

PELVIC WALL

❖ 4 BONES:

2 hip bones + sacrum + coccyx

❖ 4 JOINTS:

lumbosacral j + sacrococcygeal j
+ sacroiliac j + symphysis pubis

❖ LIGAMENTS:

sacrospinous + sacrotuberous + of joints

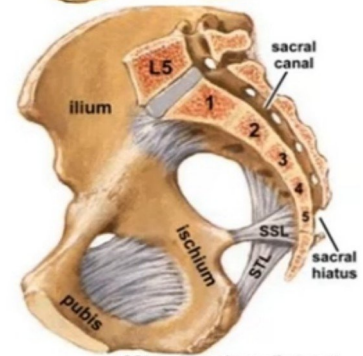
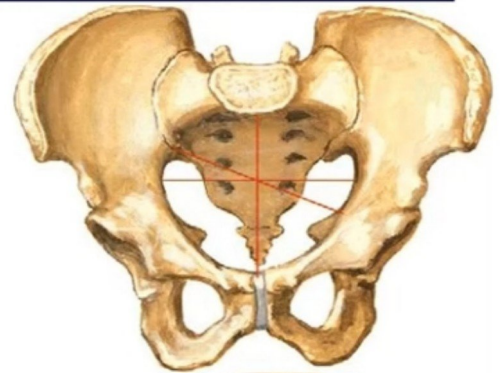
❖ MEMBRANES:

Perineal + obturator membranes

❖ MUSCLES:

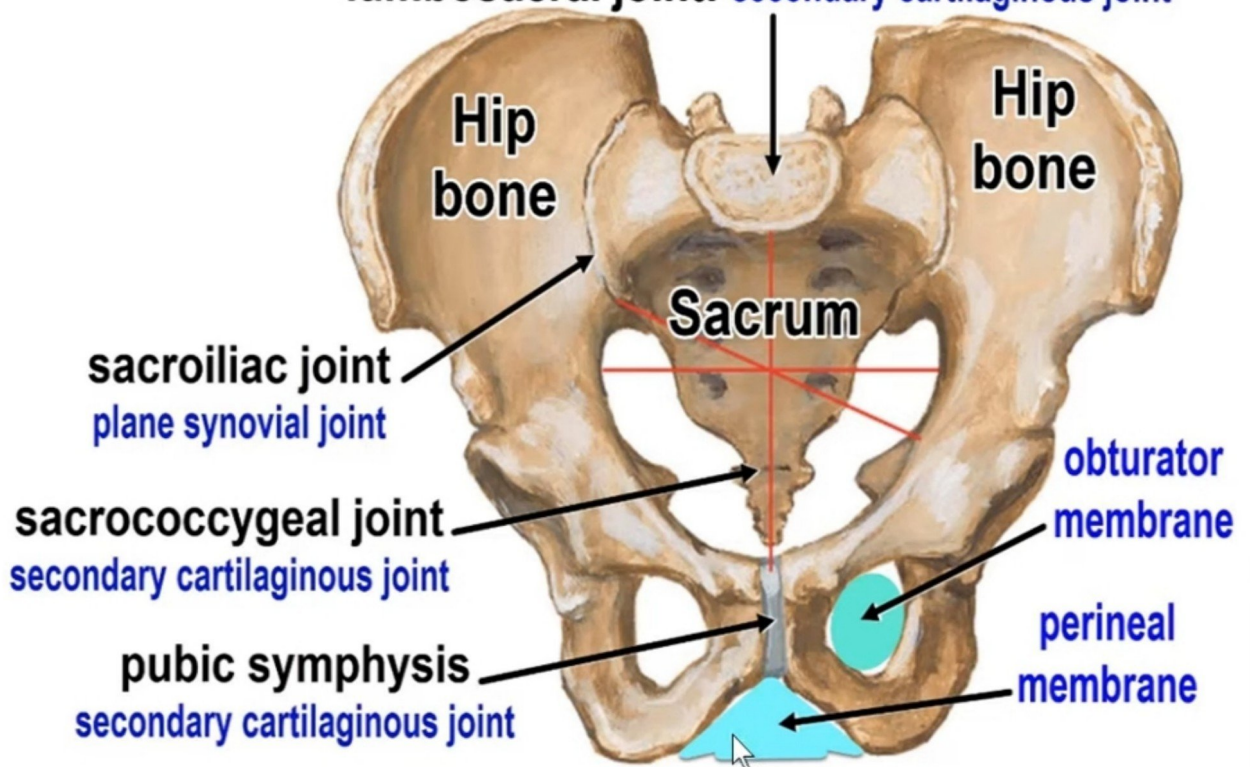
side wall: obturator internus + piriformis

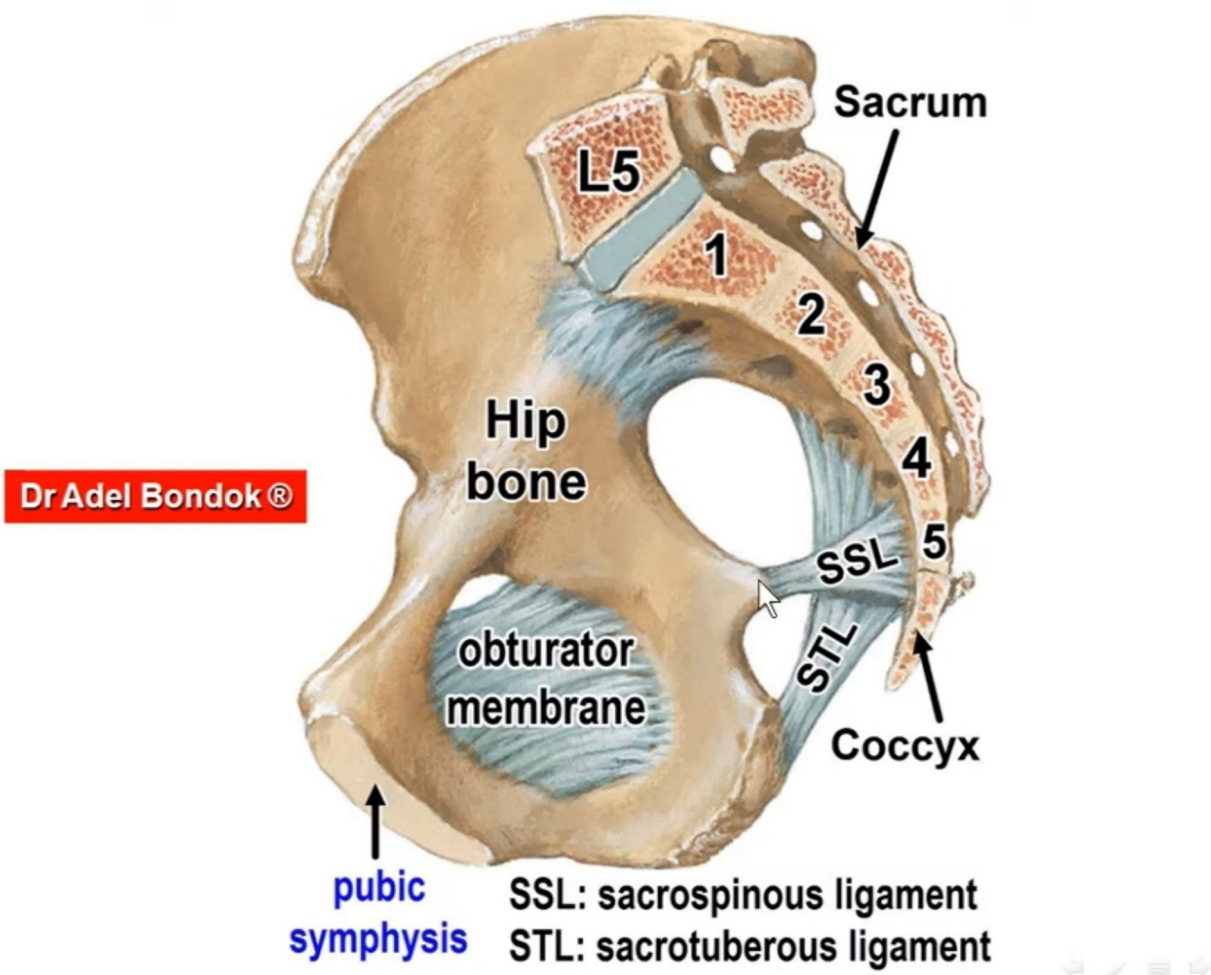
Floor: levator ani + coccygeus (**pelvic diaphragm**)



