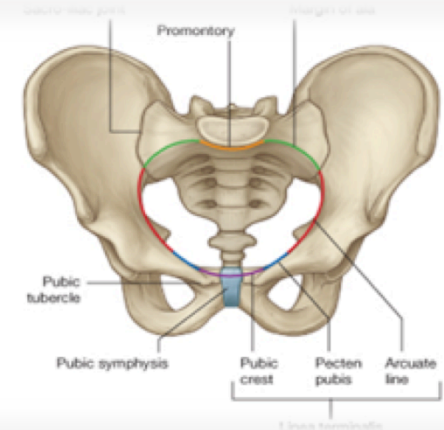
Posteriorly	Laterally	Anteriorly
Lumbar vertebrae	Iliac fossae and the iliacus muscle.	Lower part of the anterior abdominal wall. It supports the abdominal contents.

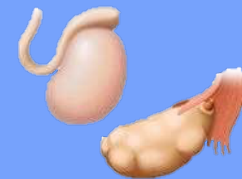


# True pelvis



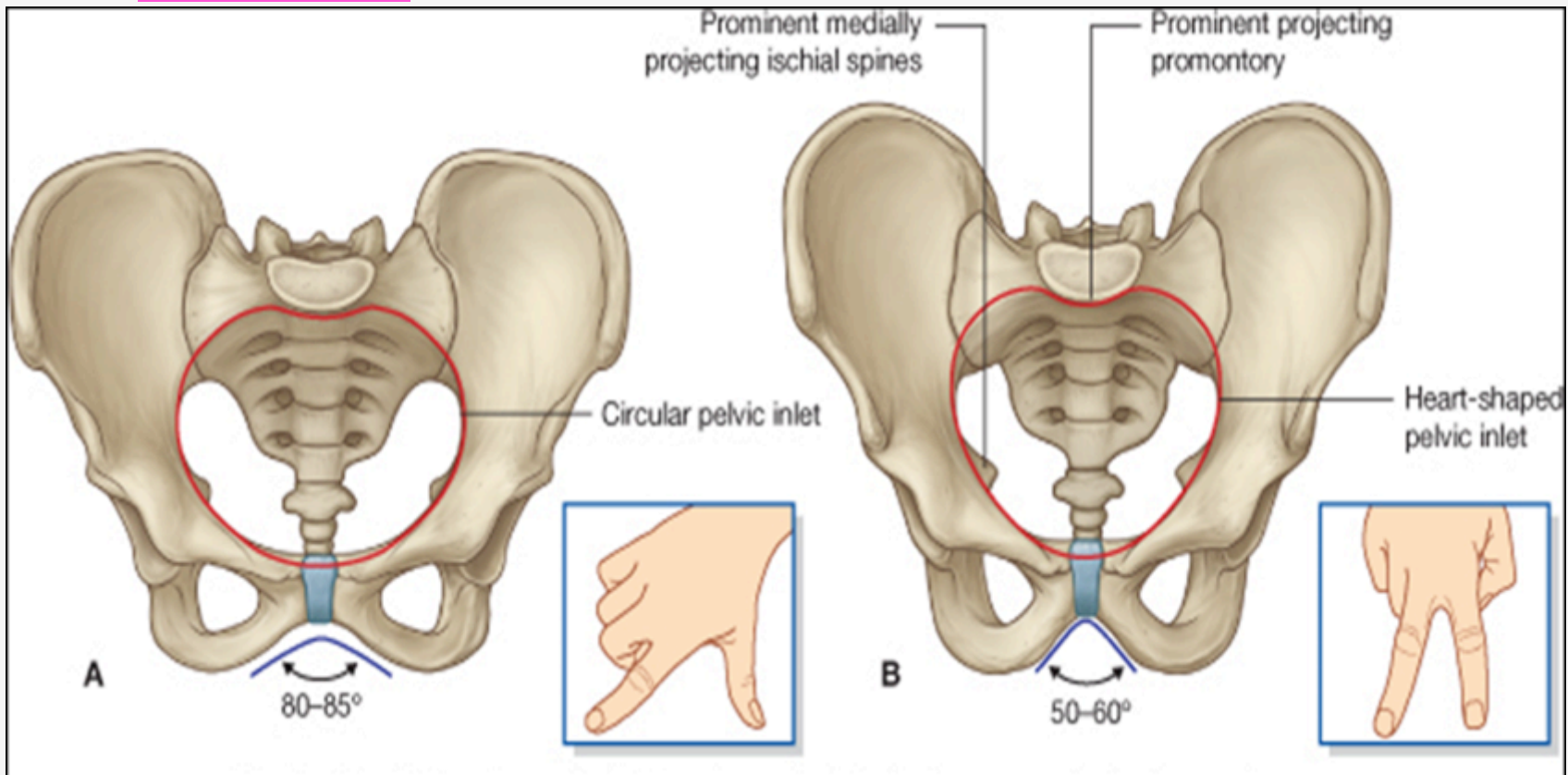
<b>PELVIC INLET</b> Shape:Oval or circular.	<b><u>Anteriorly:</u></b> Symphysis pubis(upper border).
	<b><u>Posteriorly:</u></b> Promontory of sacrum, ala of sacrum.
	<b><u>Laterally:</u></b> Ileopectineal (arcuate) lines.
<b>Pelvic cavity</b>	<ul style="list-style-type: none"> <li>• a short, curved canal, with a shallow anterior wall and a deeper posterior wall.</li> <li>• The cavity lies between the inlet and the outlet.</li> </ul>
<b>PELVIC OUTLET</b> Shape:Diamond	<b><u>Anteriorly:</u></b> Symphysis pubis(lower border).
	<b><u>Posteriorly :</u></b> Coccyx
	<b><u>Anterolaterally:</u></b> ischiopubic ramus
	<b><u>Posterolaterally:</u></b> Sacrotuberous ligament





