

GUS..



Lecture (5)

Anatomy of Perineum

Dr. Amany Allam

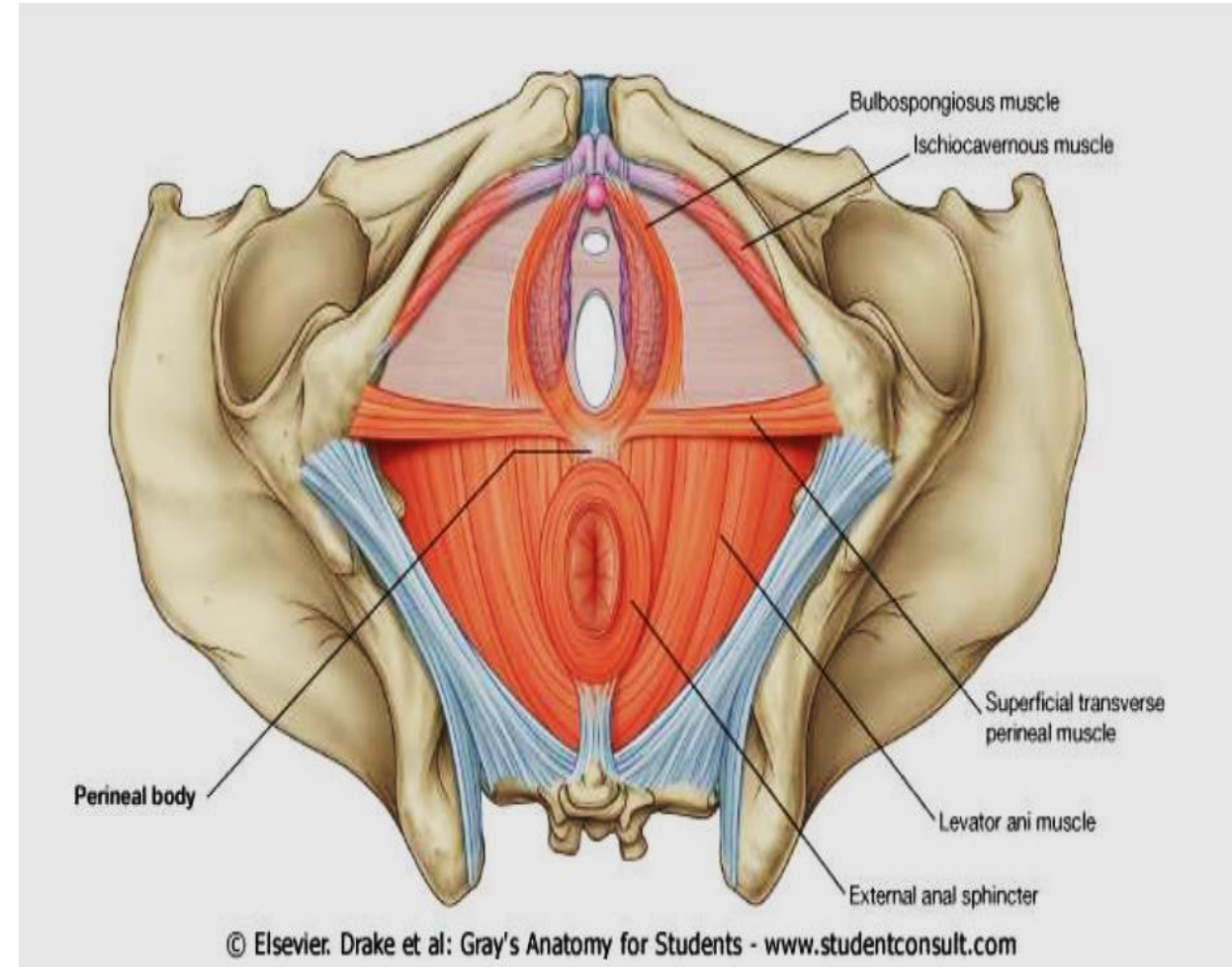
Assistant professor of Anatomy & Embryology

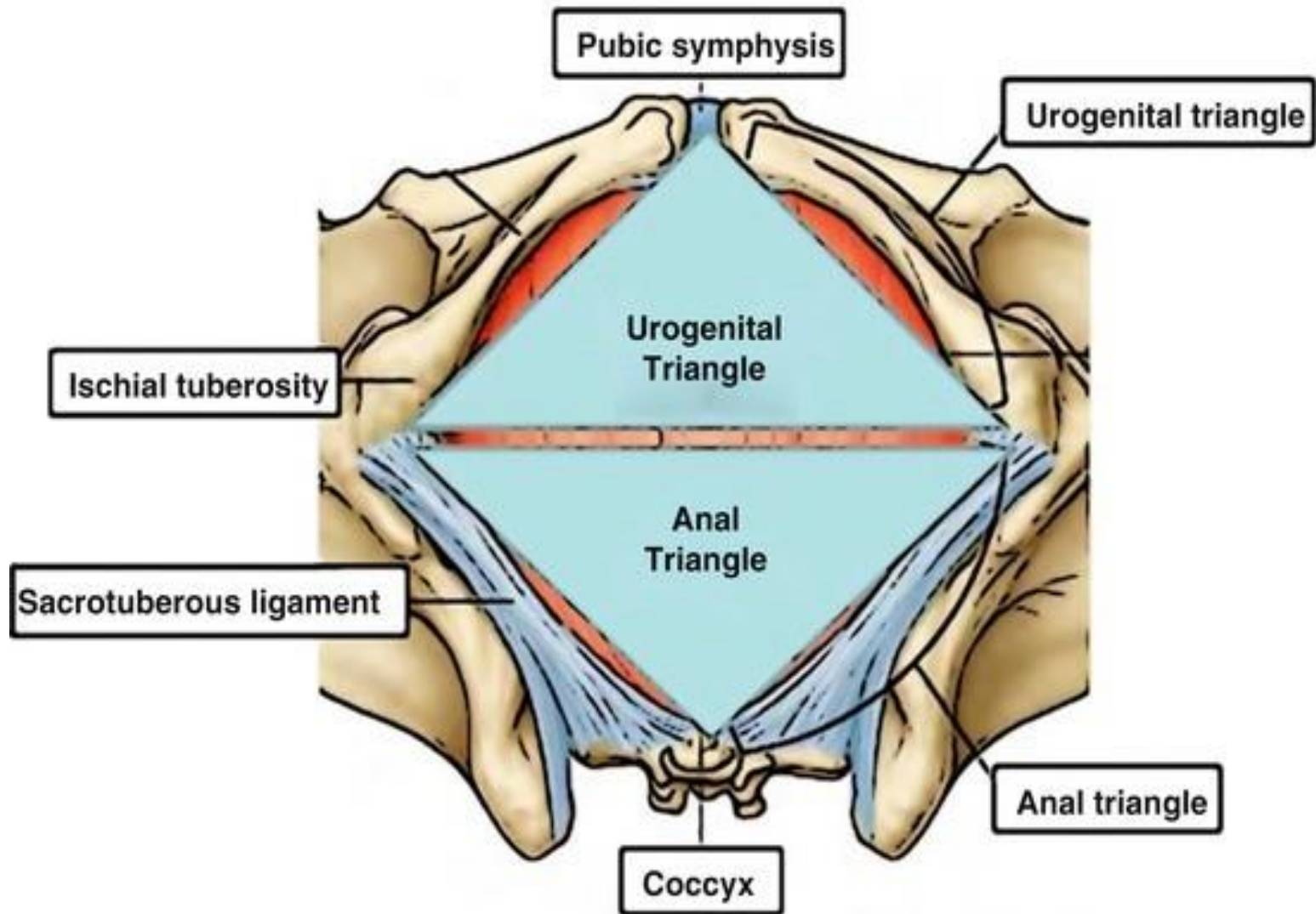
ILOs

- 1. Understand the gross anatomy of perineum.**
- 2. Describe the urogenital and anal triangle.**
- 3. Understand the urogenital diaphragm, superficial & deep perineal pouches and their contents in both sexes.**

Perineum

- **It is** the diamond-shaped lower end of the trunk.
- **It lies** below the pelvic diaphragm, between the upper parts of the thighs.
- **Boundaries:** As boundaries of the pelvic outlet.
- **Division of perineum:**
By a line joining the ischial tuberosities, the perineum is divided into two triangles:
 - **Anteriorly: Urogenital triangle.**
 - **Posteriorly: Anal triangle.**

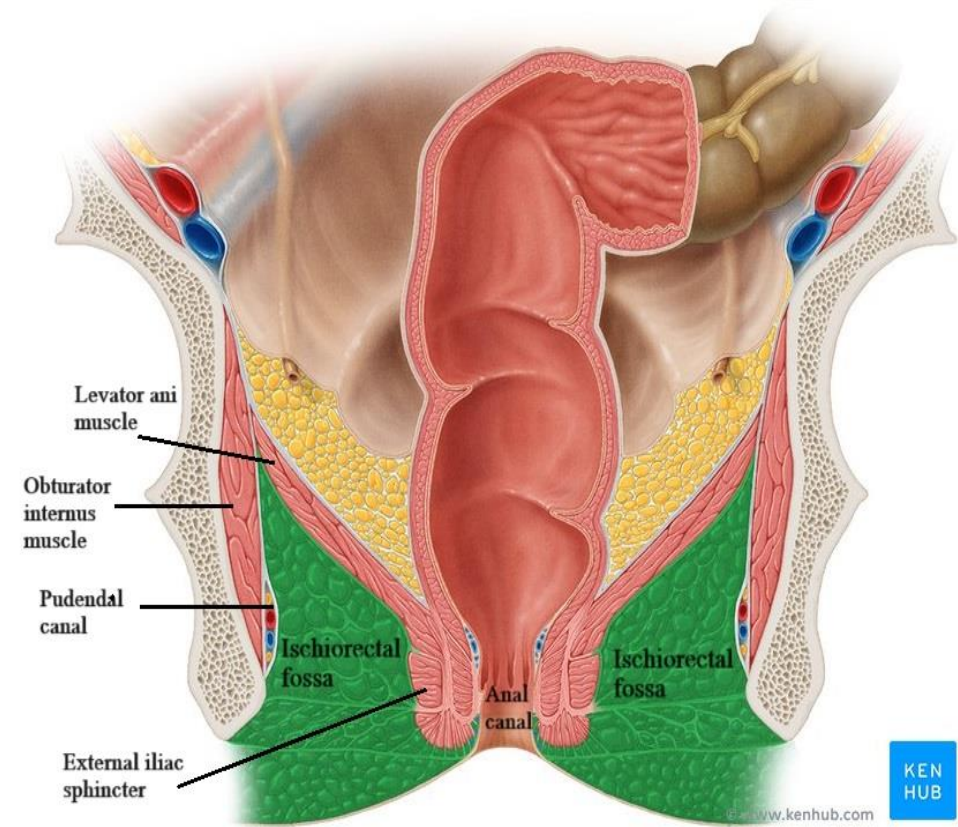
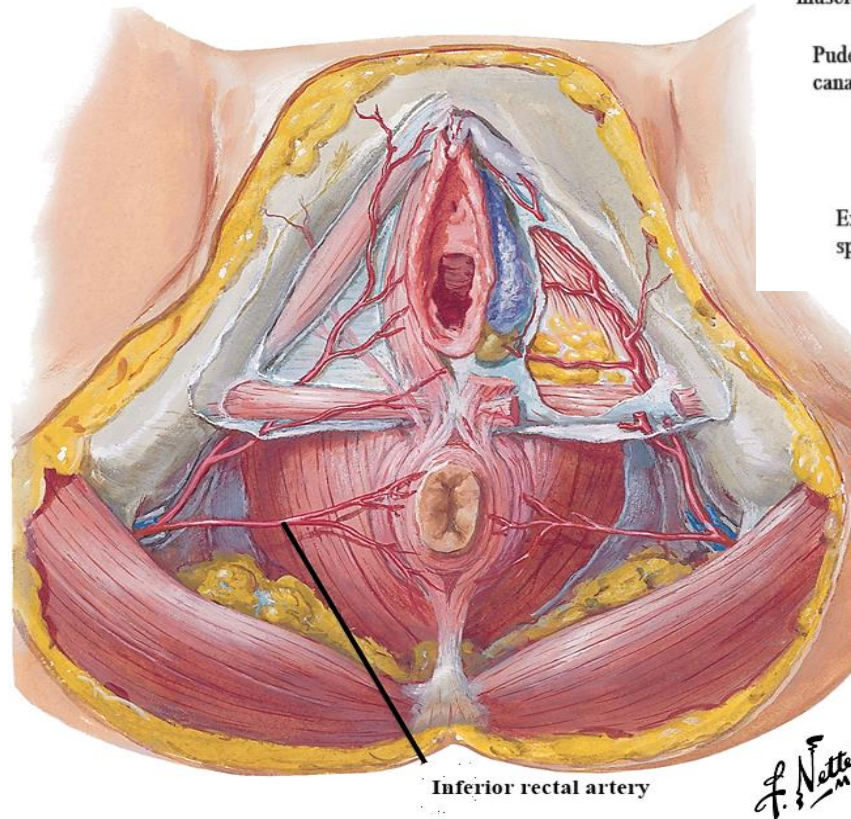




Anal Triangle

The anal triangle contains:

- The anal canal and its sphincters.
- The two ischio-anal (ischio-rectal) fossae.
- The structure of the anal triangle is **similar** in males and females.