SSL: sacrospinous ligament
STL: sacrotuberous ligament

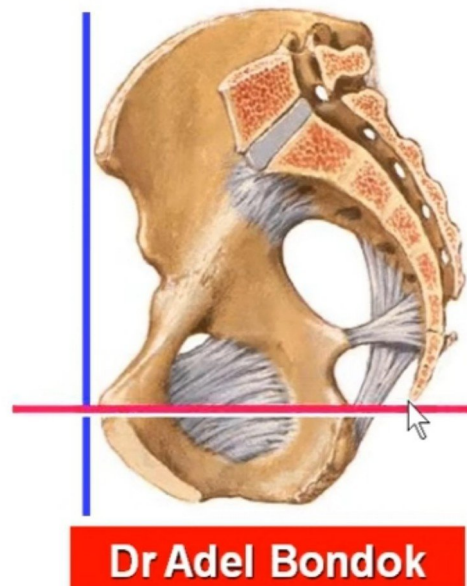
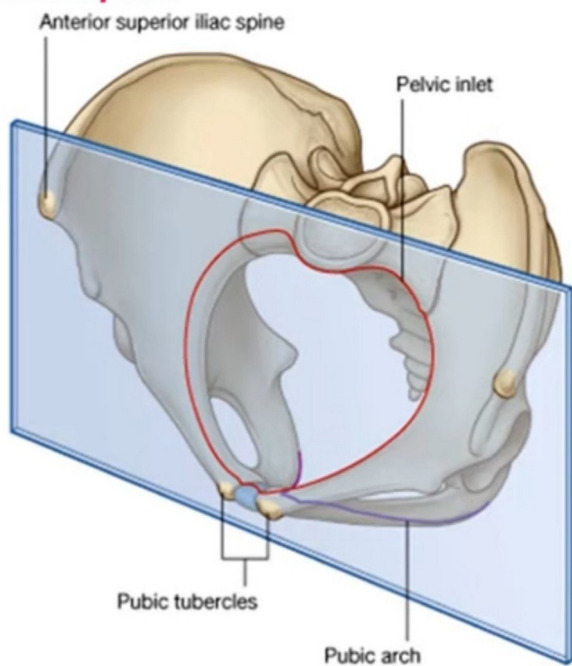
lumbosacral joint: secondary cartilaginous joint



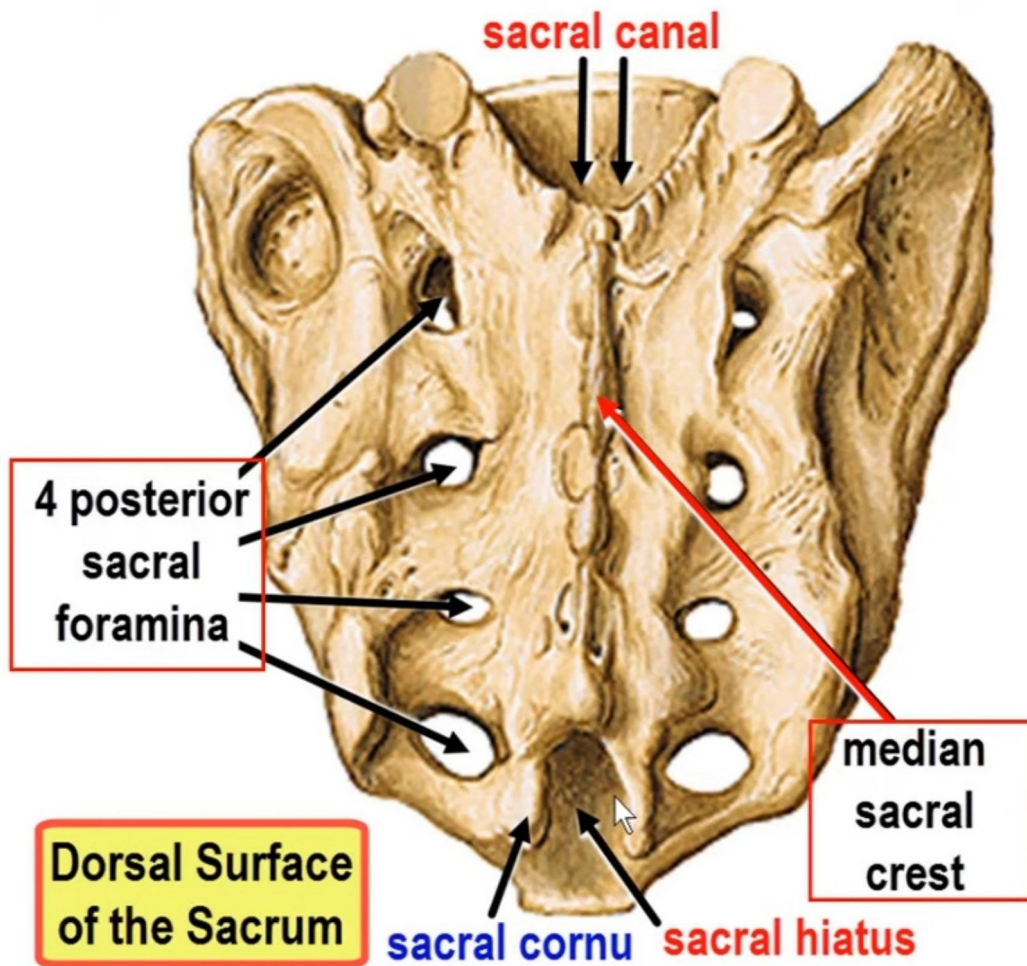
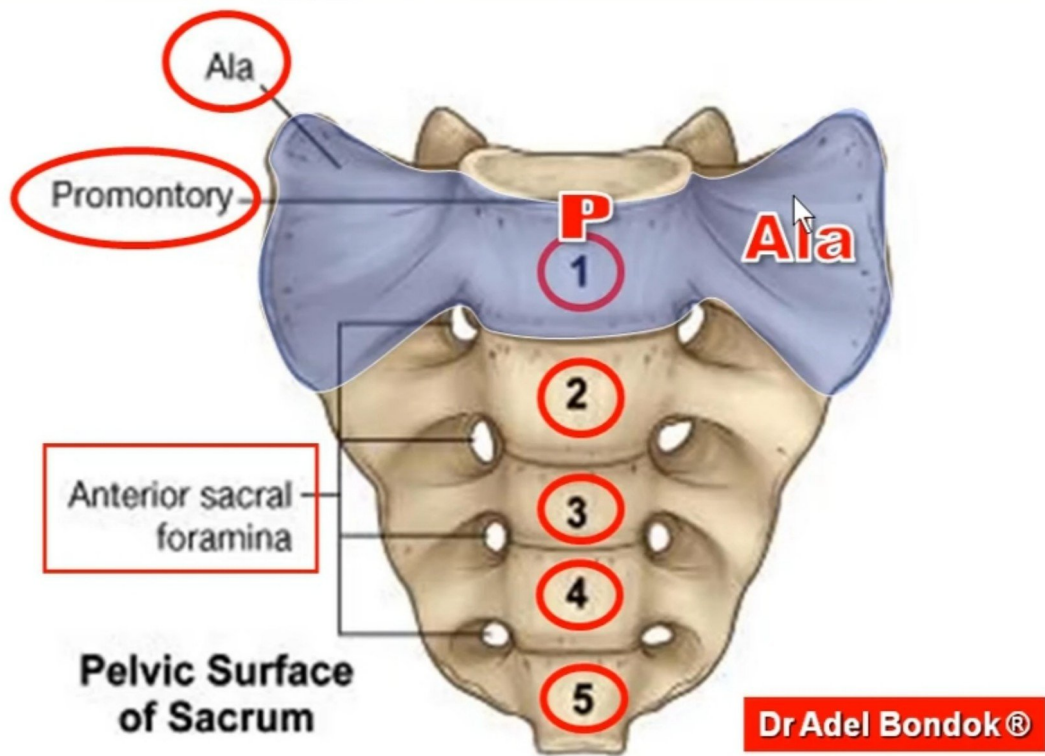