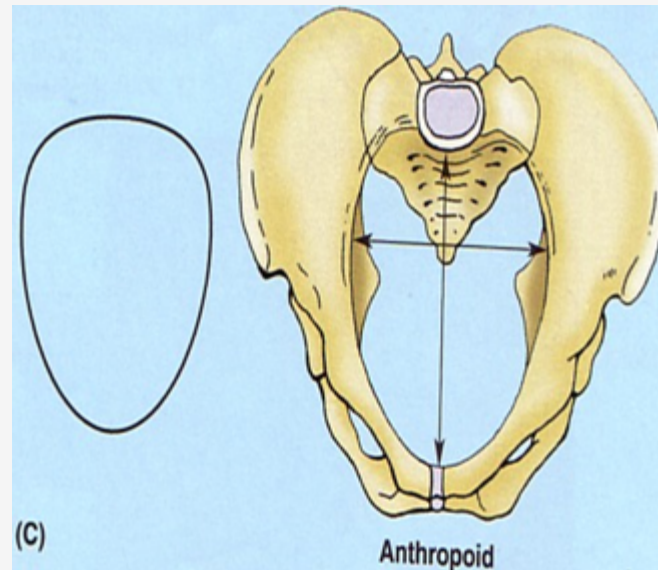
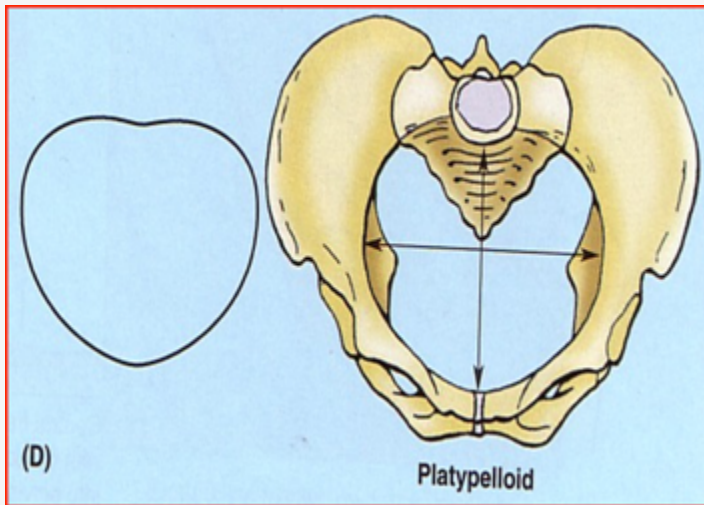
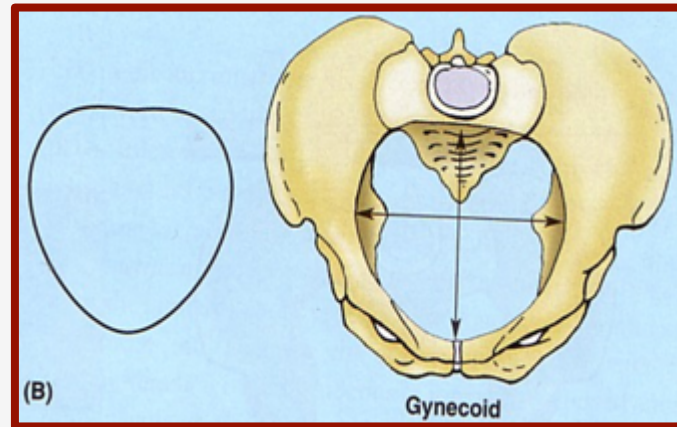
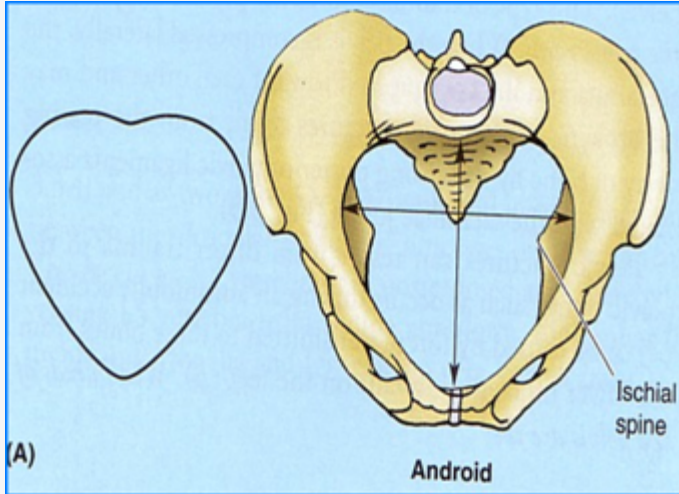
## FEMALE

## MALE



In female the **Sacrum** is usually wider and shorter.  
Also, the **Angle of the pubic arch** is wider.  
The promontory and the ischial spines are less projecting.