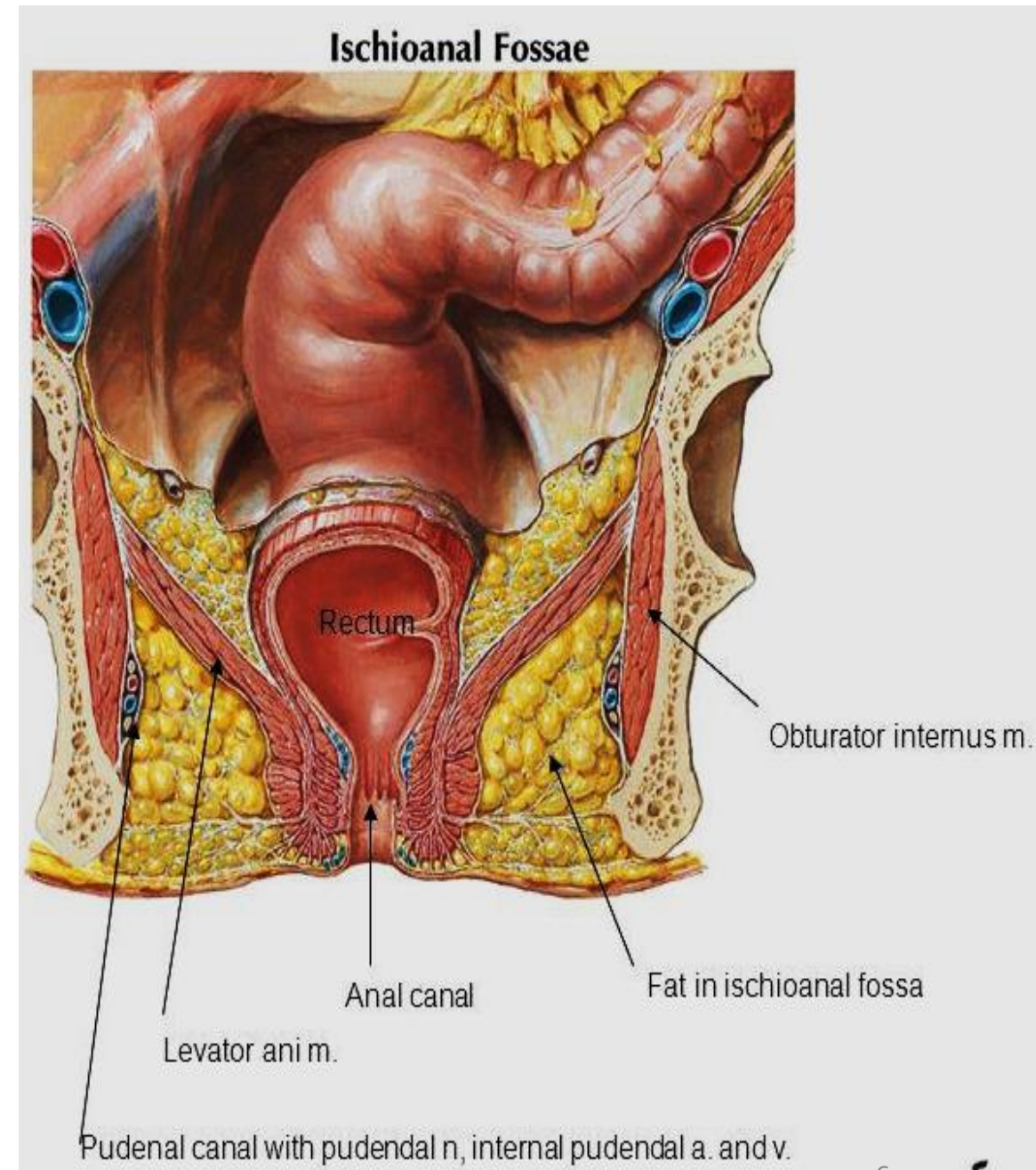


Ischioanal fossa:

It is wedge shaped space **on either** side of the anal canal.

Its boundaries are formed by as follow:

- **Apex:** Origin of levator ani from tendinous arch.
- **Base:** Skin on either side of the anal orifice.
- **Anteriorly:** Posterior borders of the superficial and deep transverse perineal muscles.
- **Posteriorly:** Sacrotuberous ligament.
- **Lateral wall:** **Obturator internus muscle & fascia and pudendal canal.**
- **Superomedial wall:** **Levator ani muscle & external anal sphincter.**



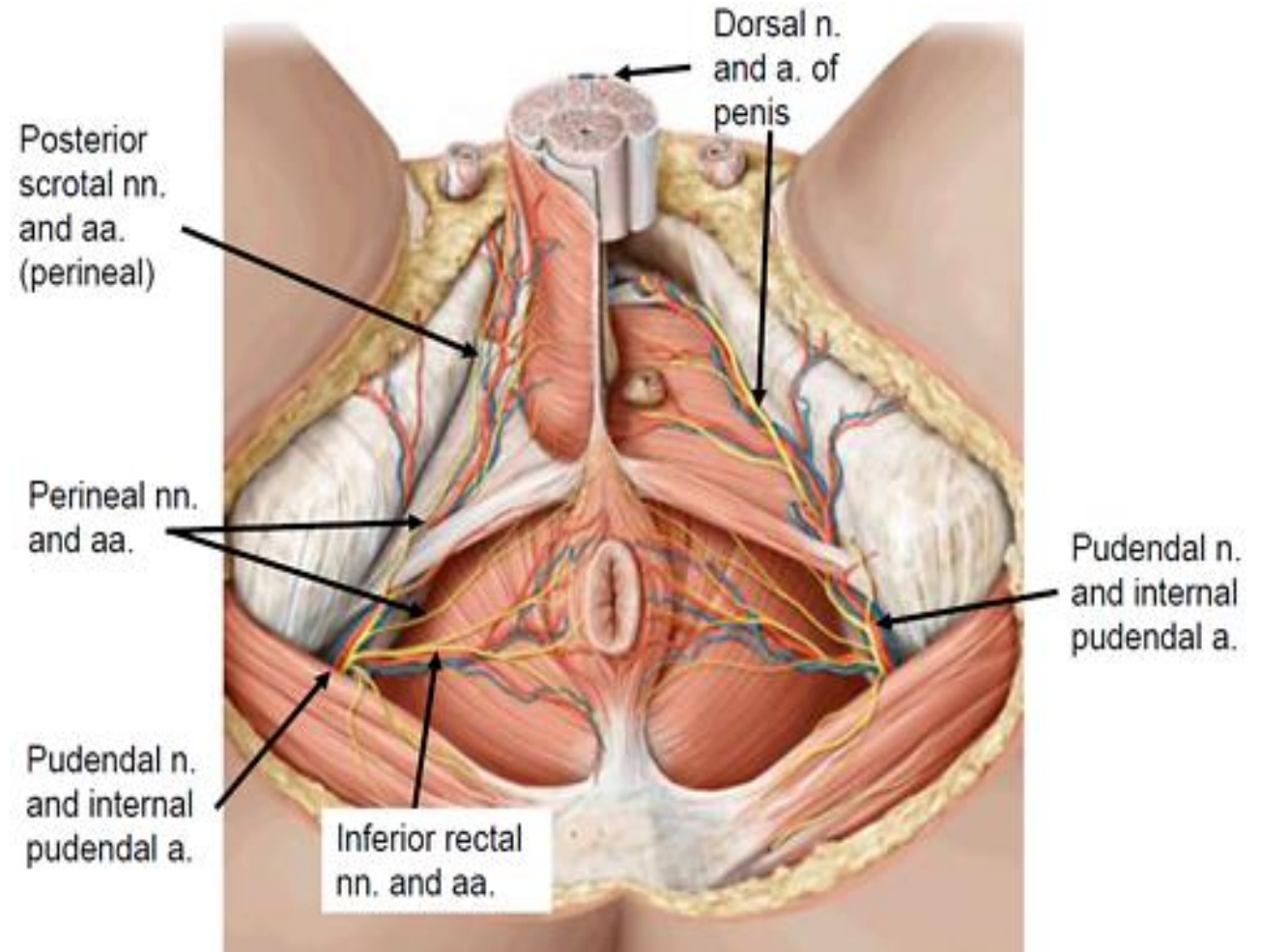
Contents of Ischio-anal fossa:

1. **Ischioanal fat** (allows distention of the anal canal during defecation)
2. **Pudendal canal** on its lateral wall that transmits the **pudendal nerve and internal pudendal vessels**.
3. **Inferior rectal nerve & vessels**.

Applied Anatomy:

Infections in the ischioanal fat is common and lead to abscess formation.

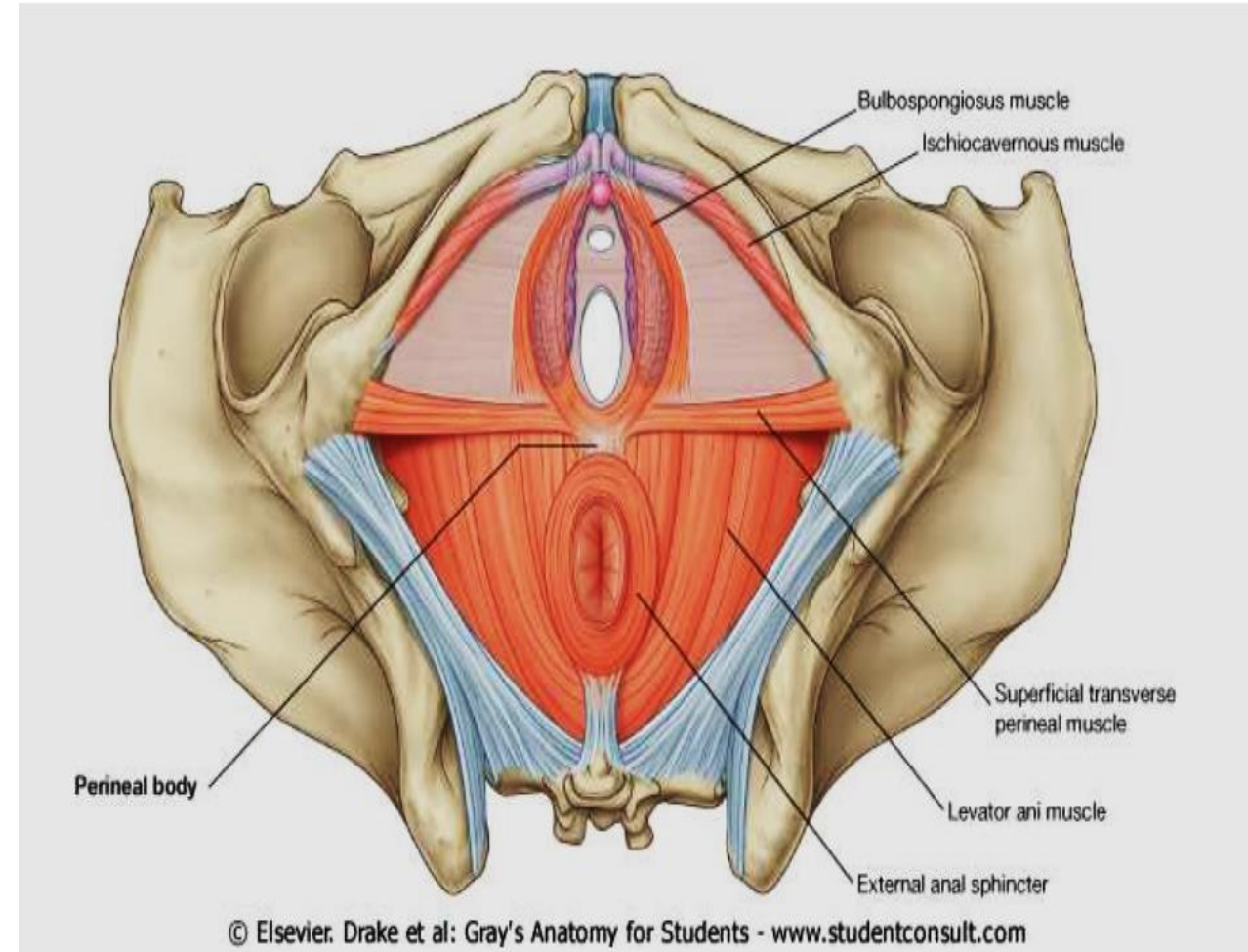
The abscess may rupture medially into the anal canal or downwards into the skin at the fossa.



Urogenital Triangle

Boundaries:

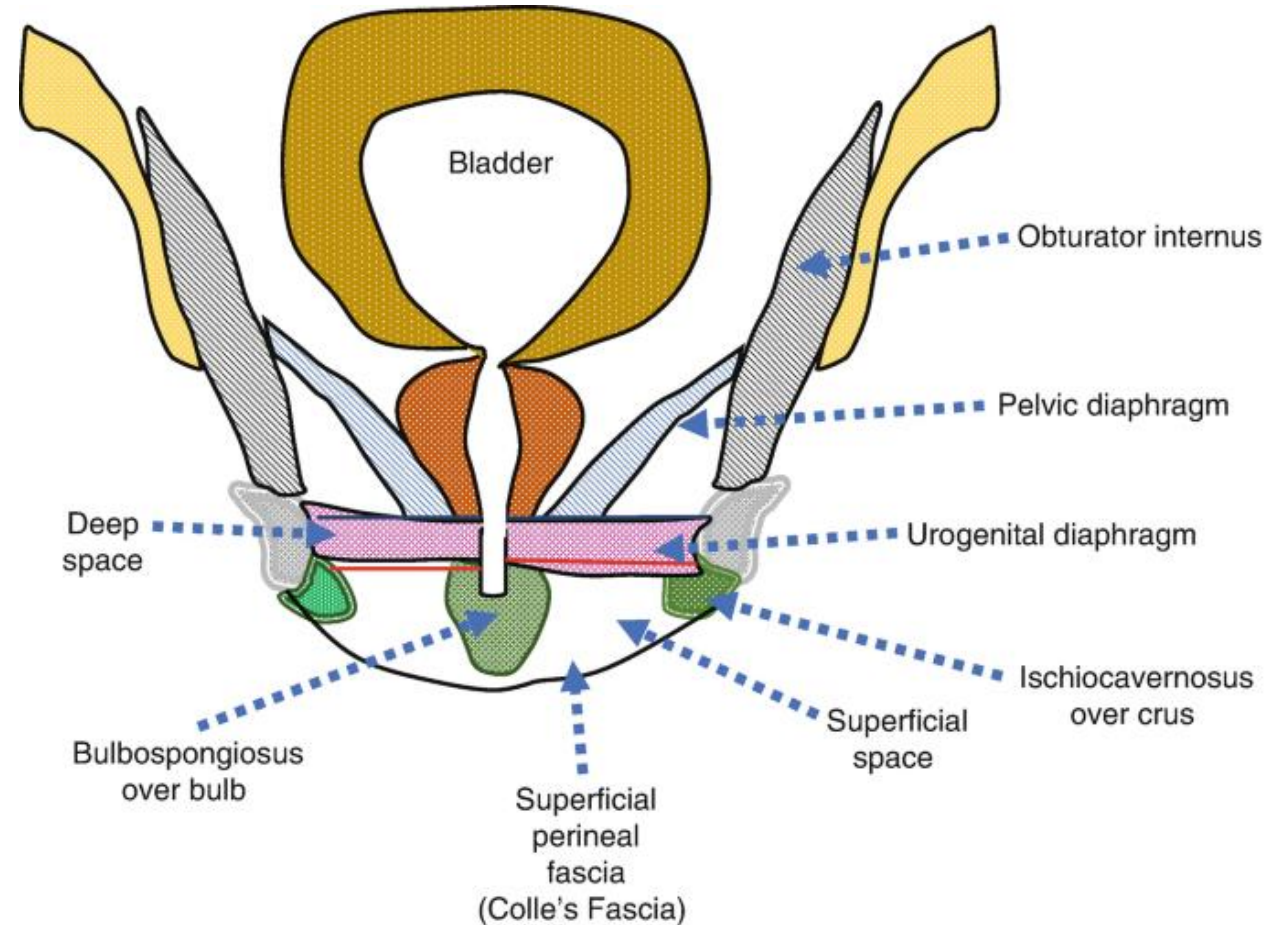
- **Posteriorly:** Inter-ischial line.
- **Anteriorly and laterally:** Symphysis pubis and ischiopubic rami.