Anatomical Position

1. Anterior superior iliac spine & pubic symphysis are on the same vertical plane
2. Upper border of the pubic symphysis and tip of the coccyx are on the same horizontal plane



SACRUM



ARTICULATION OF SACRUM

Lumbo-Sacral Joint

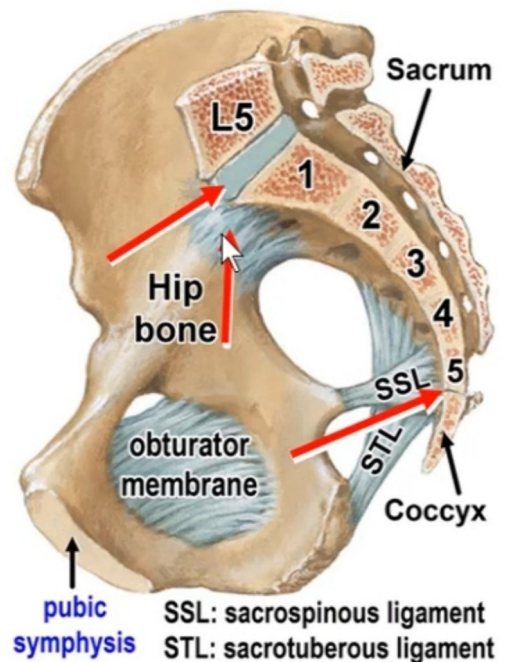
- 🤩 With L5
- 🤩 2ry cartilaginous joint

Sacro-coccygeal Joint

- 🤩 With the coccyx
- 🤩 2ry cartilaginous joint

Sacro-iliac Joint

- 🤩 With the ilium
- 🤩 Plane synovial joint



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Pelvic Surface of the Sacrum

3 MUSCLES:

1. Iliacus
2. Piriformis
3. Coccygeus

3 ARTERIES:

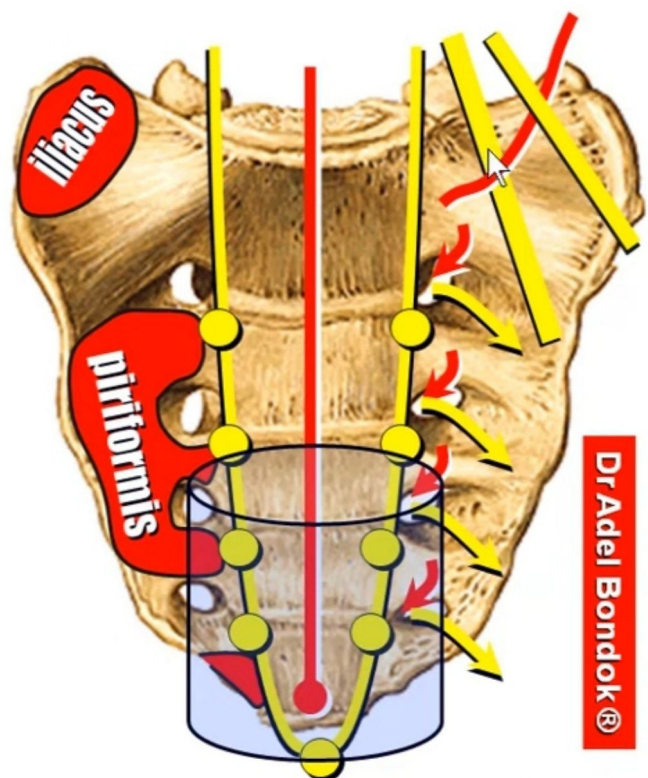
1. Median sacral artery
2. Lateral sacral arteries
3. Iliolumbar artery

4 NERVES:

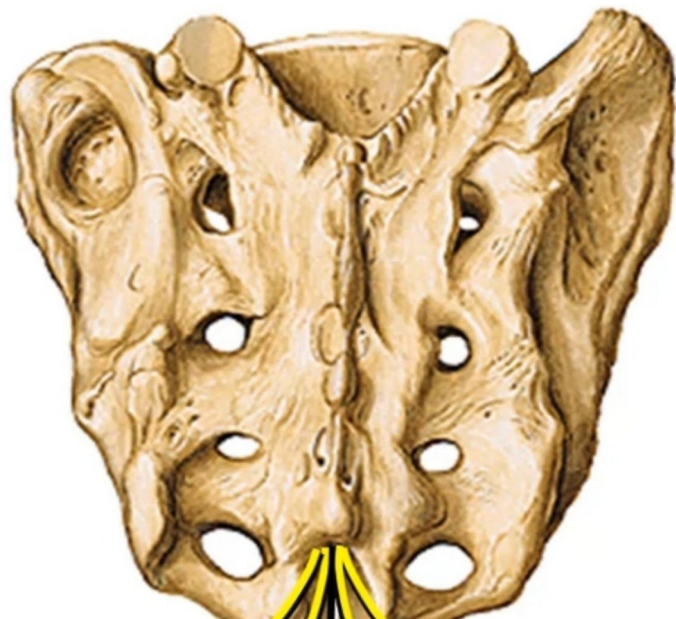
1. Sympathetic chain
2. Upper 4 sacral nerves
3. Lumbosacral trunk
4. Obturator nerve

VISCERA: rectum

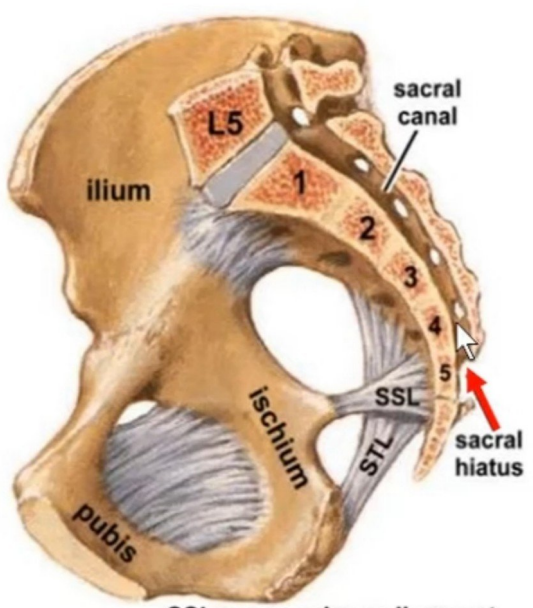
RELATIONS OF THE ALA



SACRAL HIATUS



S5 Coccygeal nerve **S5**
Coccygeal nerve



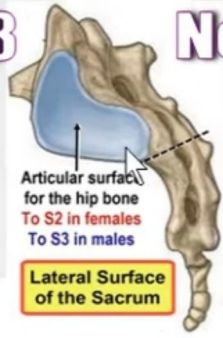
SSL: sacrospinous ligament
STL: sacrotuberous ligament

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4 Differences Between Male & Female Sacrum

Shorter & Wider
Promontory less prominent
Articular surface reach S2
Sharply Curved at S3