# Types of Female Bony Pelvis



Information of the shape and dimensions of the female pelvis is of **great importance for obstetrics**, because it is the bony canal through which the child passes during birth.



# Pelvic walls



ANTERIOR	POSTERIOR	LATERAL	INFERIOR
<p>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.</p>	<p>It is large and formed by sacrum, coccyx , <b>piriformis</b> muscles and their covering of parietal pelvic fascia.</p>	<p><u>It is formed by:</u>            1- Part of the hip bone below the pelvic inlet,            2- <b>Obturator internus</b> and its covering fascia &amp; the obturator fascia.            3- Sacrotuberous ligament.            4- Sacrospinous ligament.</p>	<p>Basin-like structure which supports the pelvic viscera and is formed by the <b>pelvic diaphragm</b>.            It stretches across the true pelvis and divides it into:  <b>Main (true) pelvic cavity above</b>, which contains the pelvic viscera, &amp;  <b>Perineum below</b> which carries the external genital organs.</p>
<p><b>Origin:</b> Pelvic surface of the middle 3 sacral vertebrae. It leaves the pelvis through the greater sciatic foramen.  <b>Insertion:</b> Greater trochanter of the femur.  <b>Action:</b> Lateral rotator of the femur at the hip joint.  <b>Nerve supply:</b> Sacral plexus.</p>	<p><b>Origin:</b> Inner surface of the obturator membrane and the hip bone.  <b>Insertion:</b> It leaves the pelvis through the <b>lesser sciatic foramen</b> to be inserted into the greater trochanter of the femur.  <b>Action:</b> Lateral rotator of the femur at the hip joint.  <b>Nerve supply:</b> Nerve to obturator internus.</p>		<p>It is formed by the <b>levator ani</b> and the <b>coccygeus muscles</b> and their covering fasciae.</p>

# LEVATORES ANI MUSCLES



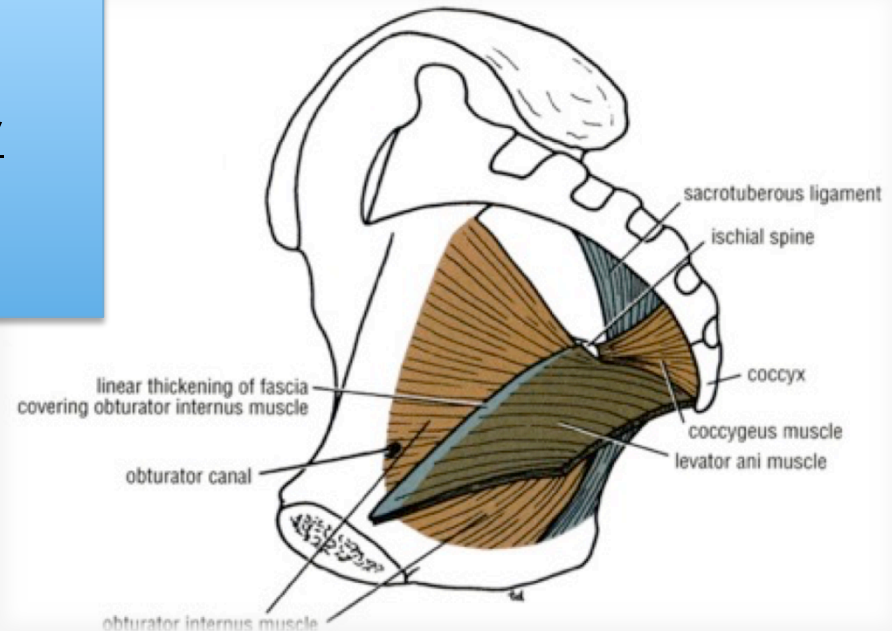
It is a wide thin sheet-like muscle .

## ORIGIN:

1. Back of the body of the pubis
2. Tendinous arch of the obturator fascia
3. Spine of the ischium.

Its fibers are divided into 3 parts:

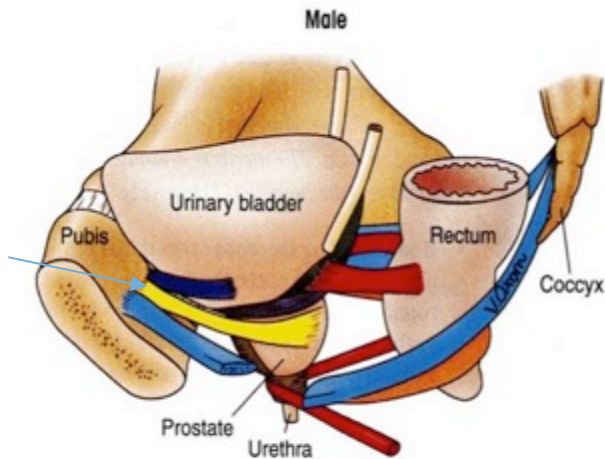
- 1- Pubococcygeus.
- 2- Iliococcygeus.
- 3- Puborectalis.