The urogenital triangle is divided into two spaces by a strong perineal membrane:

1- Deep perineal space (pouch): lies above the perineal membrane.

2- Superficial perineal space (pouch): lies below the perineal membrane.

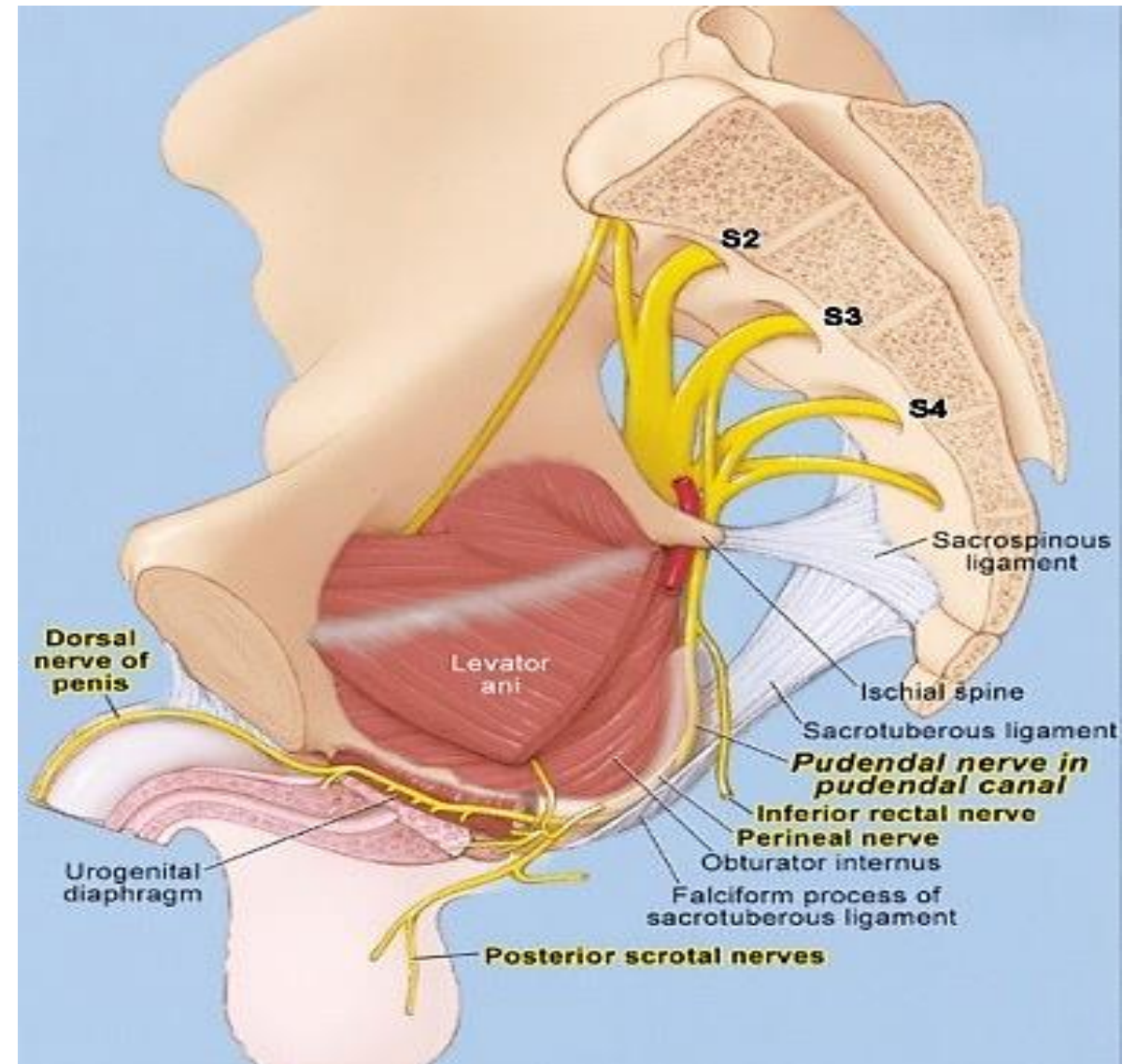


Pudendal Nerve

It arises from the sacral plexus.

Course and Relations:

- It leaves the pelvis through the greater sciatic foramen.
- Then it crosses the sacrospinous ligament.
- It passes through the lesser sciatic foramen to enter the pudendal canal.



Branches of pudendal nerve:

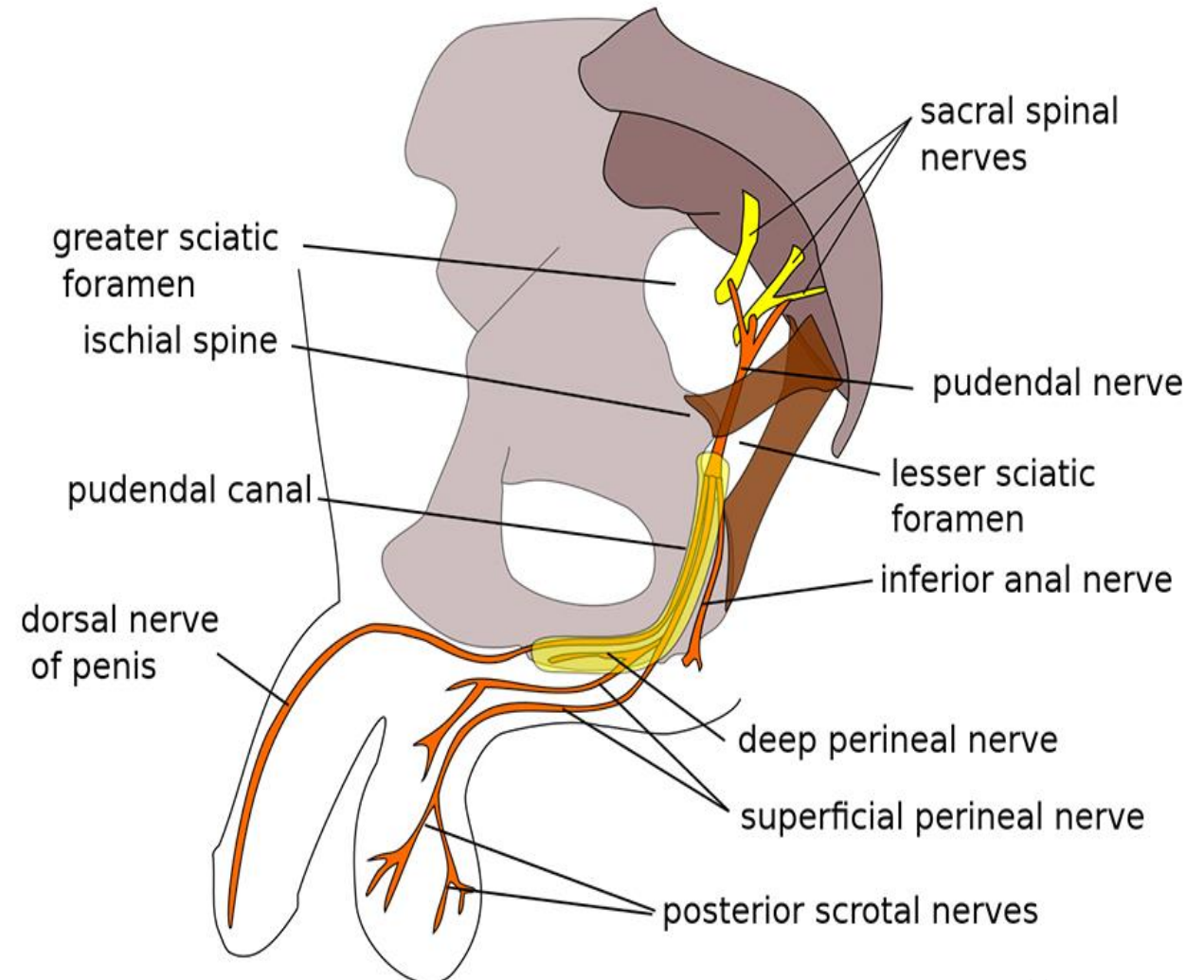
- Inferior rectal nerve.

- **Terminal branches;**

- a) **Perineal nerve.**

- **Motor:** To muscles of the superficial and deep perineal pouches.
 - **Sensory:** Posterior scrotal (labial) nerves.

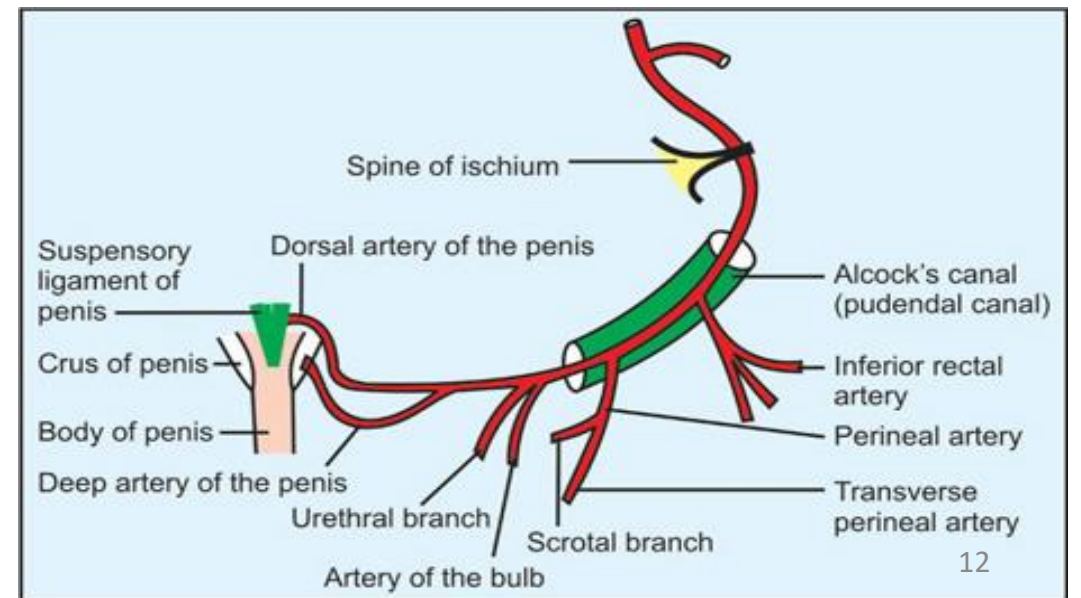
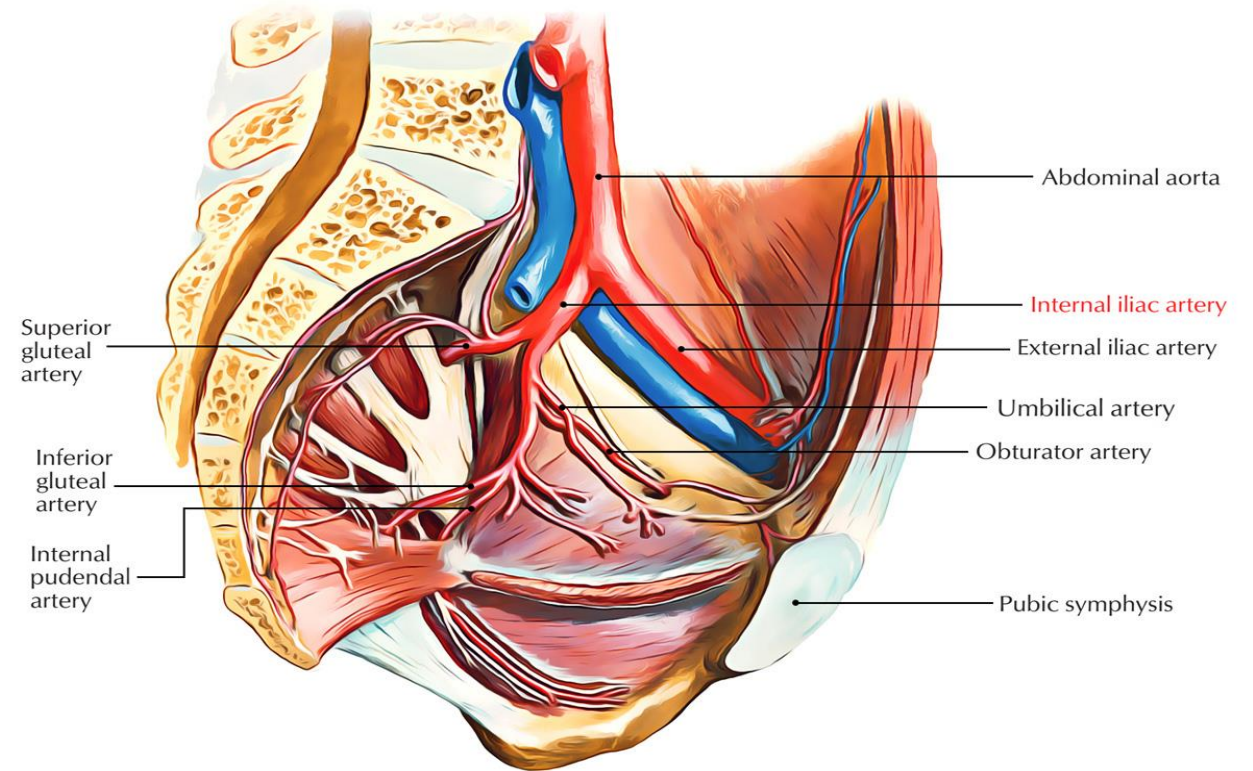
- b) **Dorsal nerve of penis (or clitoris).**



Internal Pudendal Artery

Course and Relations:

- It **leaves** the pelvis through the greater sciatic foramen.
- Then it **crosses** ischial spine and passes through the lesser sciatic foramen to **passes** through the **pudendal canal**.
- Then it **enters** the **deep perineal pouch** then **pierces** the perineal membrane & enters **superficial perineal pouch**.
- It ends by dividing into **dorsal and deep arteries of the penis**.