Longer & Narrower
Promontory more prominent
Articular surface reach S3
Nearly Straight

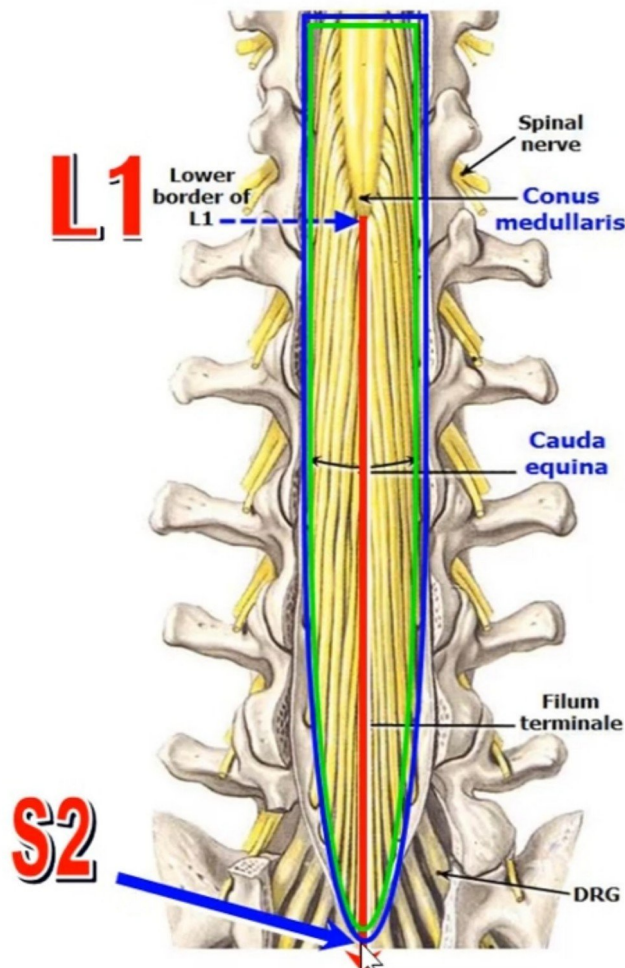
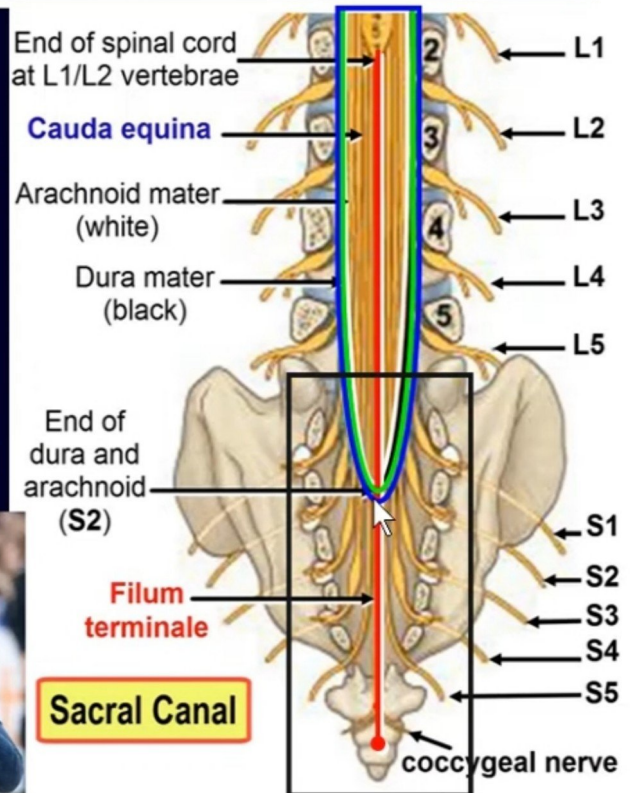


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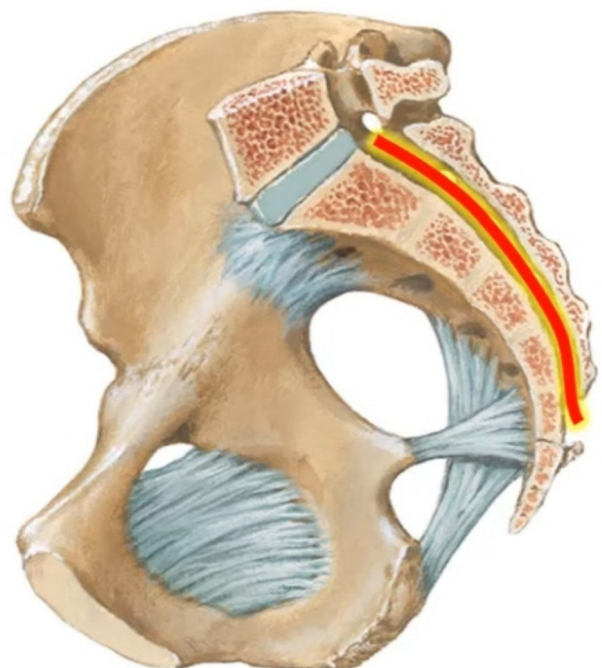
SACRAL CANAL

1. **Filum terminale:** continuation of pia mater
2. **Cauda equina:** roots of sacral & coccygeal nerves
3. **Dura & arachnoid:** end at level of 2nd sacral vertebra
4. **Branches of lateral sacral arteries**
5. **Venous plexus**
6. **Fat**

Horse Tail

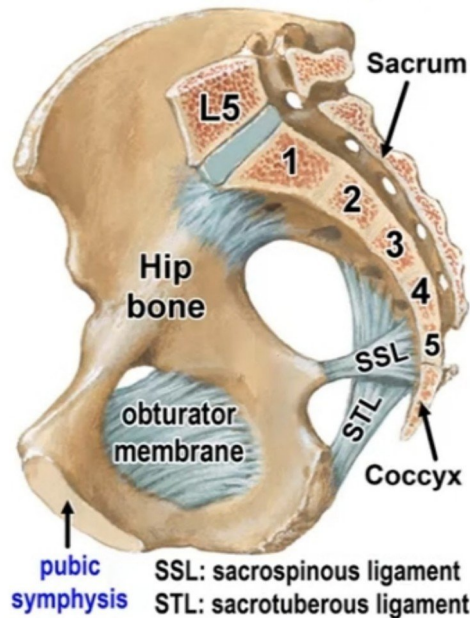


SACRAL CANAL



LIGAMENTS

They **fix** the sacrum to the hip bone and **prevent tilting** of the sacrum by the body weight