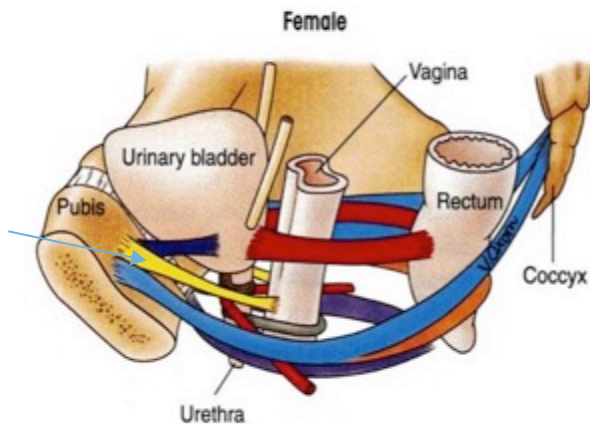
# 1. Anterior Fibers:



levator  
prostaticae



sphincter  
vaginae



## 1- Pubococcygeus.

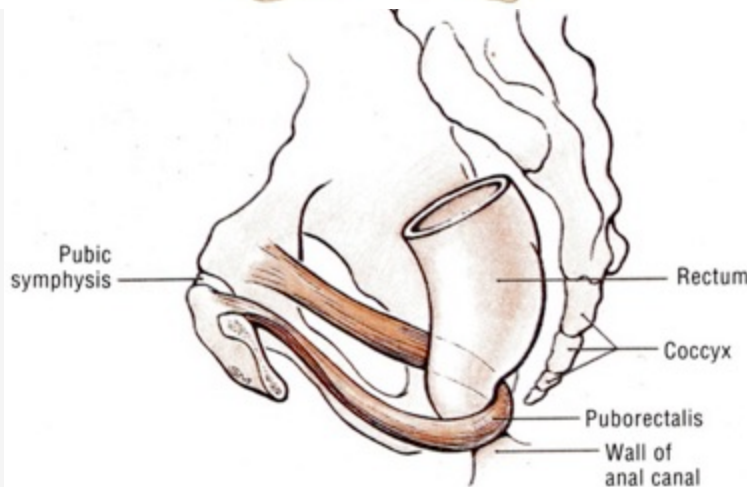
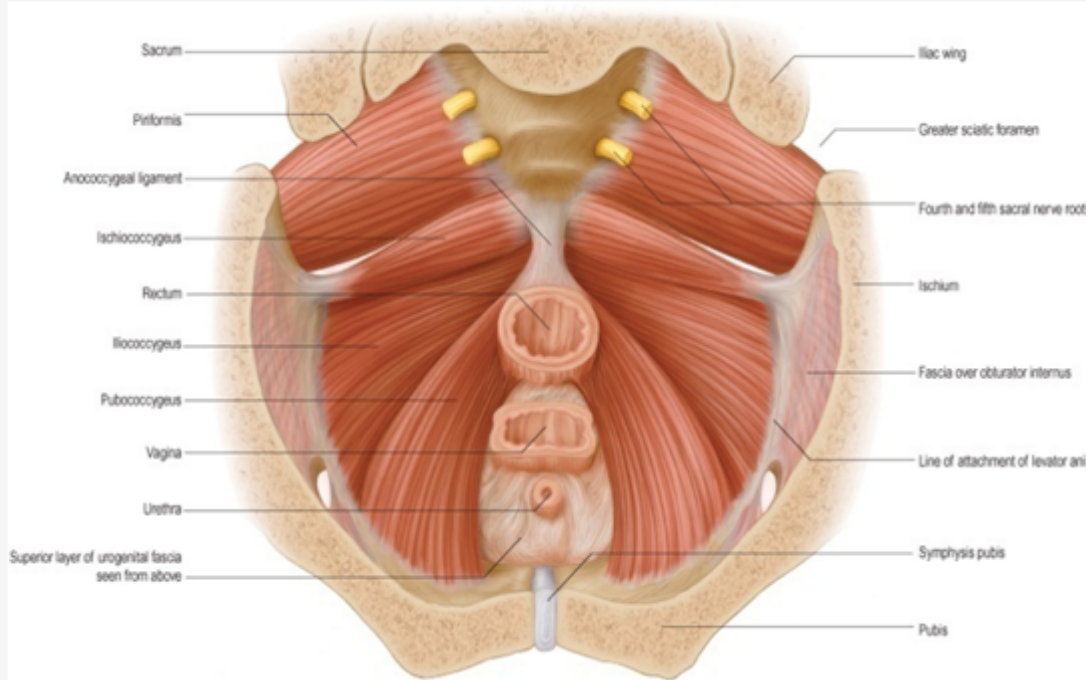
Originates from **the posterior surface of the body of the pubis**