Branches of Internal Pudendal Artery:

In Pudendal canal:

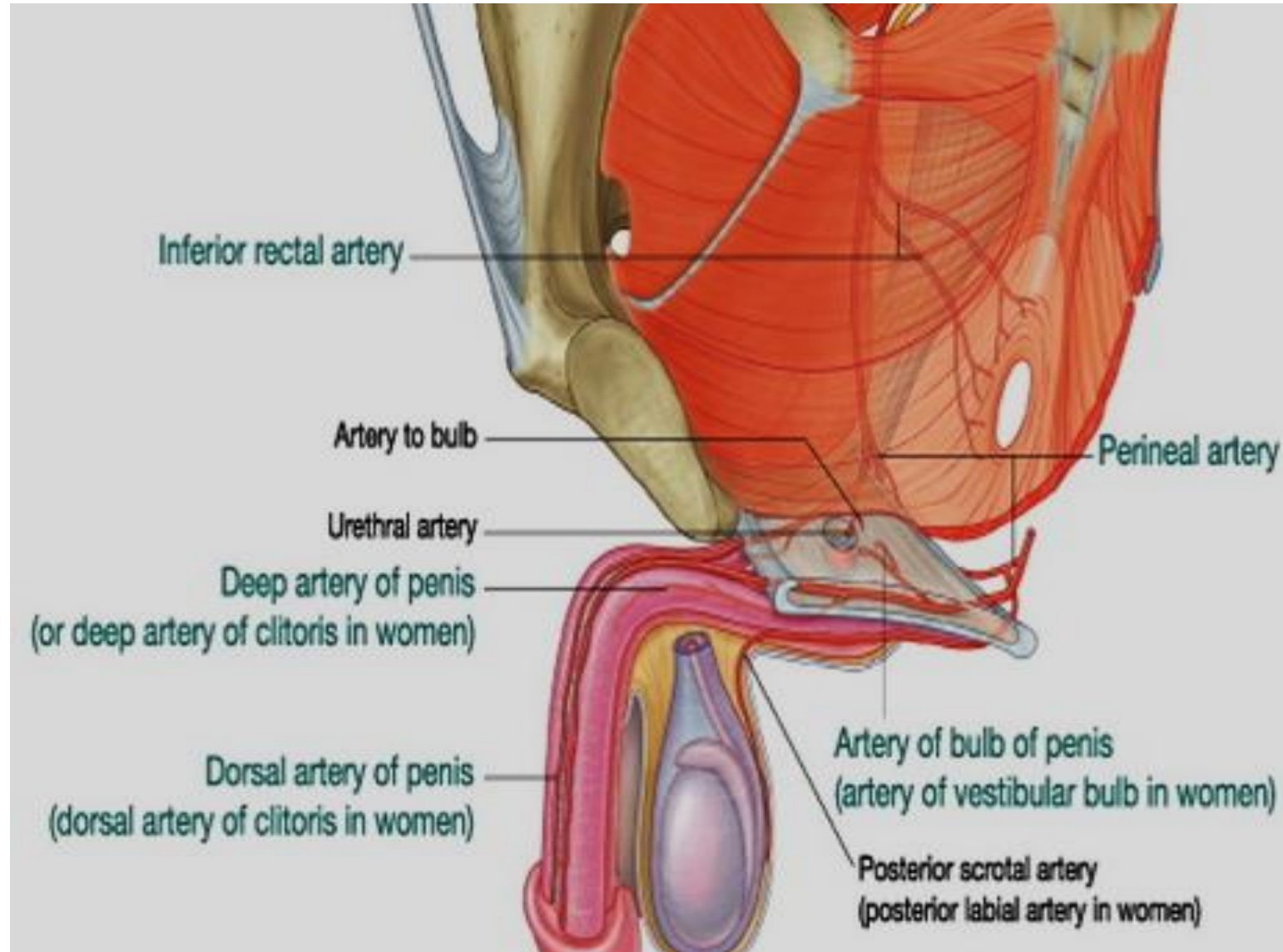
- 1- Inferior rectal artery.
- 2- **Perineal artery:** it gives
 - **Two scrotal (or labial) arteries.**
 - Transverse perineal artery.

In Deep perineal pouch:

- 3- **Artery of bulb.**
- 4- **Urethral artery.**

In Superficial perineal pouch:

- 5- **Dorsal A. of penis.**
- 6- **Deep A. of penis.**



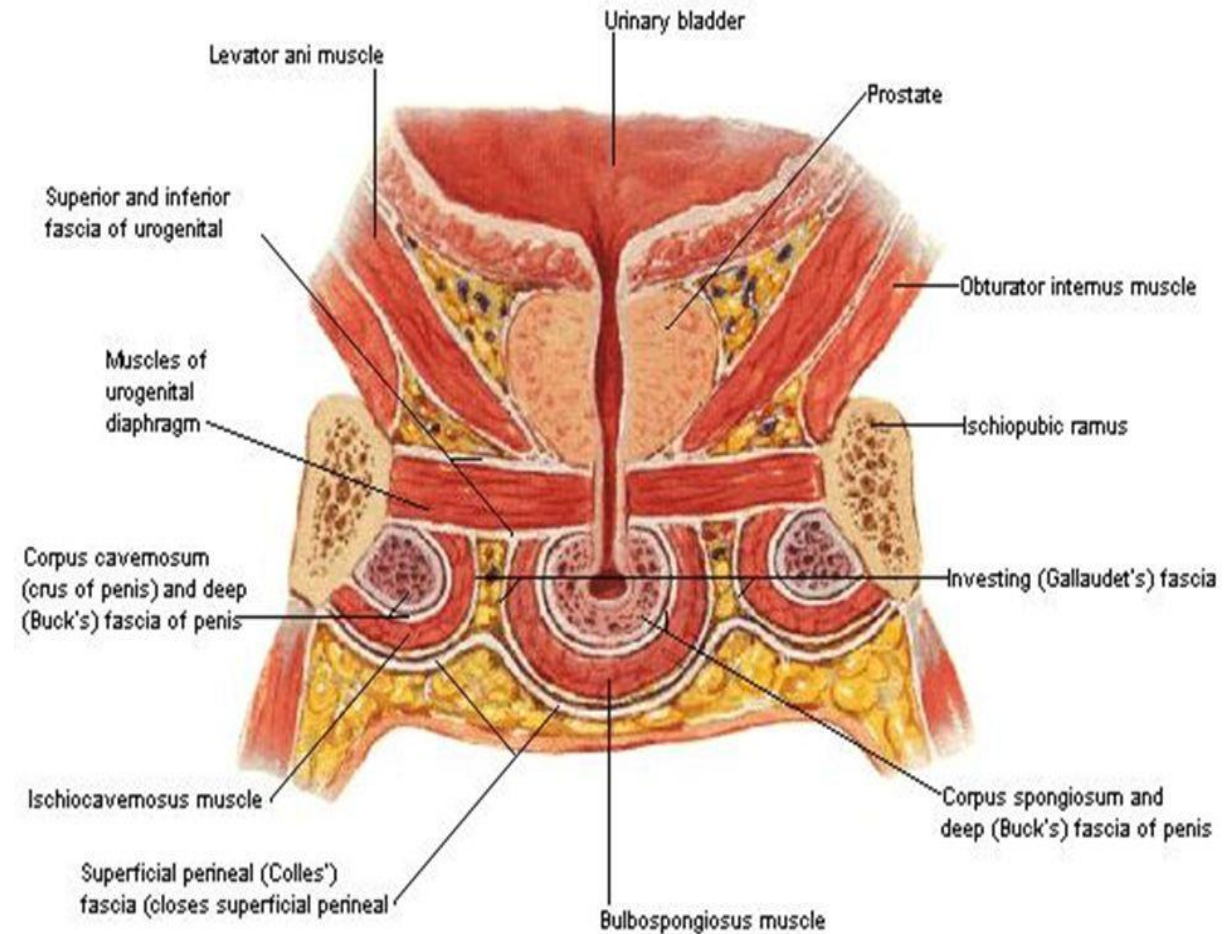
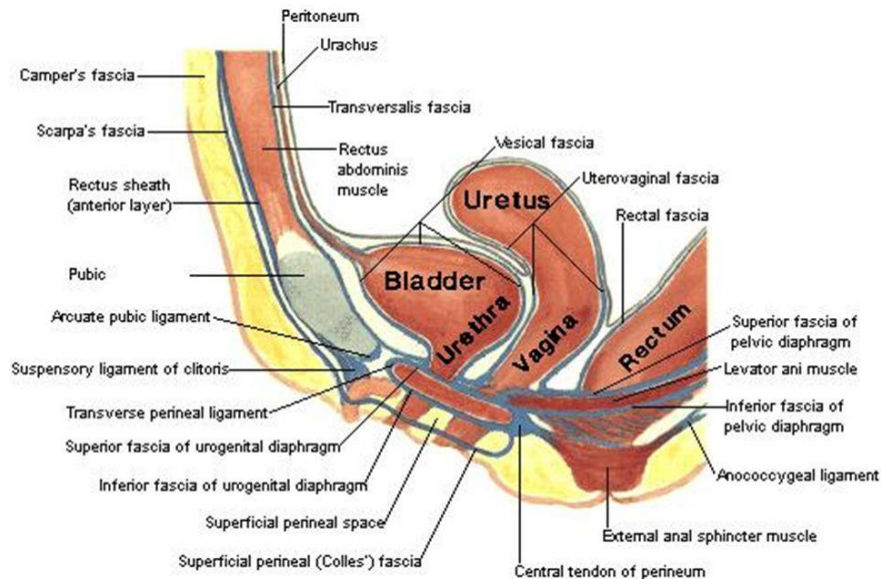
Deep Perineal Space-Urogenital Diaphragm

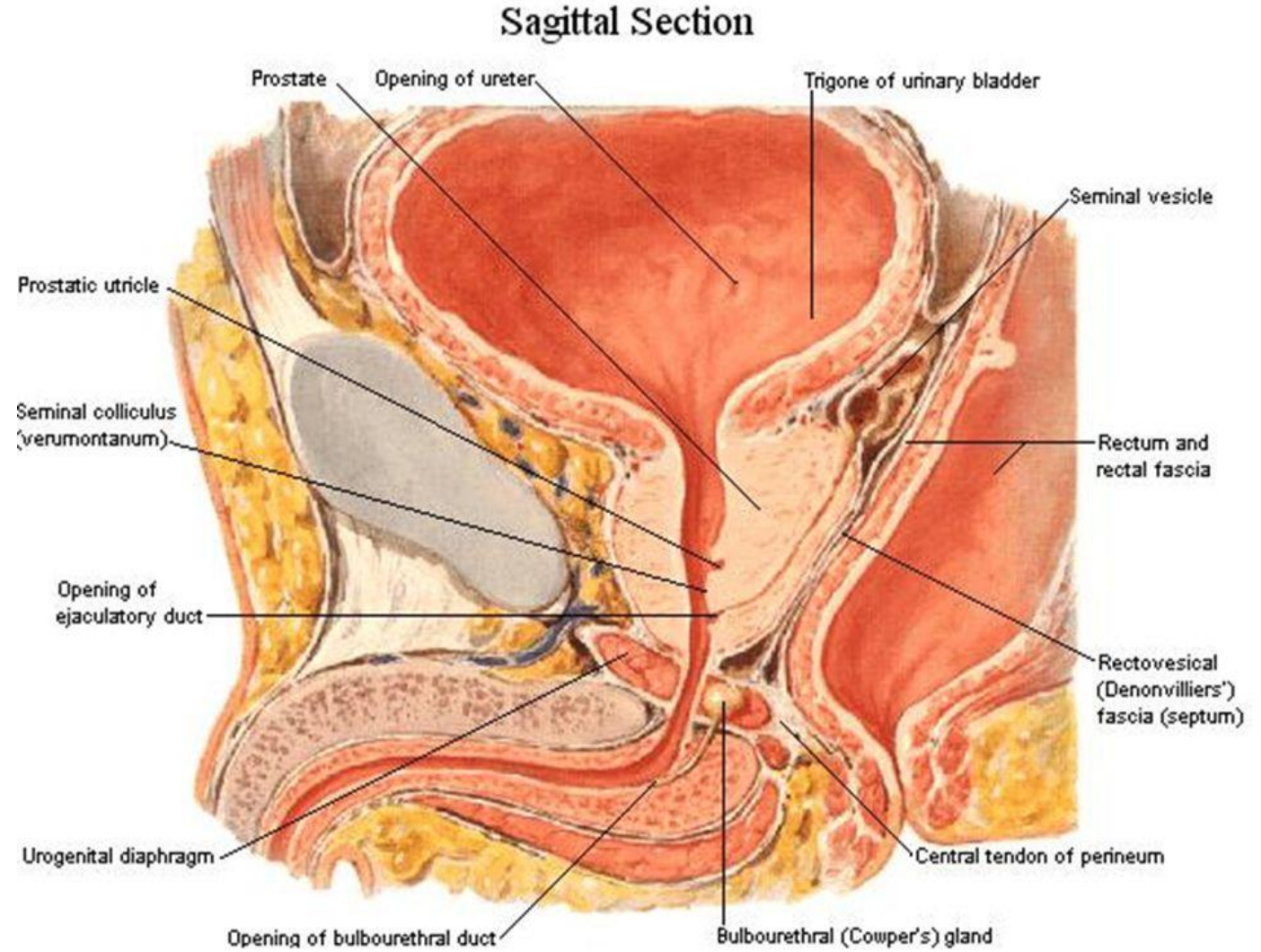
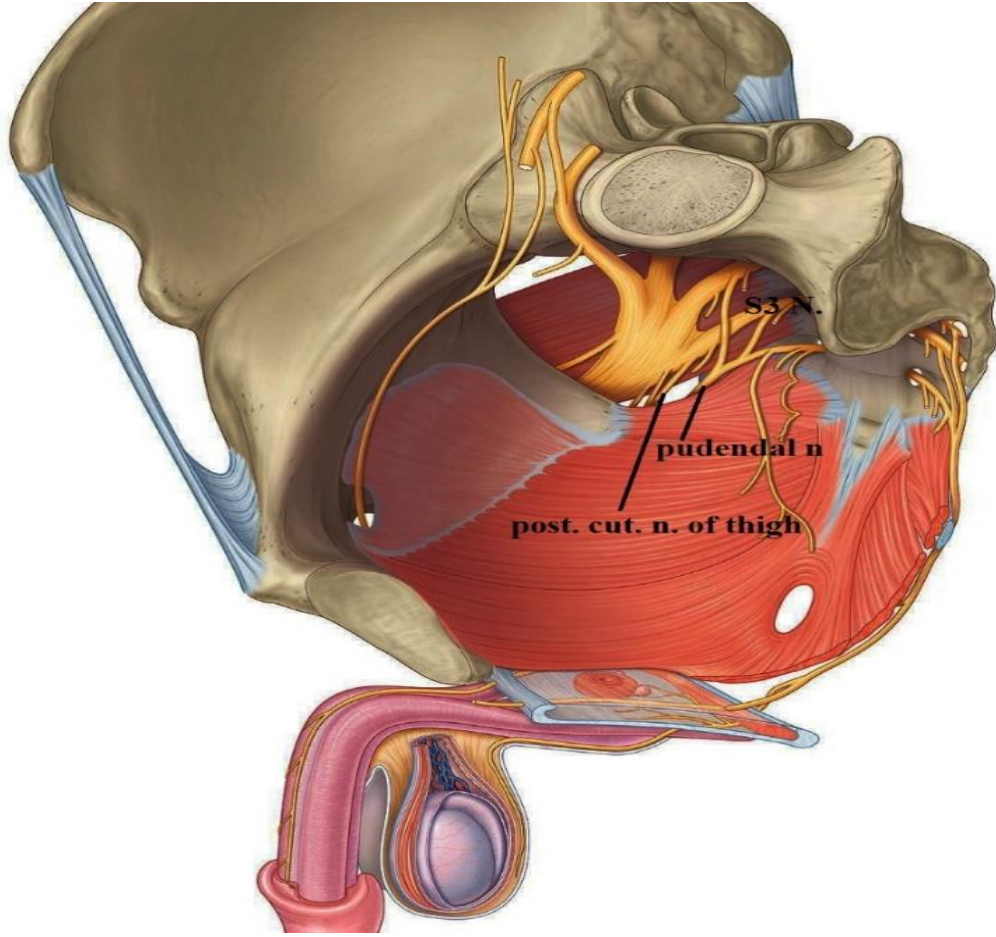
Lies between;

Roof: Superior fascia of the urogenital diaphragm.