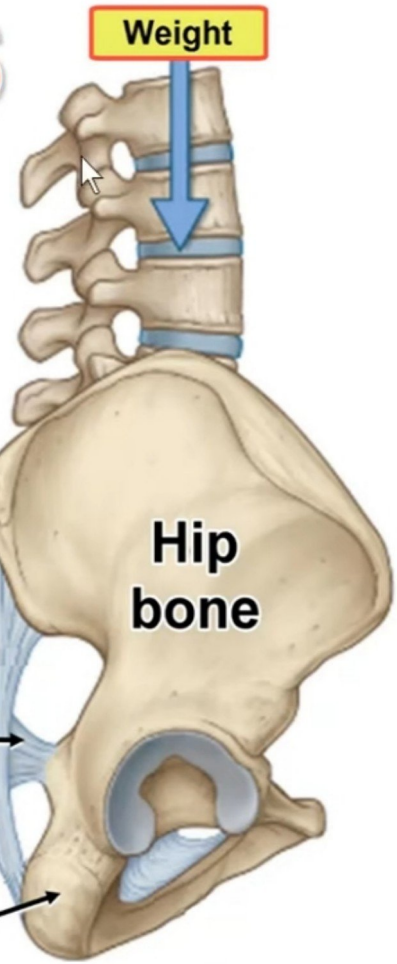
LIGAMENTS

The ligaments prevent upward tilting of the sacrum by the body weight

Sacrospinous ligament

Sacrotuberous ligament

ischial tuberosity



4 MUSCLES

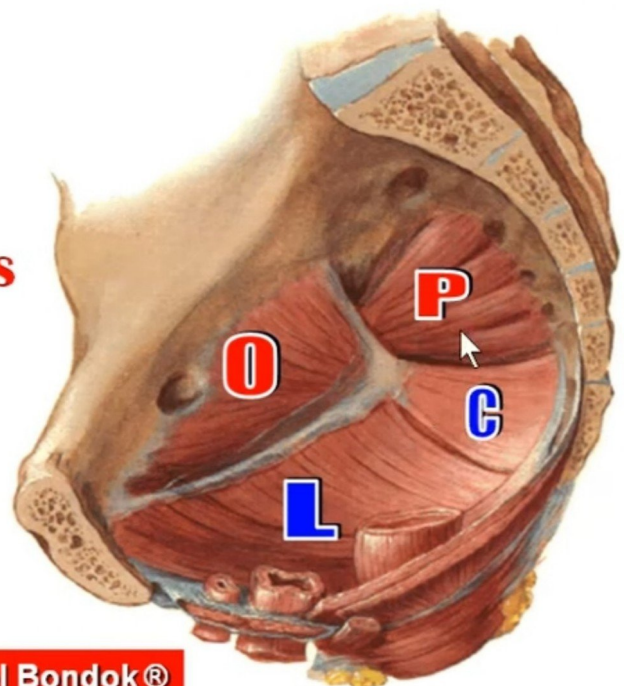
SIDE WALL: 2

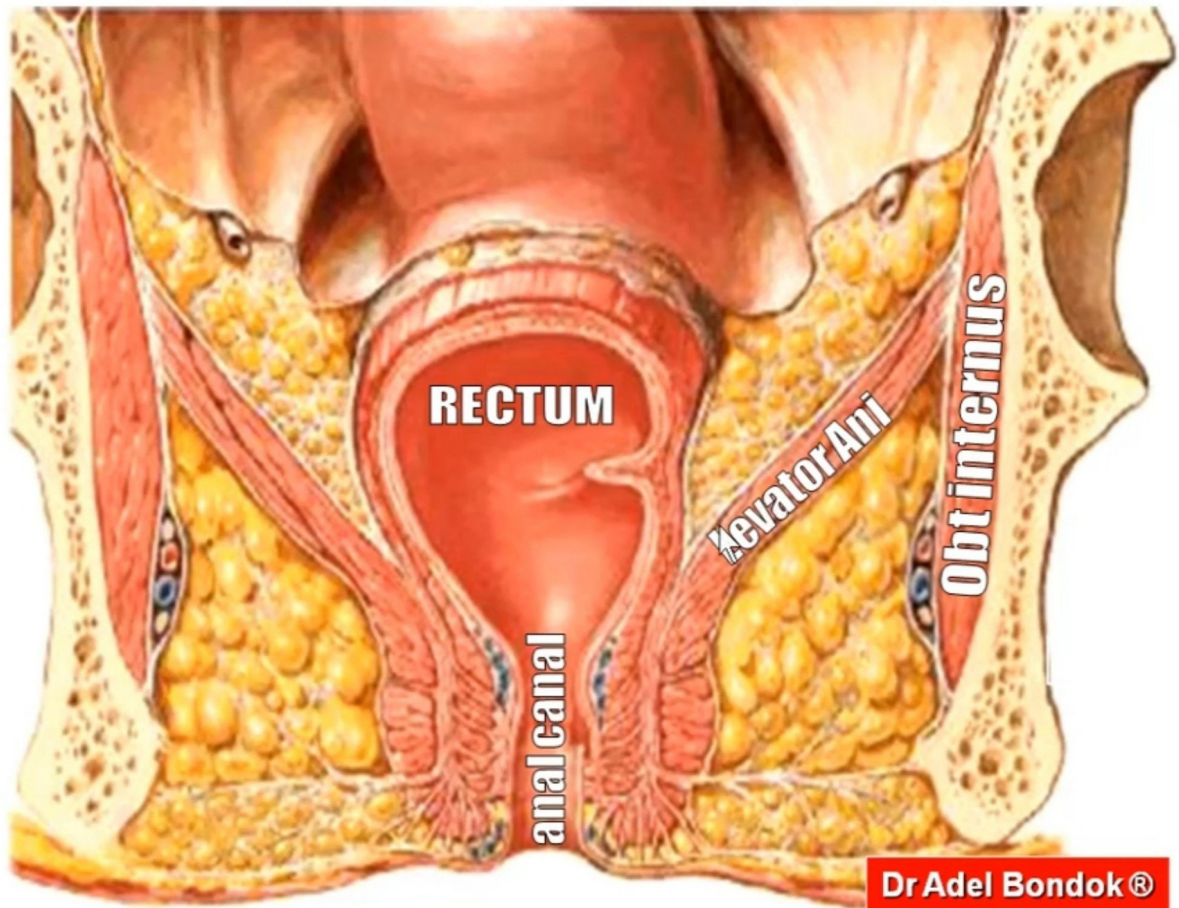
1. Piriformis
2. Obturator internus

PELVIC FLOOR: 2

(Pelvic Diaphragm)