Inserts into **perineal body**

**The levator prostaticae** supports the prostate and stabilizes the perineal body.

**The sphincter vaginae** constricts the vagina and stabilizes the perineal body.

# 2. Intermediate fibers:

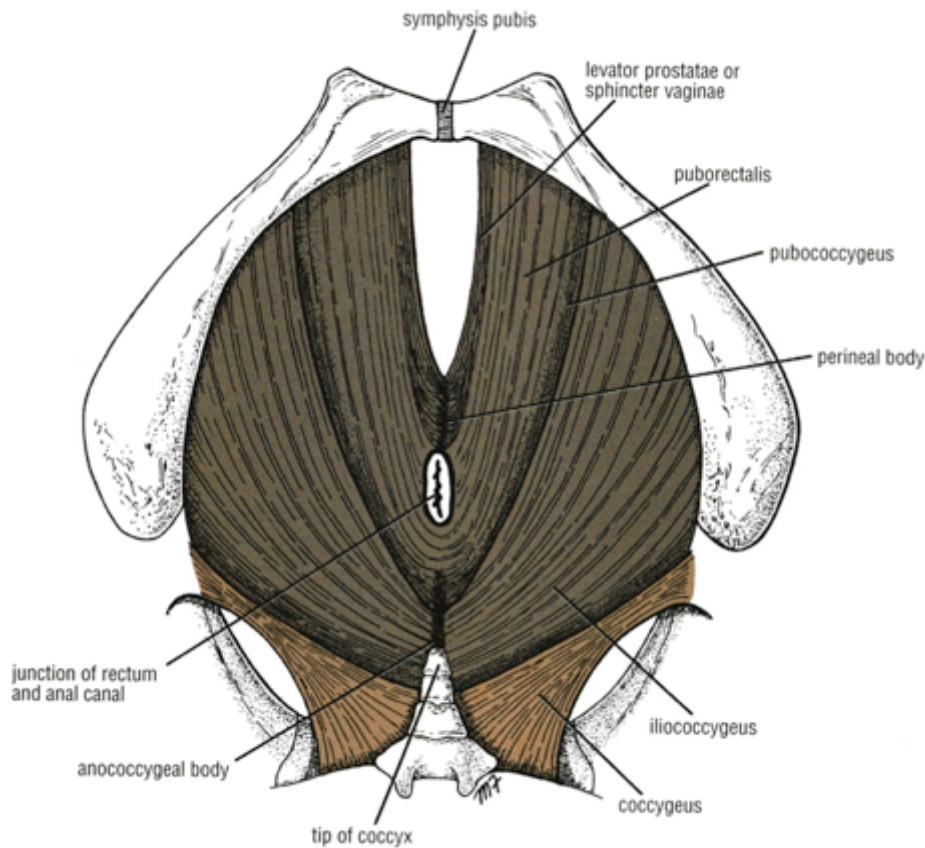


## 2-The puborectalis

forms a sling around the recto-anal Junction.

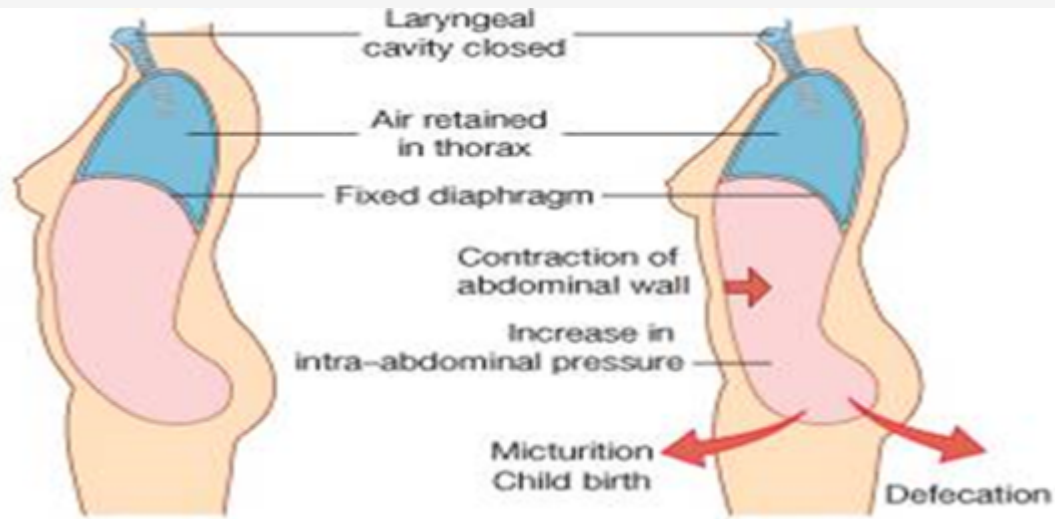
**It has a very important role in maintaining fecal continence.**

# 3-POSTERIOR FIBERS:



- iliococcygeus
- inserted into the anococcygeal body and the coccyx

# Nerve supply to levator ani:



1. perineal branch of the fourth sacral nerve
2. perineal branch of the pudendal nerve.