Floor: Inferior fascia of the urogenital diaphragm
(Perineal membrane)

Anteriorly & Posteriorly: it is closed by union of roof and floor.



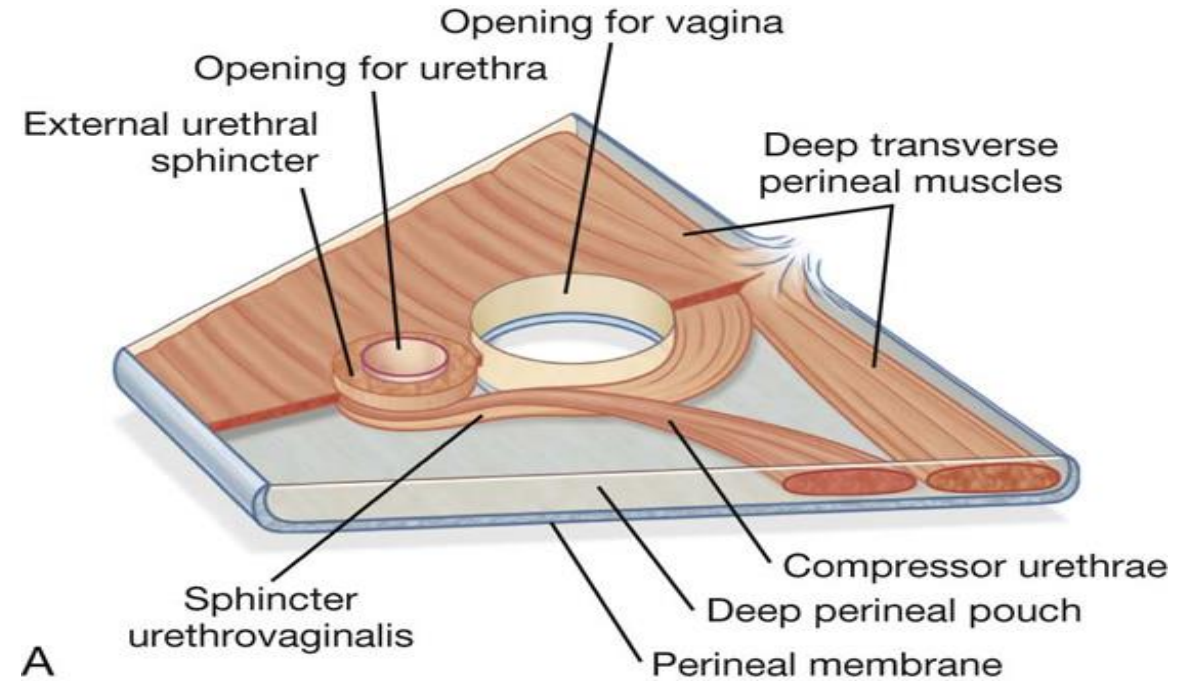


Contents of Deep Perineal Pouch:

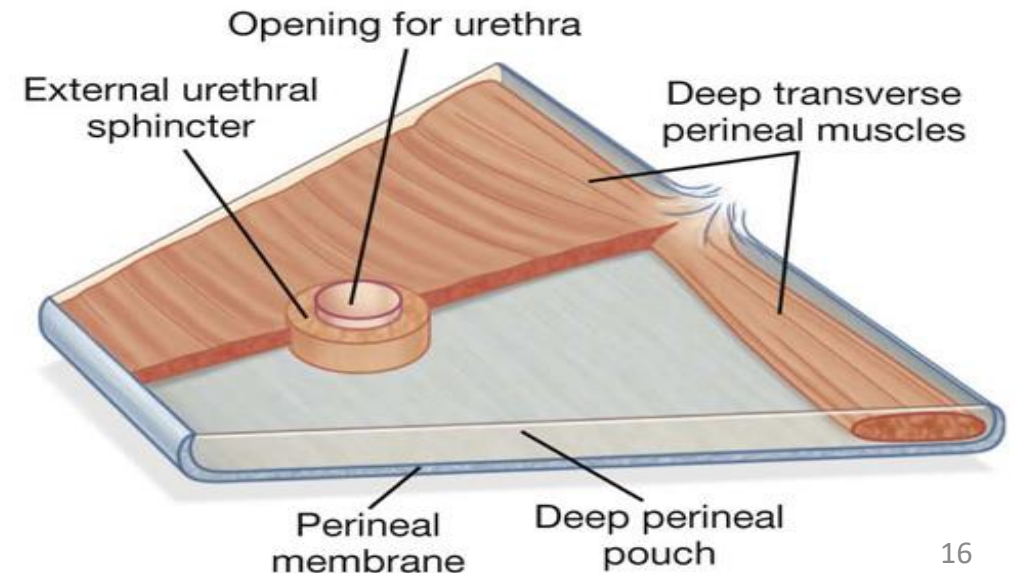
- 1- Muscles.
- 2- Urogenital Structures according to sex.
- 3- Branches of the internal pudendal vessels and pudendal nerve.

Muscles of the deep perineal pouch:

- 1- Sphincter urethrae.
- 2- Deep transverse perineal muscles (Inserts into perineal body)
 - These muscles form the urogenital diaphragm
 - They are innervated by the perineal branches of the pudendal nerve.



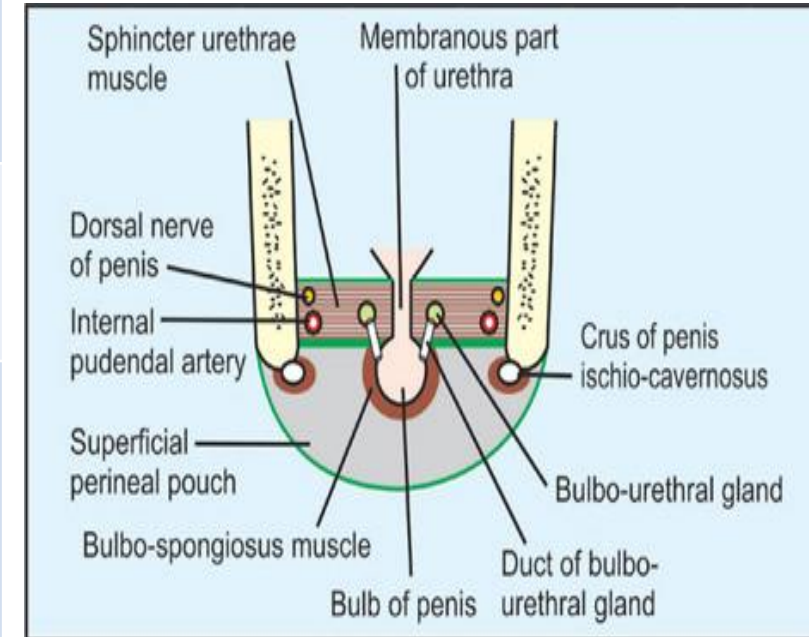
A

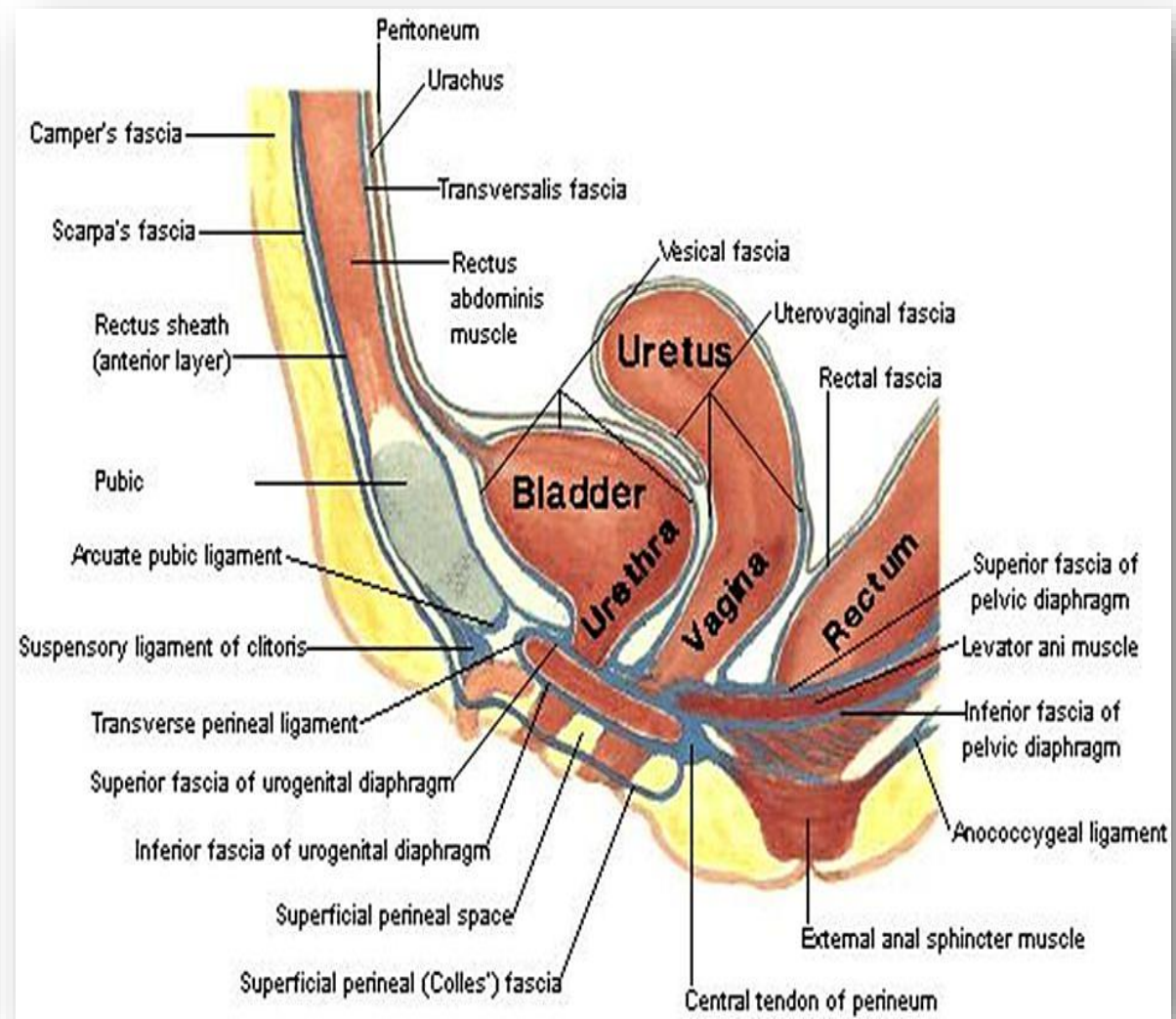
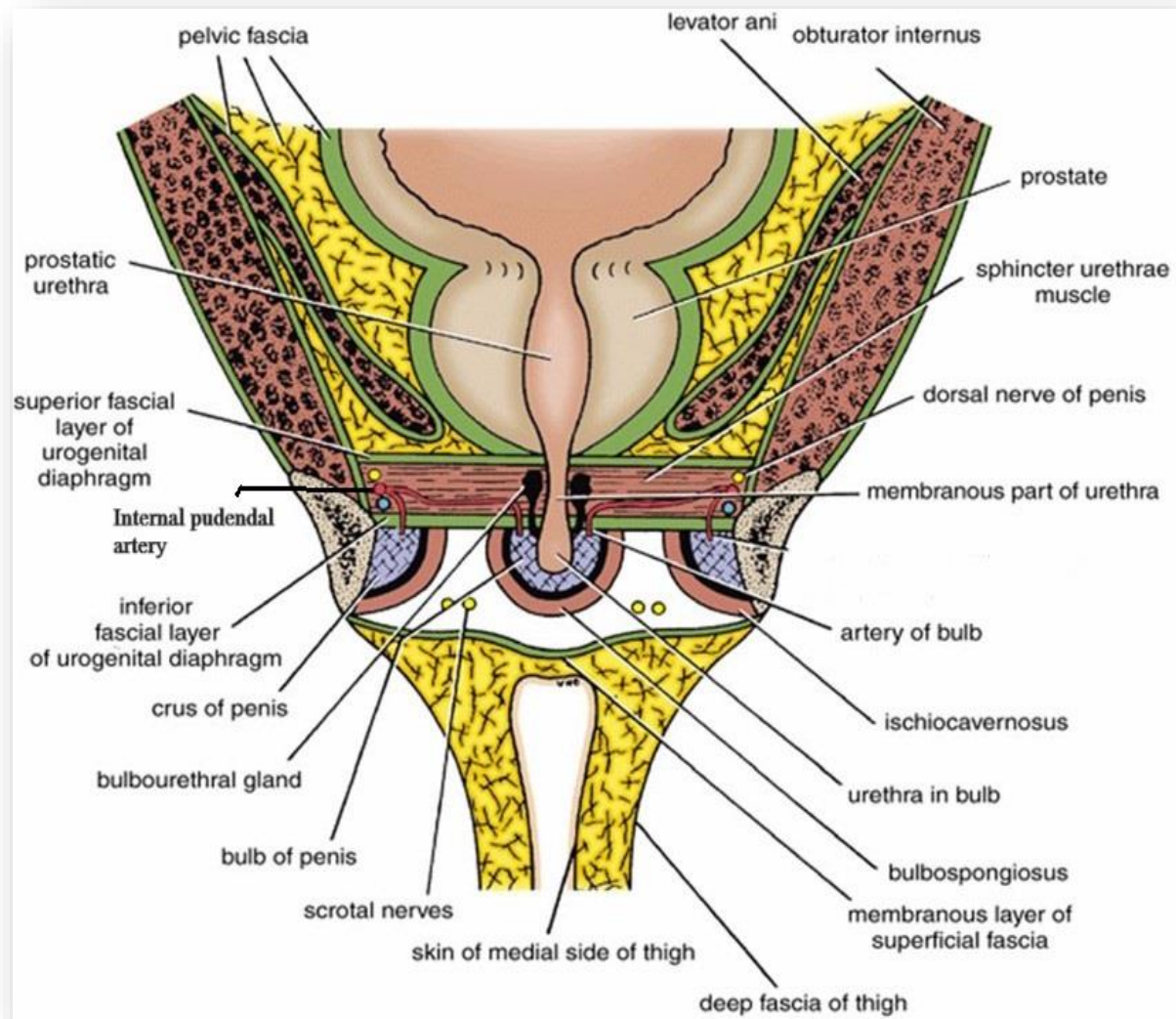


B

Contents of Deep Perineal Pouch

	In Male	In Female
Urogenital Structures	<ul style="list-style-type: none"> • Membranous urethra. • Bulbourethral (Cowper's) glands 	<ul style="list-style-type: none"> • Part of the urethra. • Part of vagina
Muscles	<ul style="list-style-type: none"> • Sphincter urethrae • Deep transverse perineal muscles 	
Vessels	<ul style="list-style-type: none"> • Internal pudendal A. • Artery of bulb. • Urethral A. • Perineal A. 	<ul style="list-style-type: none"> • Internal pudendal A. • Artery of bulb of vestibule. • Perineal A
Nerves	<ul style="list-style-type: none"> • Dorsal N. of penis. • Perineal N. 	<ul style="list-style-type: none"> • Dorsal N. of clitoris. • Perineal N.