## Actions of levator ani:

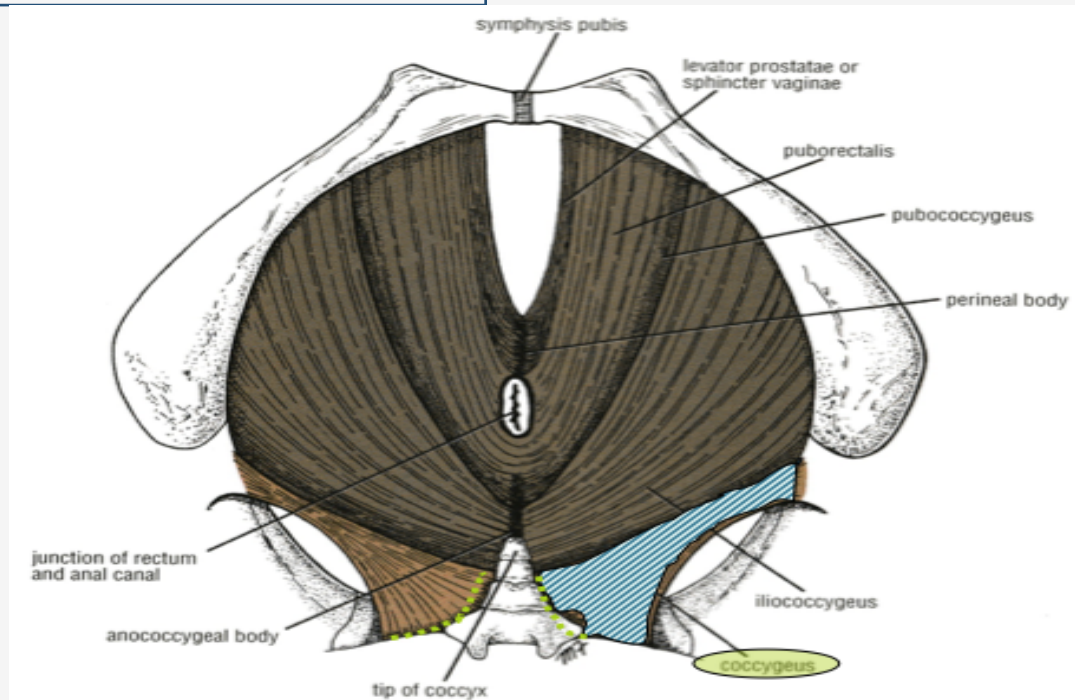
1. The muscles of the two sides form an efficient muscular sling that supports and maintains the pelvic viscera in position.
2. They resist the rise in intra pelvic pressure during the straining and expulsive efforts of the abdominal muscles (as in coughing).
3. They have a very important role in maintaining fecal continence.
4. They serve as a vaginal sphincter in the female.

# COCCYGEUS MUSCLE



## small triangular muscle.

<b>Origin</b>	Ischial spine.
<b>Insertion</b>	Lower end of sacrum and coccyx
<b>Action</b>	Assist the levator ani in supporting the pelvic viscera
<b>Nerve supply</b>	branches of the 4 <sup>th</sup> and 5 <sup>th</sup> sacral nerves



# Arteries of the Pelvis



## (1) Internal iliac artery (IIA):

It is a terminal branches of the **Common iliac artery**.

Arises **in front of the sacroiliac joint**

It descends downward & backwards over the pelvic inlet.

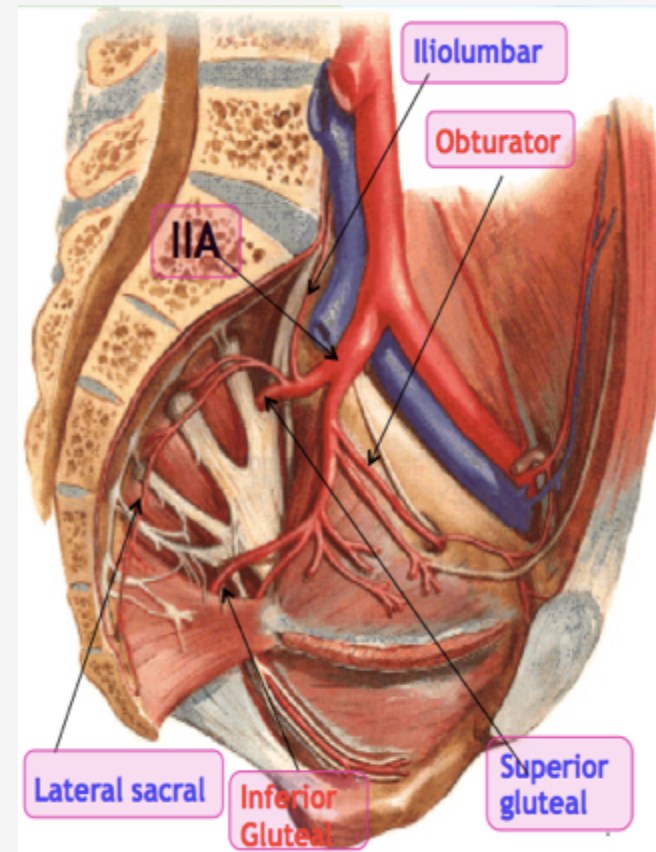
It divides at the upper border of the **greater sciatic foramen** into:

**Anterior & Posterior divisions.**

Anterior division supplies	Posterior division Supplies:
<ol style="list-style-type: none"> <li>1. Gluteal region.</li> <li>2. Perineum.</li> <li>3. Pelvic viscera.</li> <li>4. Medial (adductor) region of thigh</li> <li>5. The fetus (through the umbilical arteries)</li> </ol>	<ol style="list-style-type: none"> <li>1. Posterior abdominal wall.</li> <li>2. Posterior pelvic wall.</li> <li>3. Gluteal region.</li> </ol>

### Parietal Branches

From anterior division:	From posterior division:
<ol style="list-style-type: none"> <li>1. Obturator artery.</li> <li>2. Inferior Gluteal artery.</li> </ol>	<ol style="list-style-type: none"> <li>1. Iliolumbar artery.</li> <li>2. Lateral sacral arteries (2 branches.)</li> <li>3. Superior gluteal artery.</li> </ol>





# Visceral Branches



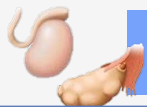
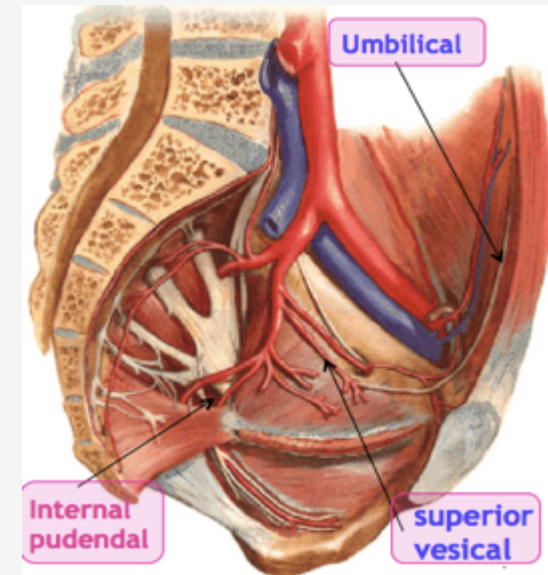
(all from **anterior division**)

## Umbilical artery :

Gives the **superior vesical artery**: The distal part of this artery fibrosed and forms the **Medial Umbilical Ligament**.

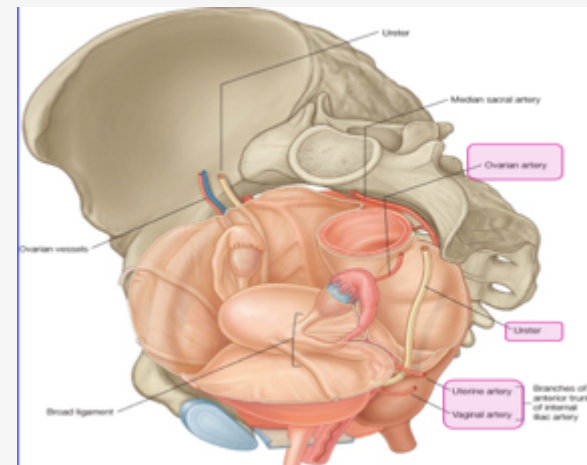
## Inferior Vesical artery in male or vaginal in femal:

- In the male it supplies, the **Prostate** and the **Seminal Vesicles**.
- It also gives the artery of the **Vas Deferens**.
- **Middle rectal artery**
- **Internal pudendal artery**
- It is the main arterial supply to the **perineum**.



## Visceral Branches (in Female)

- **Vaginal artery:**
- Replaces the **inferior vesical artery**.
- **Uterine artery:**
- Crosses the Ureter superiorly and supplies the uterus & uterine tubes.
- **(2) Ovarian artery:**
- Arises from the **abdominal aorta**.





## Venous Drainage

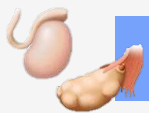
### INTERNAL ILIAC VEINS

- internal iliac vein joins the external iliac vein in front of the sacroiliac joint to form the **common iliac vein**

### Ovarian vein:

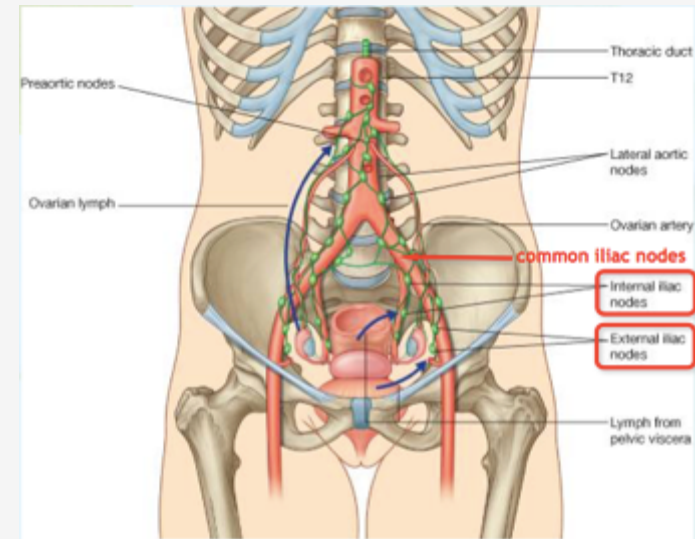
Right vein drains into IVC

Left vein drains into left renal Vein.



## lymphatic drainage

- Lymph from the pelvis passes through Internal iliac, External iliac & Common iliac nodes.
- lymph from Common iliac nodes & the (Ovaries, uterine tubes & fundus of uterus) passes to **Lateral aortic (paraortic) nodes**.