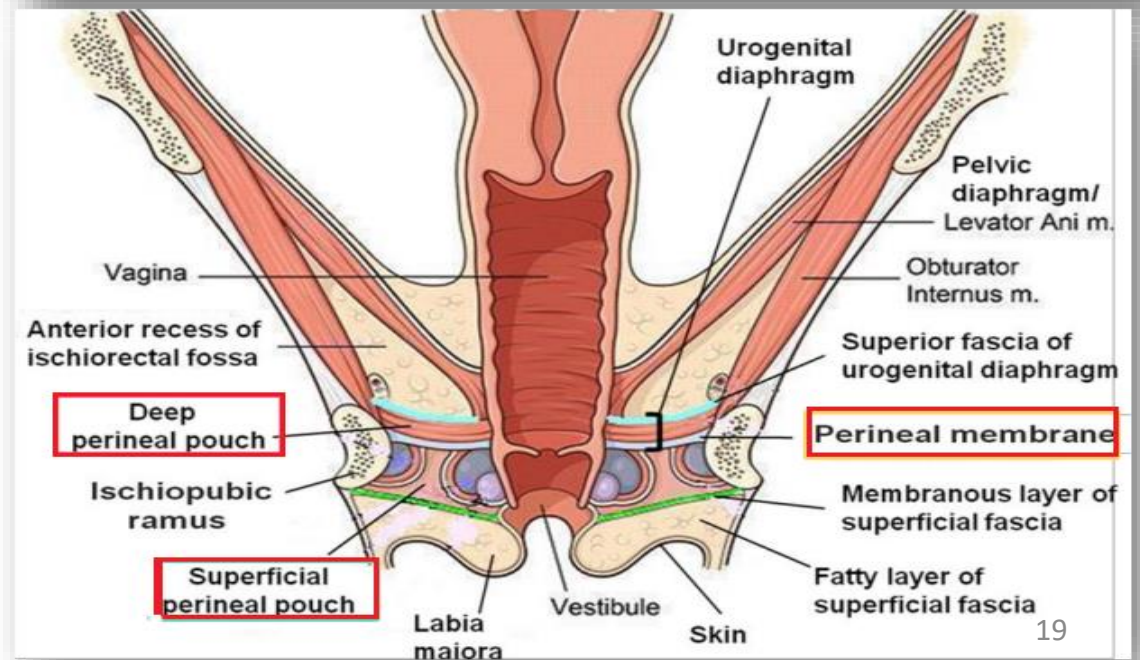
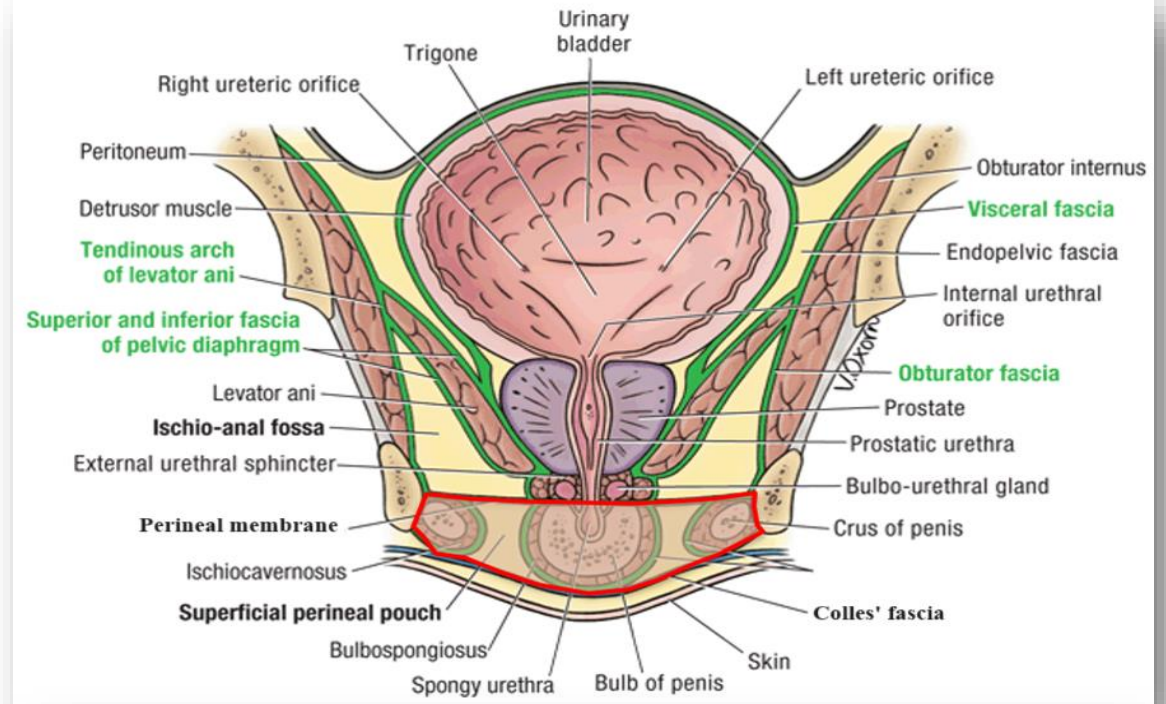


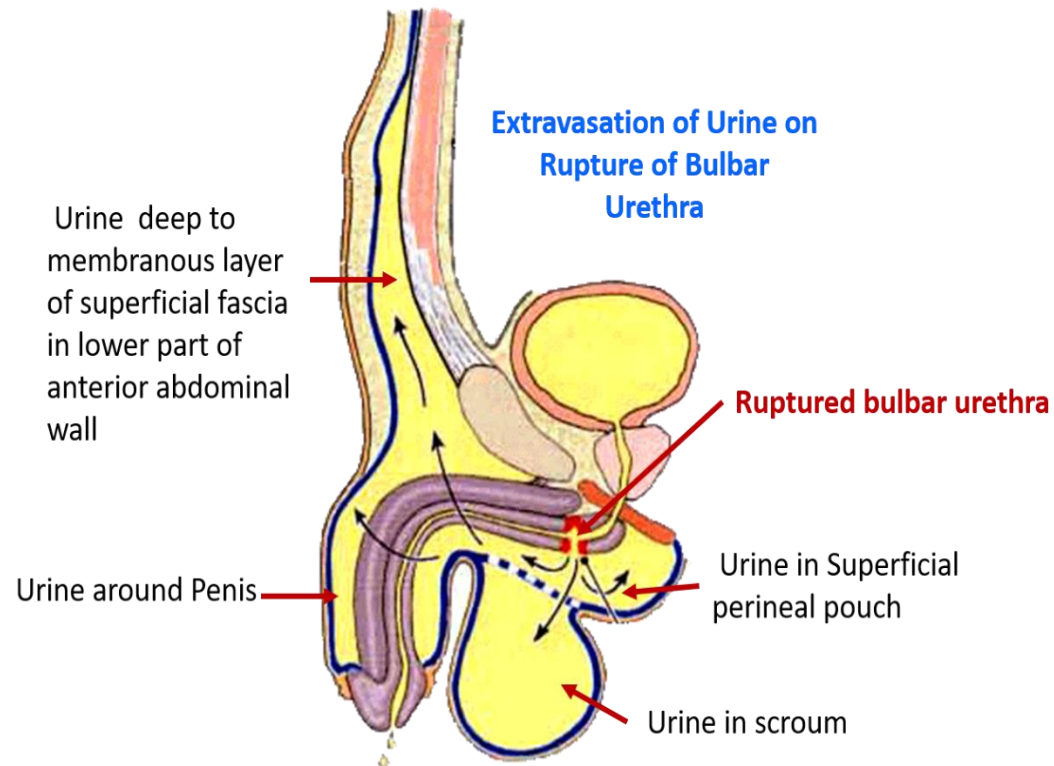


Superficial Perineal Pouch

It lies between;

- **Roof:** Perineal membrane.
- **Floor:** Membranous layer of the superficial perineal fascia (Colles' fascia).
- **Posteriorly:** It is closed by union of the roof and floor.
- **Anteriorly:** It communicates freely with the interval between the membranous layer of superficial fascia of anterior abdominal wall and external oblique aponeurosis.