- **Somatic: Sacral plexus**

From Ventral (anterior) rami of L4 & L5 (lumbosacral trunk) + S1,2,3 and most of S4.

It gives **Pudendal nerve to perineum.**

- **Autonomic:**

**Parasympathetic**

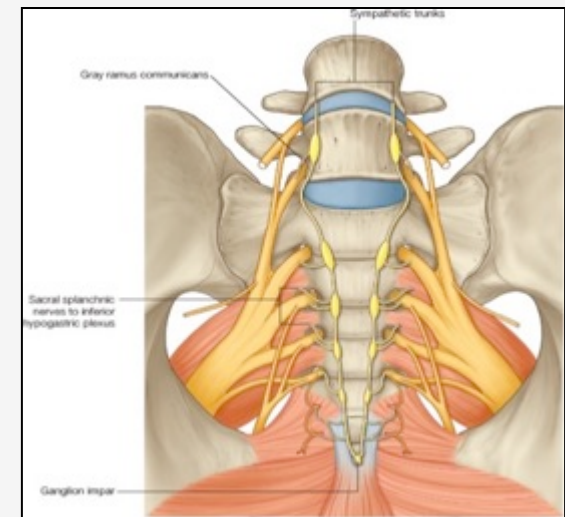
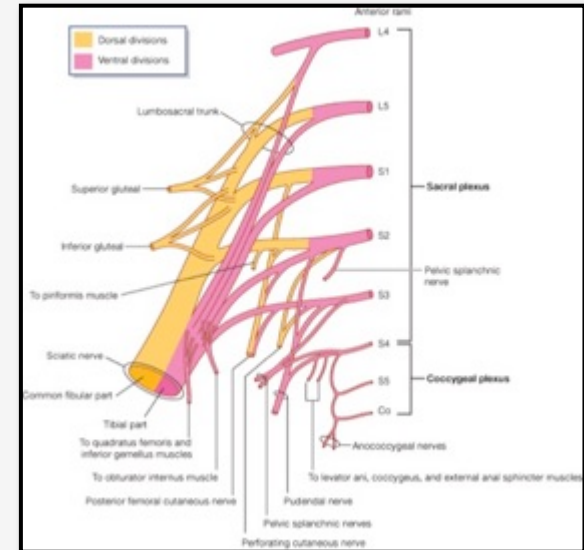
**Pelvic splanchnic nerves**  
(From S2,3 & 4)

They are the Preganglionic parasympathetic nerves to pelvic viscera & hindgut.

**sympathetic**

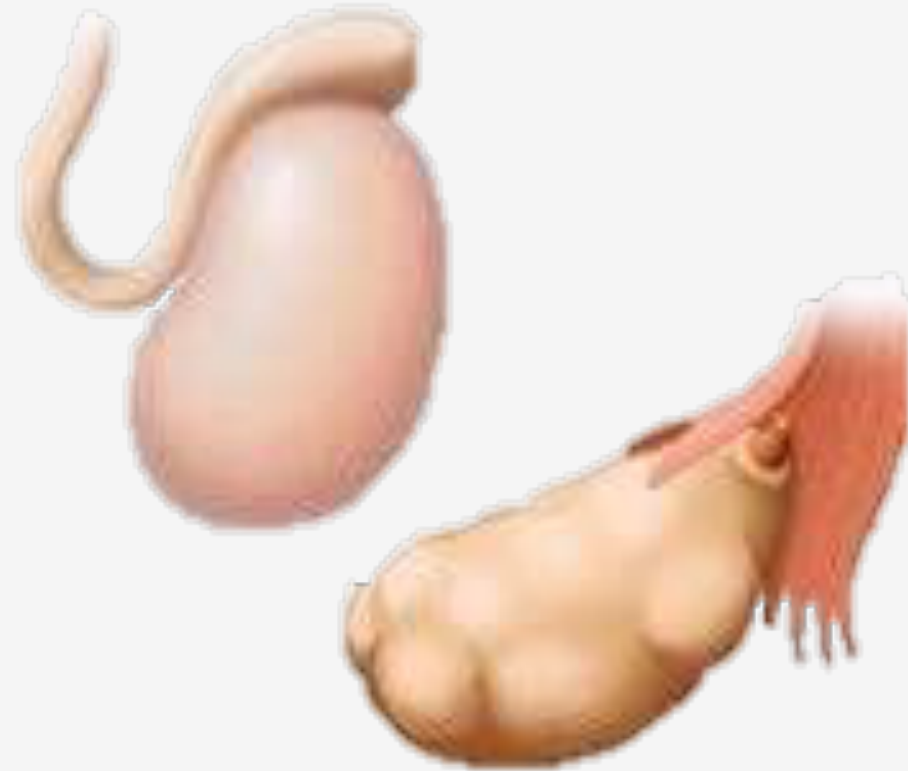
**Pelvic part of sympathetic trunk:**

It is the continuation of the abdominal sympathetic trunk.  
It Descends in front of the ala sacrum,  
They unite inferiorly in front of the coccyx to form a single ganglion called (Ganglion impar).  
**(b) Superior & Inferior Hypogastric plexuses.**



# GOOD LUCK

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