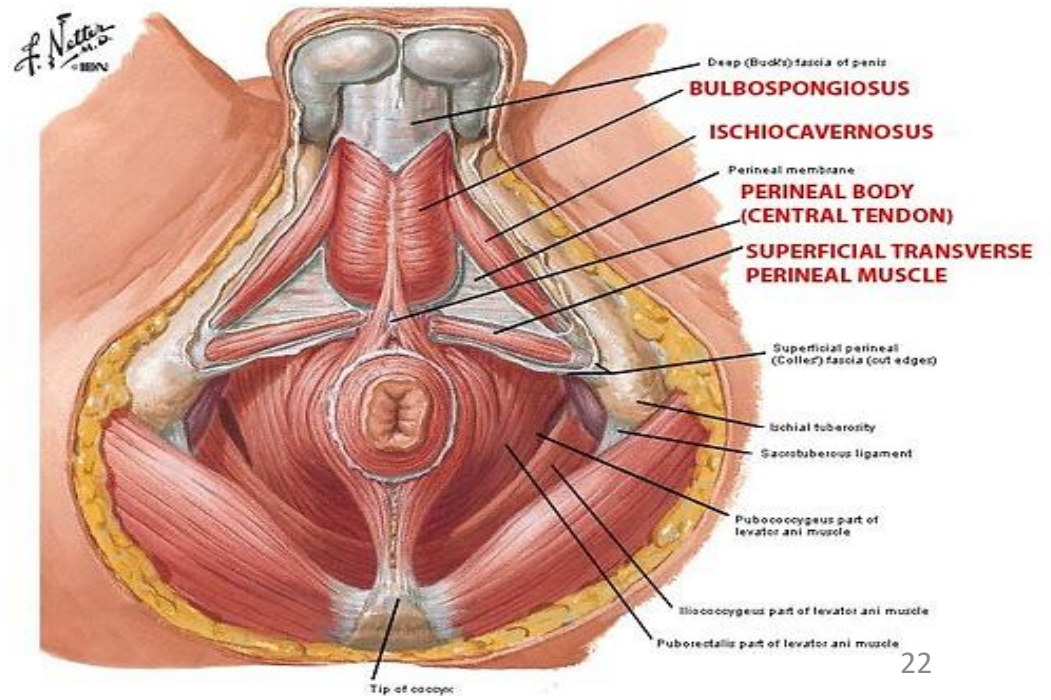
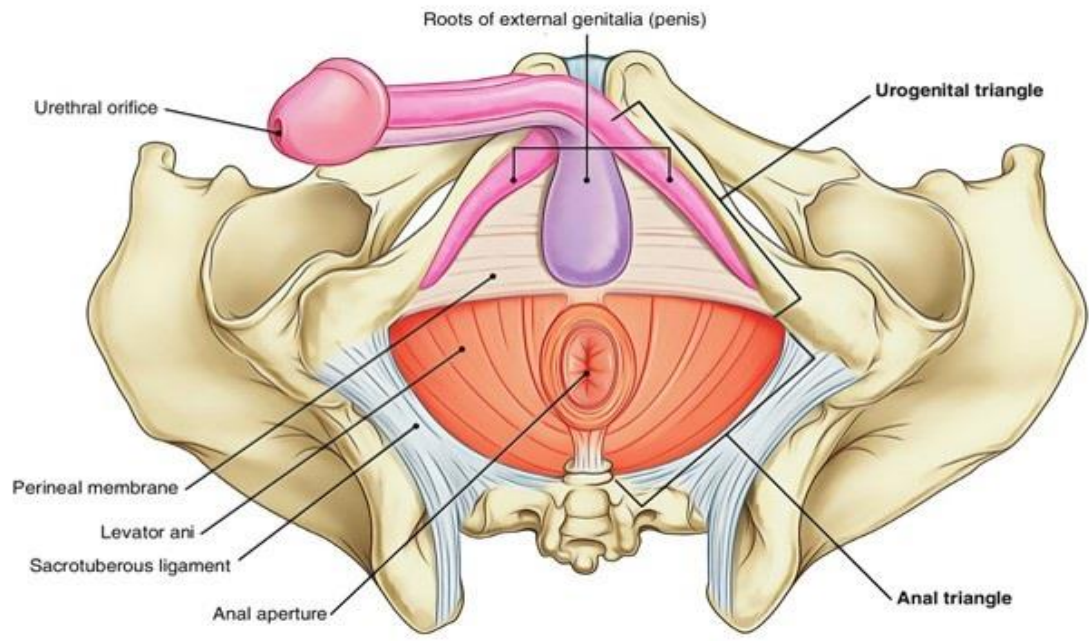
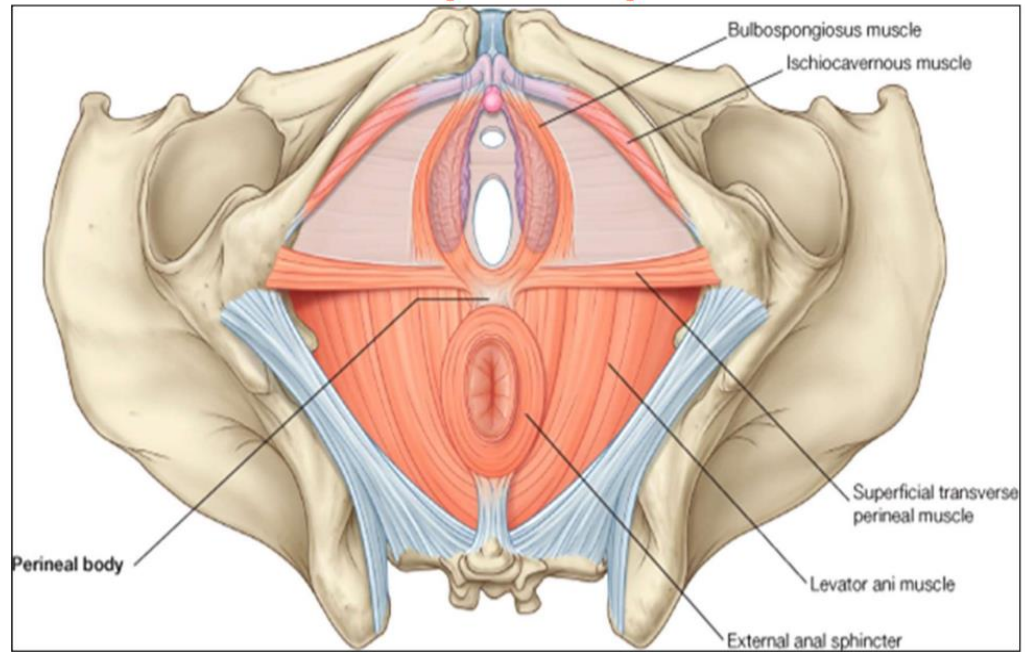
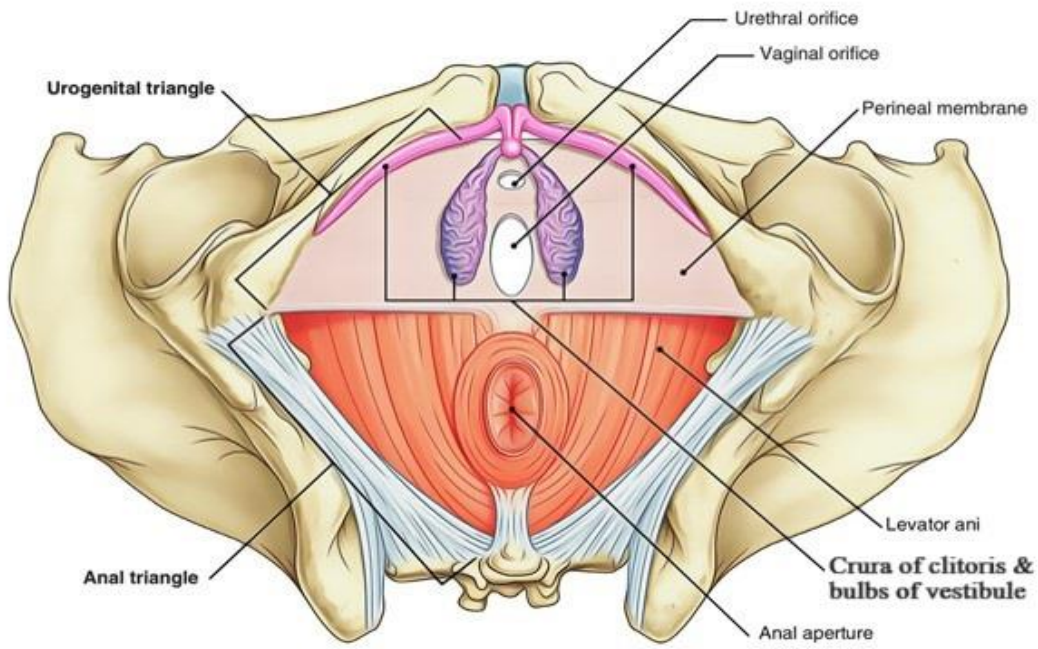


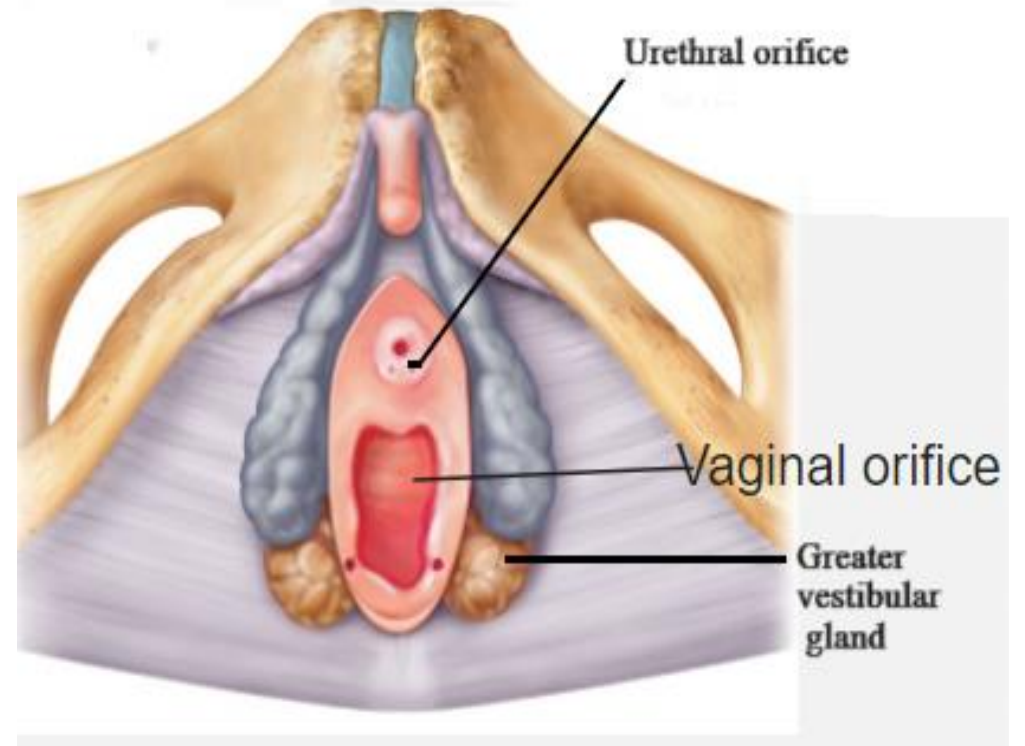
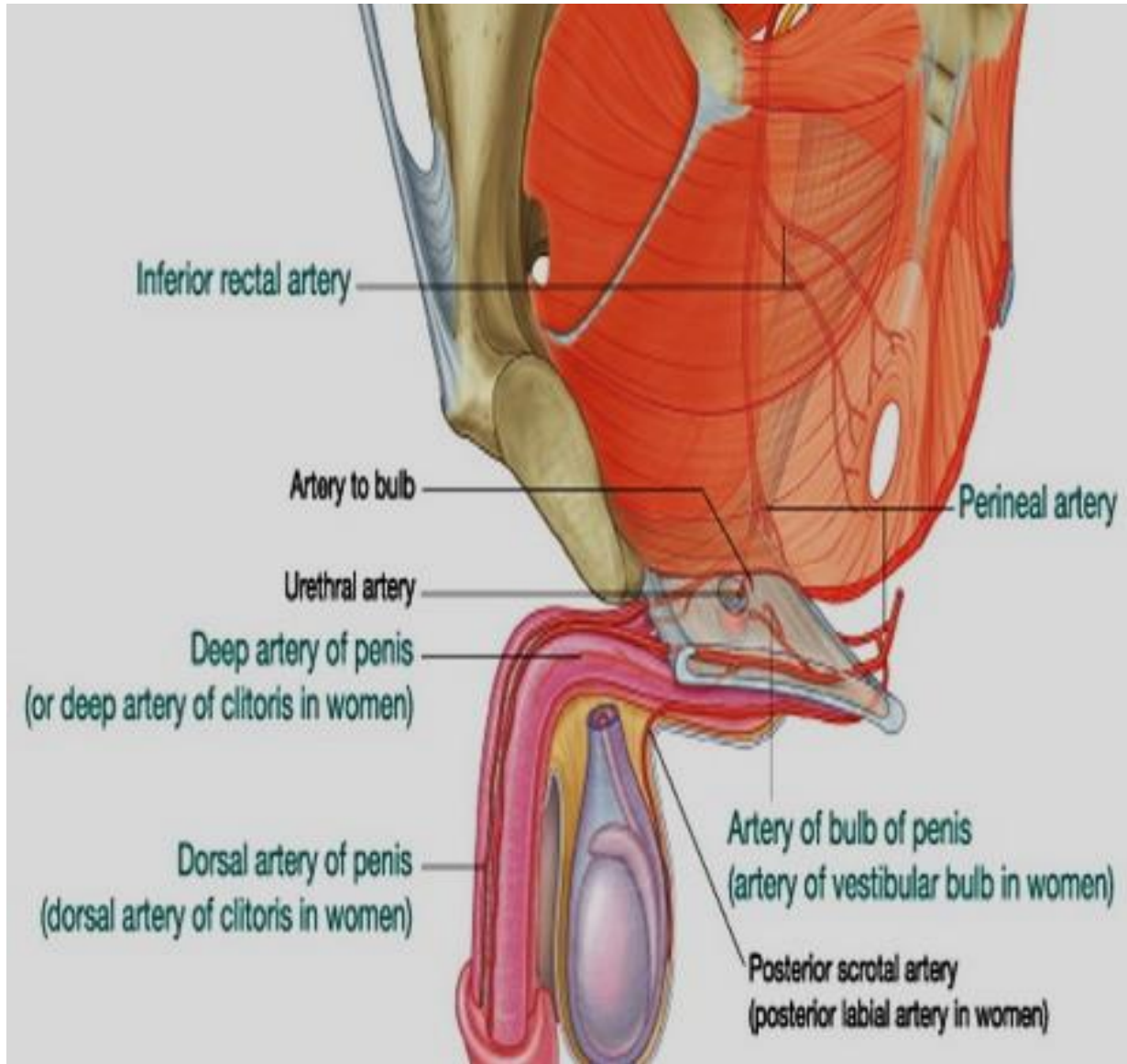
Rupture of Spongy Urethra:

- The urine extravasates into the superficial perineal pouch and then passes forward into loose connective tissue of the scrotum, around the penis and beneath the membranous layer of the superficial fascia of lower part of anterior abdominal wall.
- Cannot pass posteriorly to anal triangle.

Contents of Superficial Perineal Pouch

	In Male	In Female
Urogenital Structures	<ul style="list-style-type: none"> • Root of penis (2 crura +Bulb) • Penile urethra in bulb of penis. 	<ul style="list-style-type: none"> • Root of clitoris (2 crura). • Two bulbs of vestibule. • Greater vestibular glands.
Muscles	<ul style="list-style-type: none"> • Ischiocavernosus muscles cover the 2 crura. • Bulbospongiosus muscle cover bulb of penis. • Superficial transverse perineal muscles. 	<ul style="list-style-type: none"> • Ischiocavernosus muscles cover the 2 crura. • Bulbospongiosu muscle covers bulb of vestibule. • Superficial transverse perineal muscles.
Vessels	<ul style="list-style-type: none"> • Internal pudendal A. • Dorsal A. of penis. • Deep A. of penis. • Posterior scrotal arteries. 	<ul style="list-style-type: none"> • Internal pudendal A. • Dorsal A. of clitoris. • Deep A. of clitoris. • Posterior labial arteries.
Nerves	<ul style="list-style-type: none"> • Dorsal N. of penis. • Posterior scrotal nerves. 	<ul style="list-style-type: none"> • Dorsal N. of clitoris. • Posterior labial nerves.





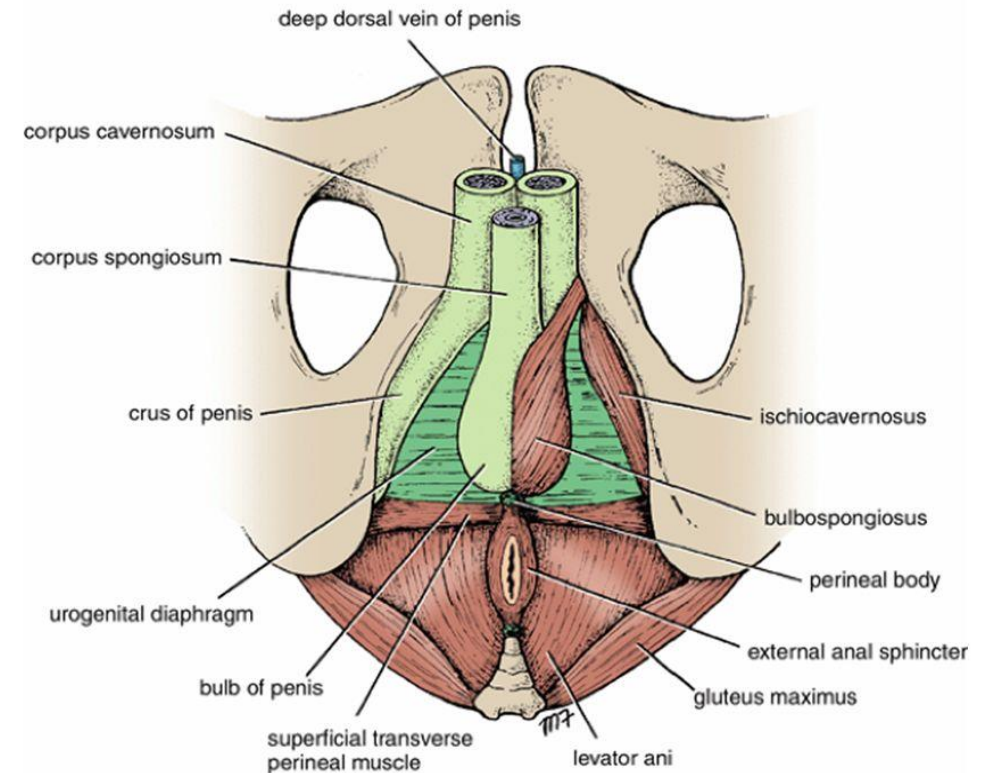
Action of muscles of superficial perineal pouch:

Ischiocavernosus muscles:

- Maintain erection of the penis by compressing the crus and the deep dorsal vein of the penis, thereby retarding venous return.

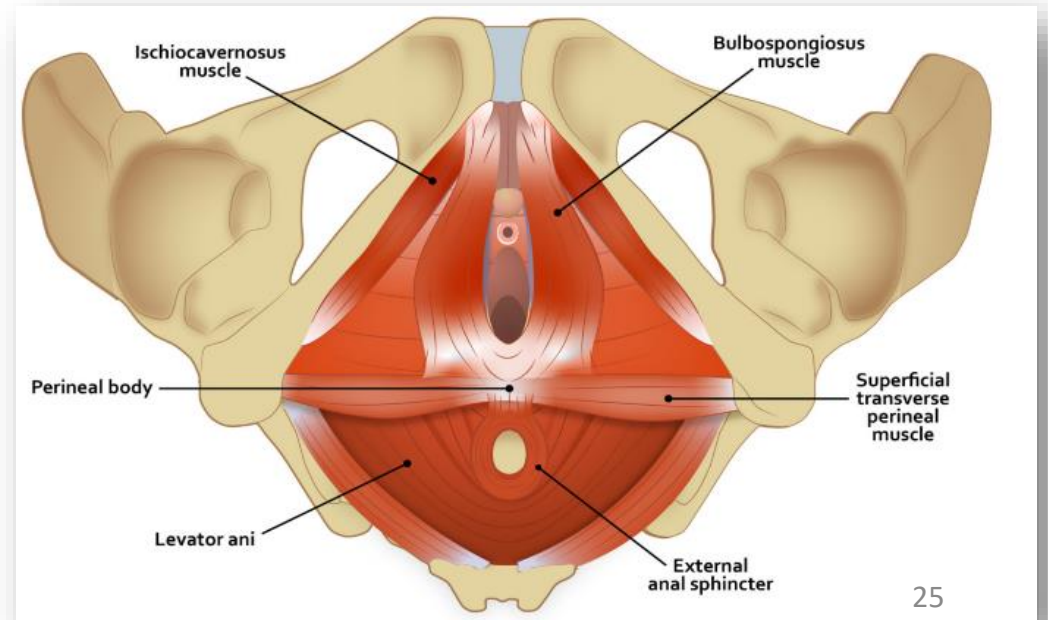
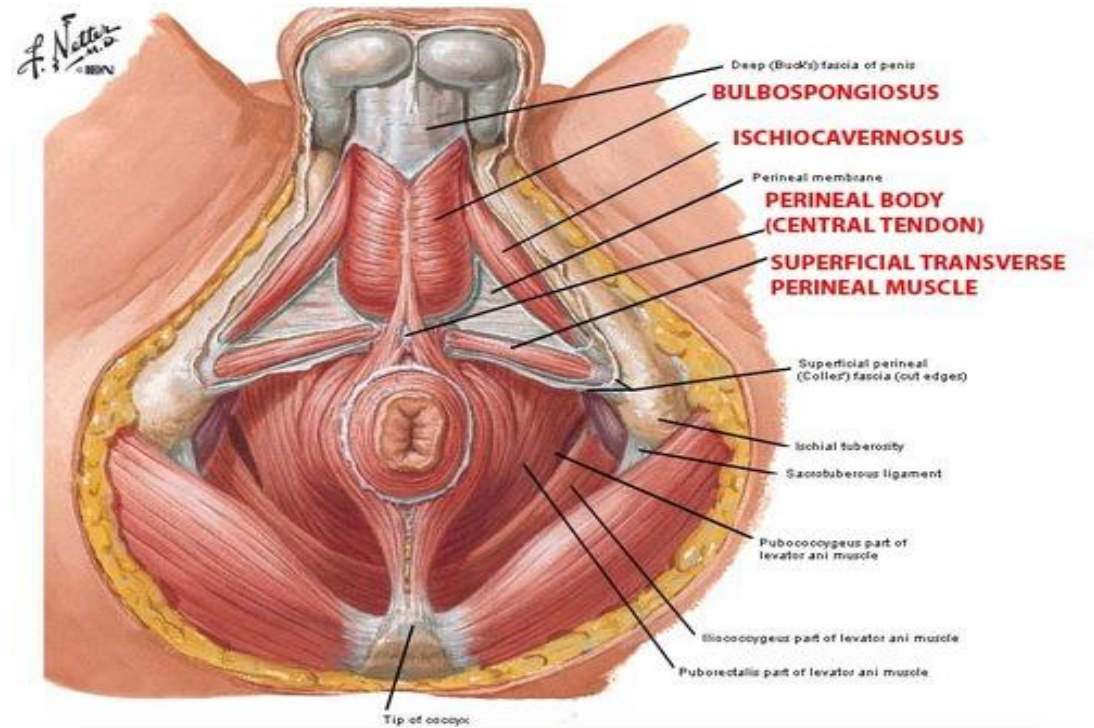
Bulbospongiosus muscle:

- **In Male:** Assist in erection of penis. And expelling last drops of urine during micturition or the final semen in ejaculation.
 - **In Female:** Act as sphincter vagina and help in erection of clitoris.
-
- All muscles in superficial perineal pouches are supplied by perineal branch of pudendal nerve.



Perineal Body

- Is a fibromuscular mass **located in** the center of the perineum **between** the anal canal and the vagina (or bulb of the penis).
- **Serves as a site of attachment** for the superficial and deep transverse perineal, bulbospongiosus, levator ani, and external sphincter muscles

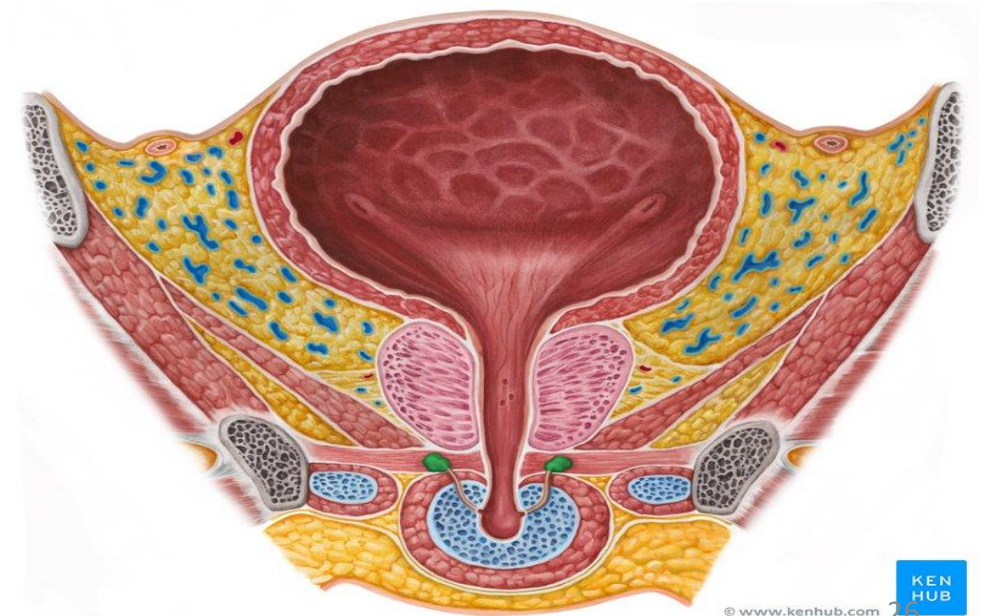
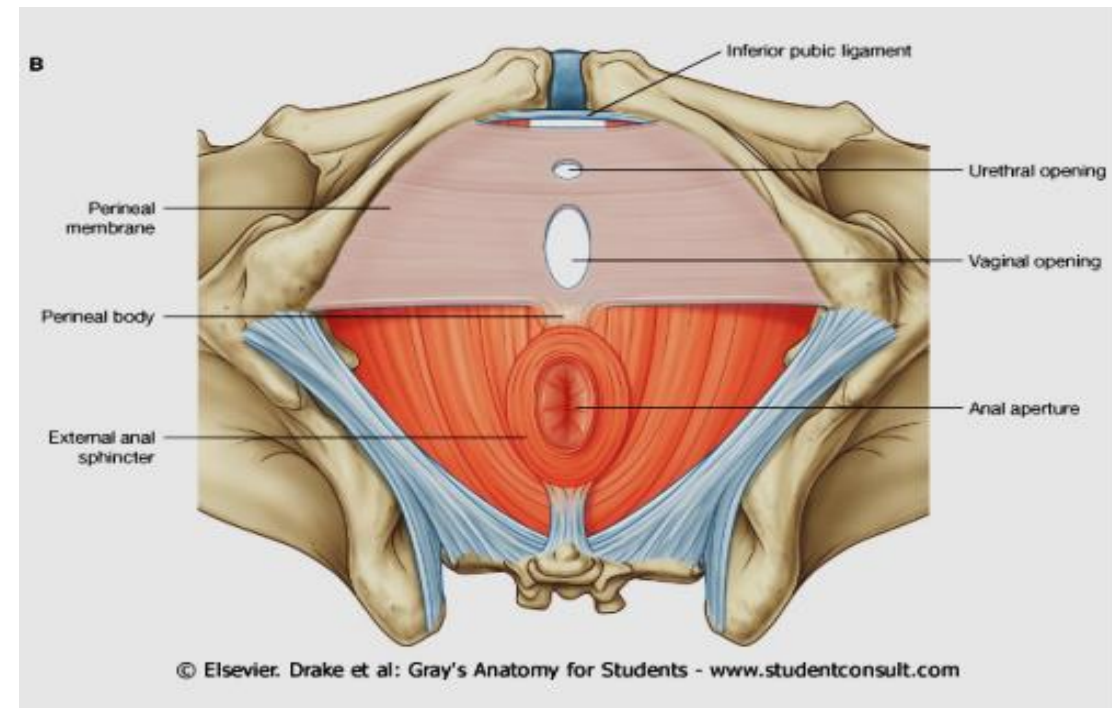


Perineal Membrane

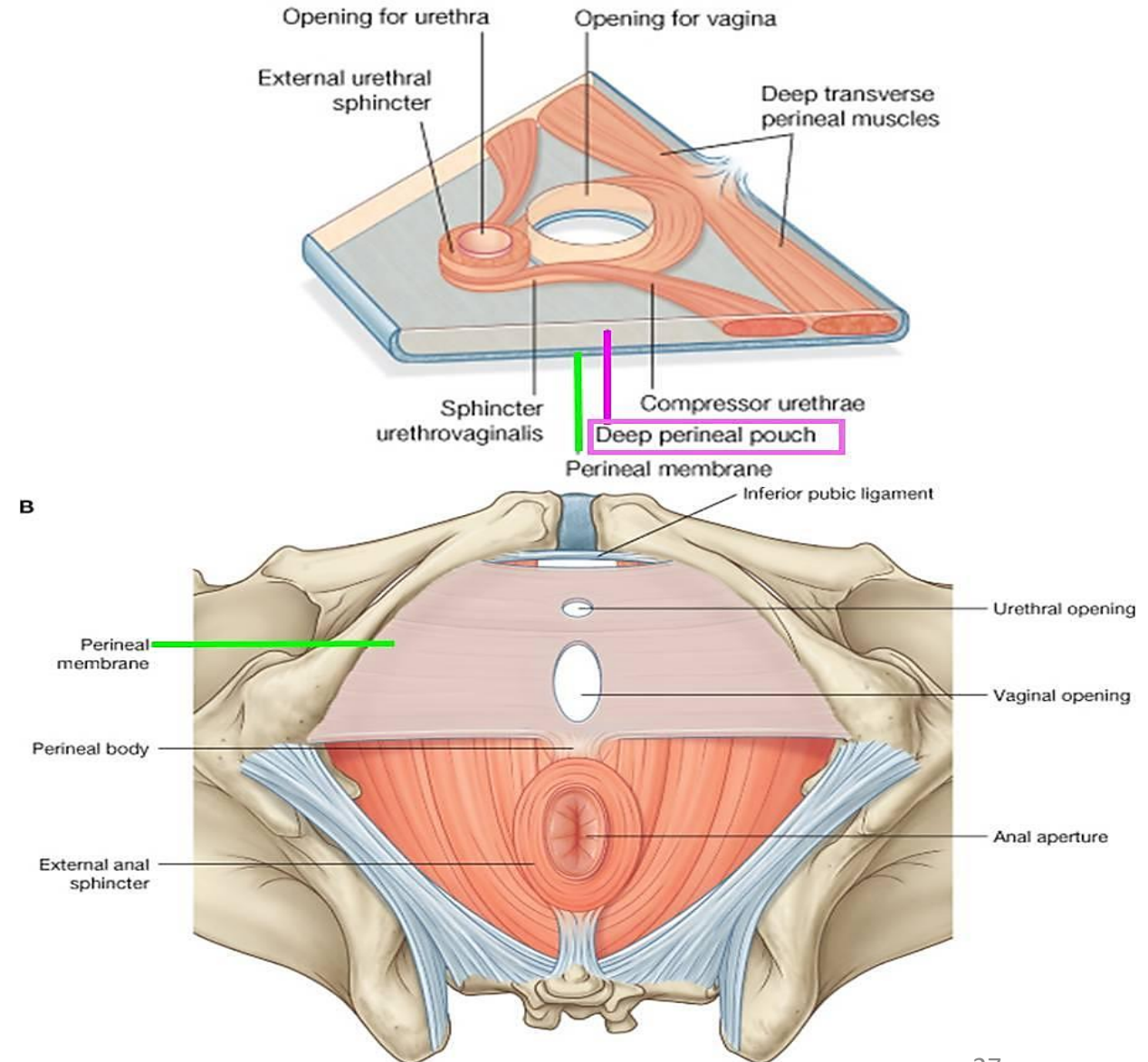
- It is a fibrous membrane in the perineum. "inferior fascia of urogenital diaphragm".
- **It forms** the floor of the deep perineal pouch.
- **It forms** the roof of the superficial perineal pouch.

It is perforated by:

- Urethra.
- Vagina.
- Ducts of two bulbourethral gland (male).
- Internal pudendal A.
- Artery of bulb.
- Dorsal nerves of penis or clitoris.
- Posterior scrotal or labial nerves and vessels.



- Perineal membrane thickened anteriorly to form the **transverse perineal ligament**.
- **The transverse perineal ligament** is separated from the symphysis pubis by a gap.
- Through this gap the deep dorsal vein of penis enters the pelvis to join the prostatic venous plexus.



**Thank
you**