1. Levator ani
2. Coccygeus

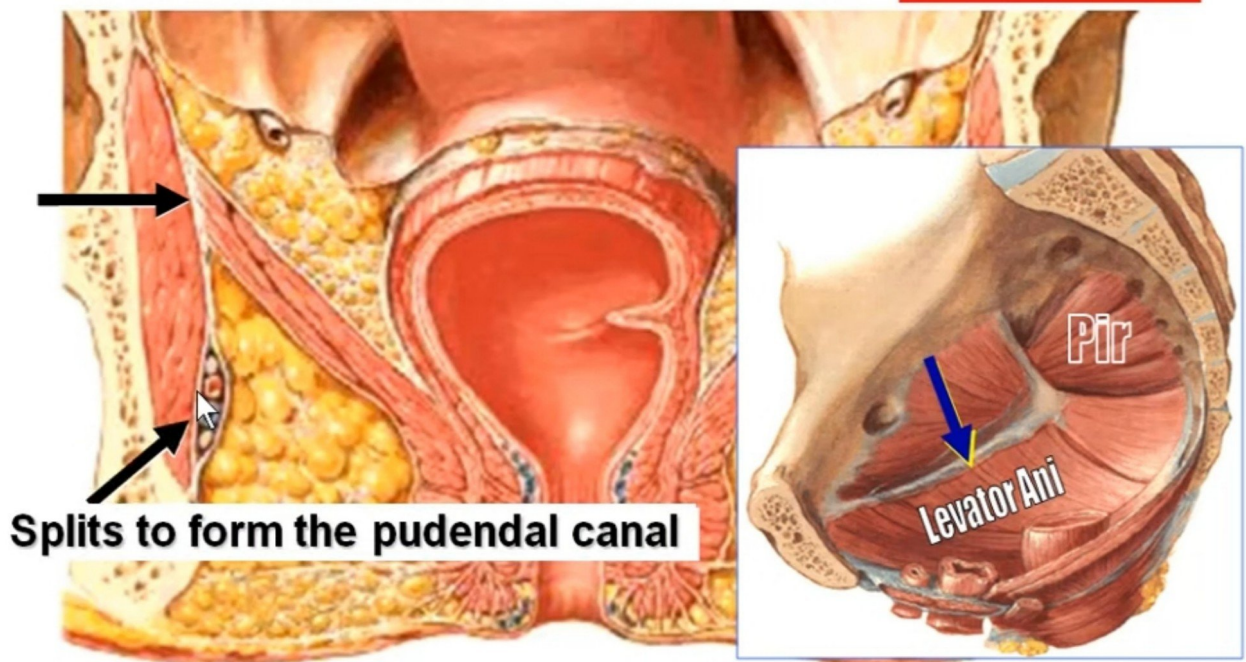




OBTURATOR FASCIA

Has thickened area called white line:
gives origin to levator ani

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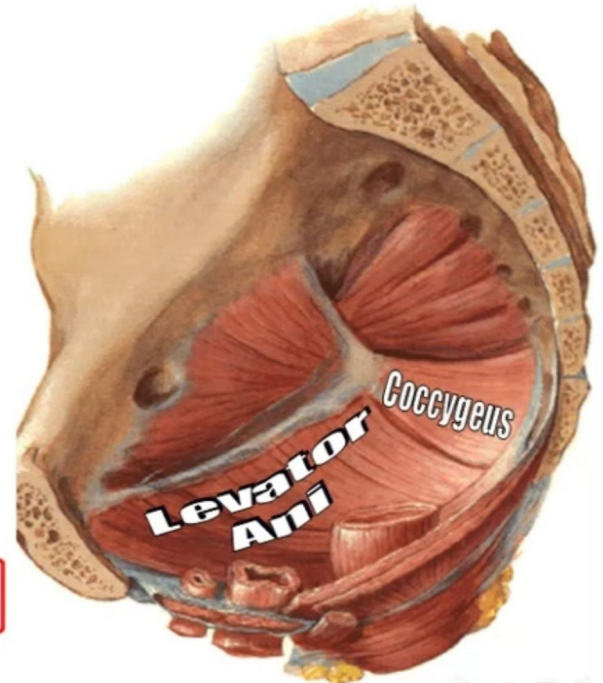
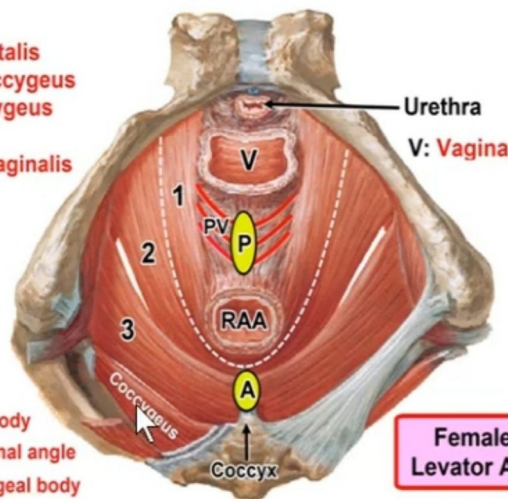


Pelvic Floor

- 1: Puborectalis
- 2: Pubococcygeus
- 3: Iliococcygeus

PV: Pubovaginalis

P: Perineal body
RAA: Rectoanal angle
A: Anococcygeal body



PELVIC INLET

ANTERIOR:

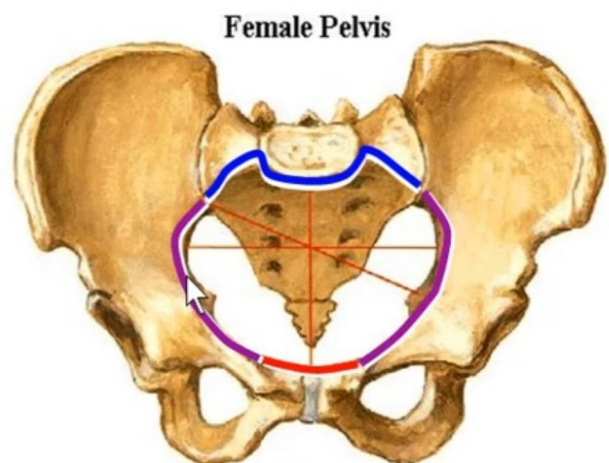
Upper border of symphysis pubis

POSTERIOR:

- a. sacral promontory
- b. ala of the sacrum

SIDES:

iliopectineal line



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PELVIC BRIM

ANTERIOR:

Upper border of symphysis pubis

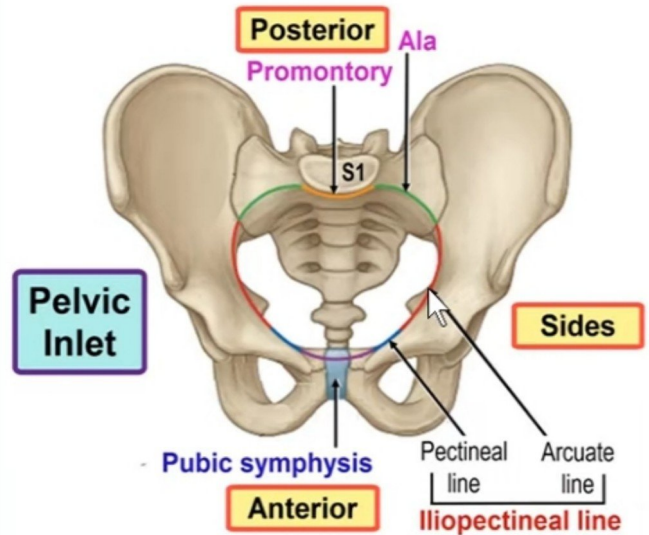
POSTERIOR:

a. sacral promontory

b. ala of the sacrum

SIDES:

iliopectineal line



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PELVIC OUTLET

ANTERIOR:

Lower border of symphysis pubis

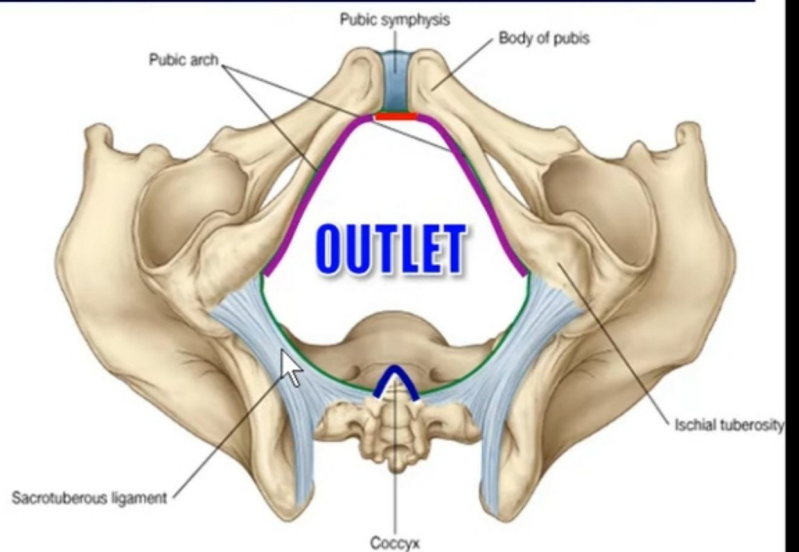
POSTERIOR:

Tip of the coccyx

SIDES:

Pubic arch: **ant**

Sacrospinous ligament: **posterior**



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PELVIC CAVITY

DIVISIONS: by pelvic inlet:

1. **False Pelvis:** above

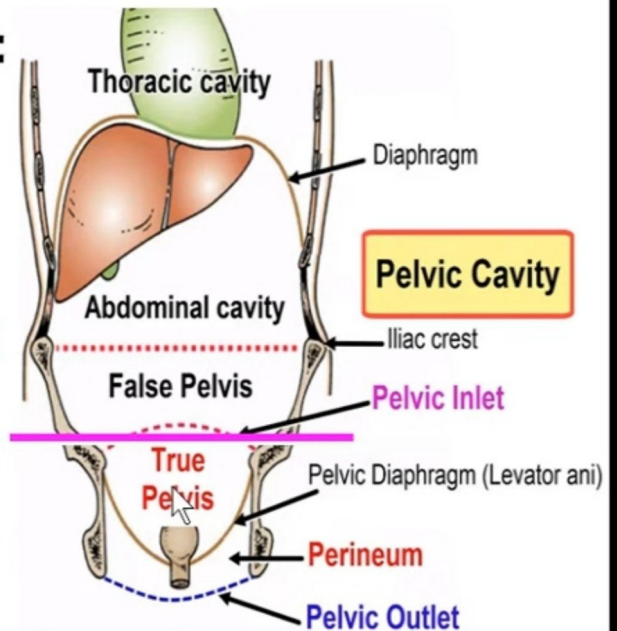
2. **True Pelvis:** below

FALSE PELVIS CONTAINS:

Abdominal organs

TRUE PELVIS CONTAINS:

Pelvic organs



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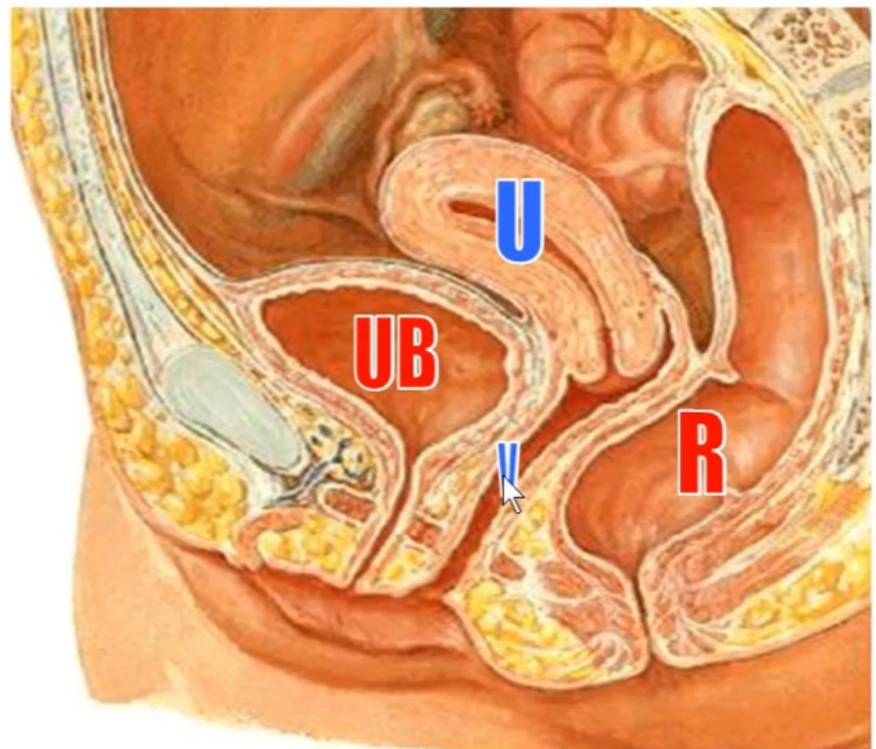
FEMALE PELVIC ORGANS

Rectum

**Urinary
Bladder**

**Uterus,
U Tubes,
Ovaries**

Vagina



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MALE PELVIC ORGANS

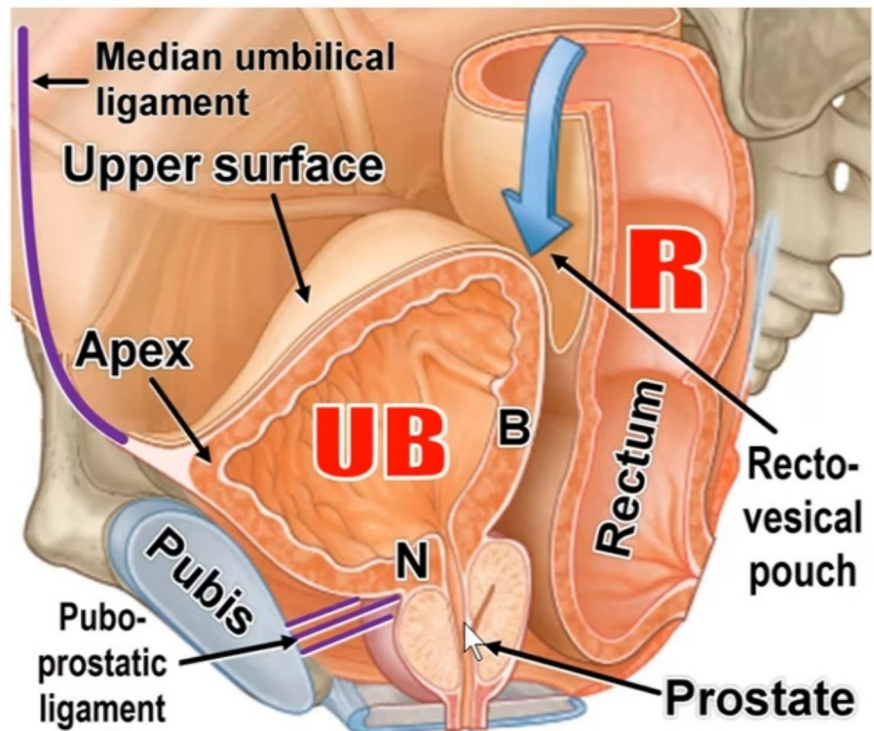
Rectum

**Urinary
Bladder**

**Seminal
vesicle &
VD**

Prostate

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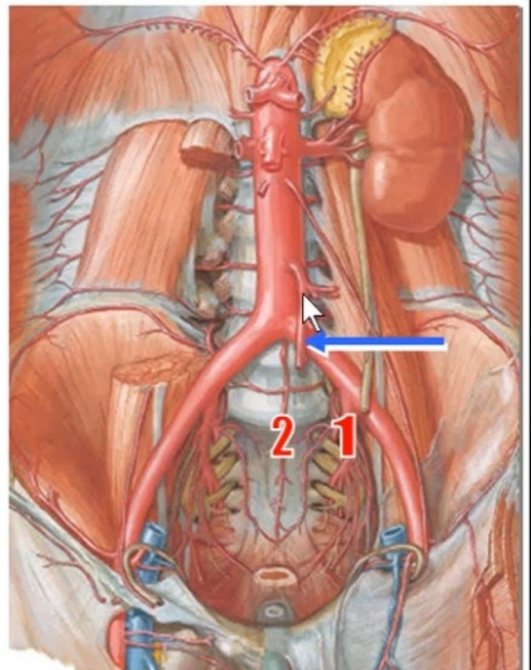


ARTERIES OF THE PELVIS & PERINEUM

Internal Iliac Artery

Median Sacral Artery

Superior Rectal Artery



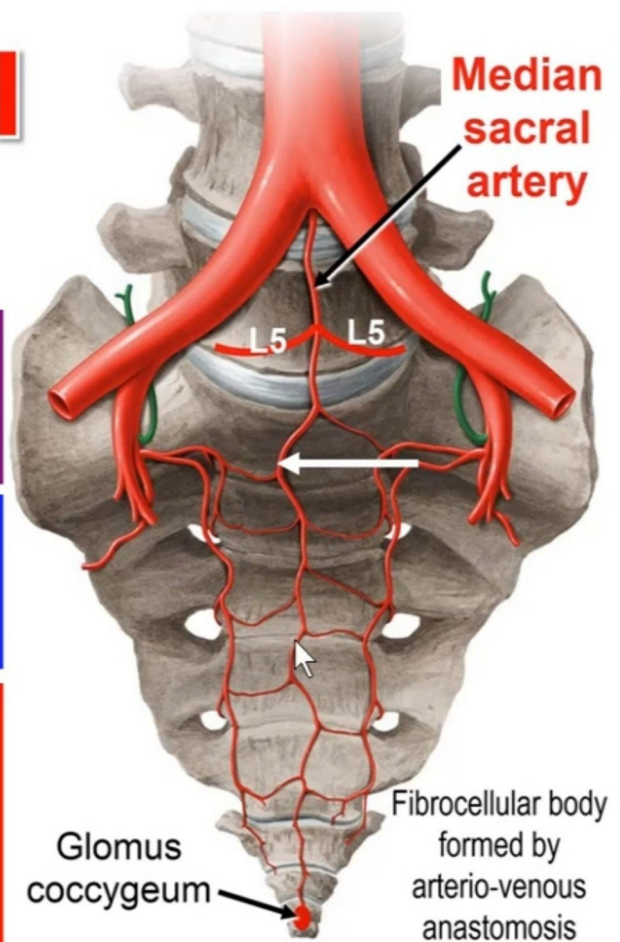
Median Sacral Artery

Origin: abdominal aorta opposite L4

Termination: in front of the coccyx at glomus coccygeum

Branches:

1. 5th lumbar artery
2. Branches to rectum and sacral canal

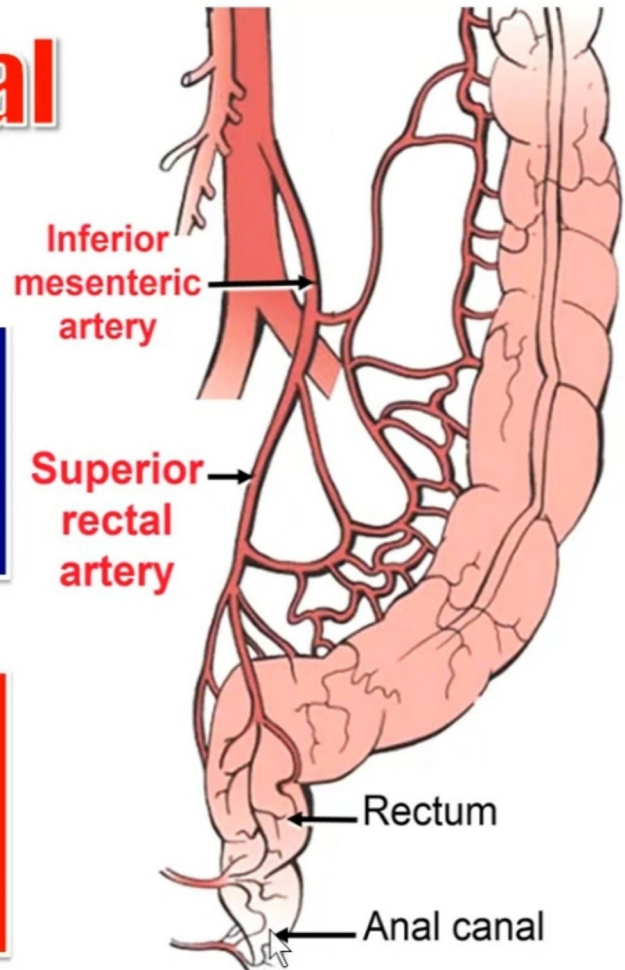


Superior Rectal Artery

Origin:
Continuation of the inferior mesenteric artery

Branches:

1. Rectum
2. Upper half of the anal canal



INTERNAL ILIAC ARTERY

ORIGIN

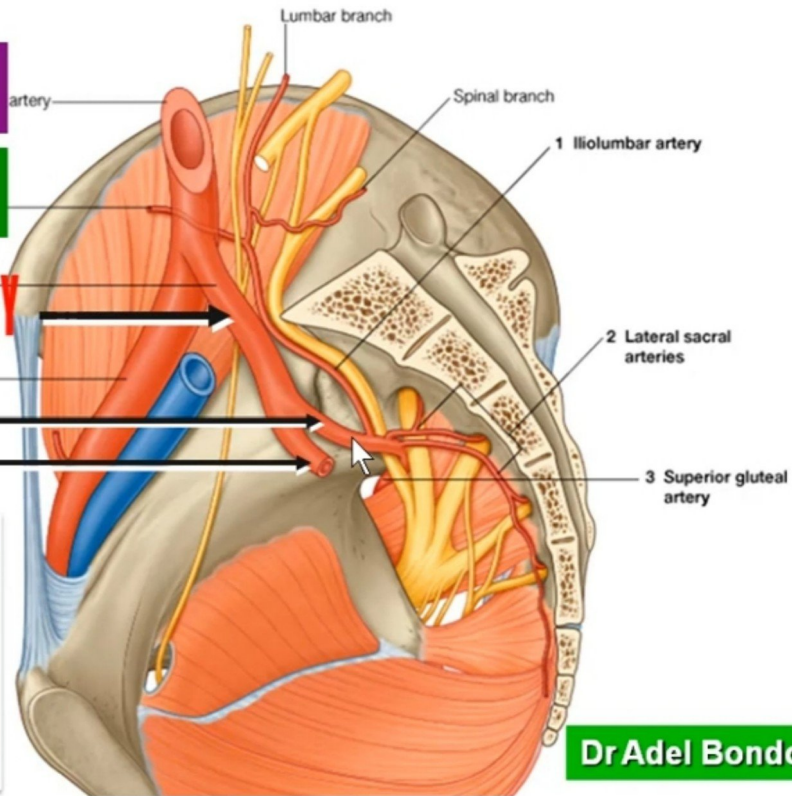
BRANCHES

INTERNAL ILIAC ARTERY

POSTERIOR DIVISION

ANTERIOR DIVISION

**Posterior
Division:
I L S**



**3 Parietal Branches
o i i**

**4 Visceral Branches
u m i u**

INTERNAL ILIAC ARTERY

Anterior Division

umbilical artery

Umbilical artery

obturator artery

Obturator artery

Superior vesical artery

Dorsal artery of penis

Median sacral artery
(from aorta in abdomen)

inf gluteal artery

Inferior gluteal artery

middle rectal artery

Middle rectal artery

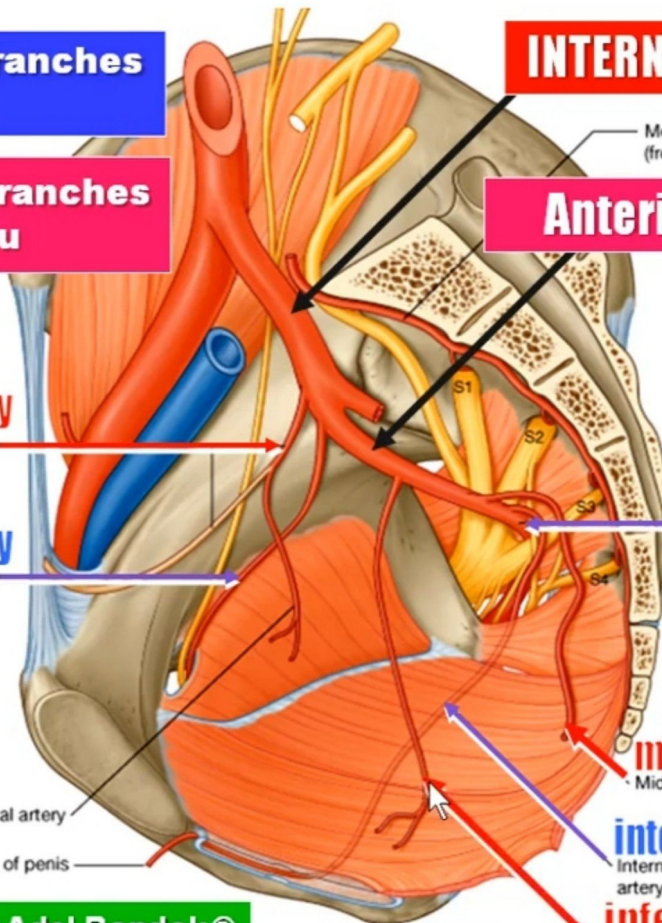
internal pudendal artery

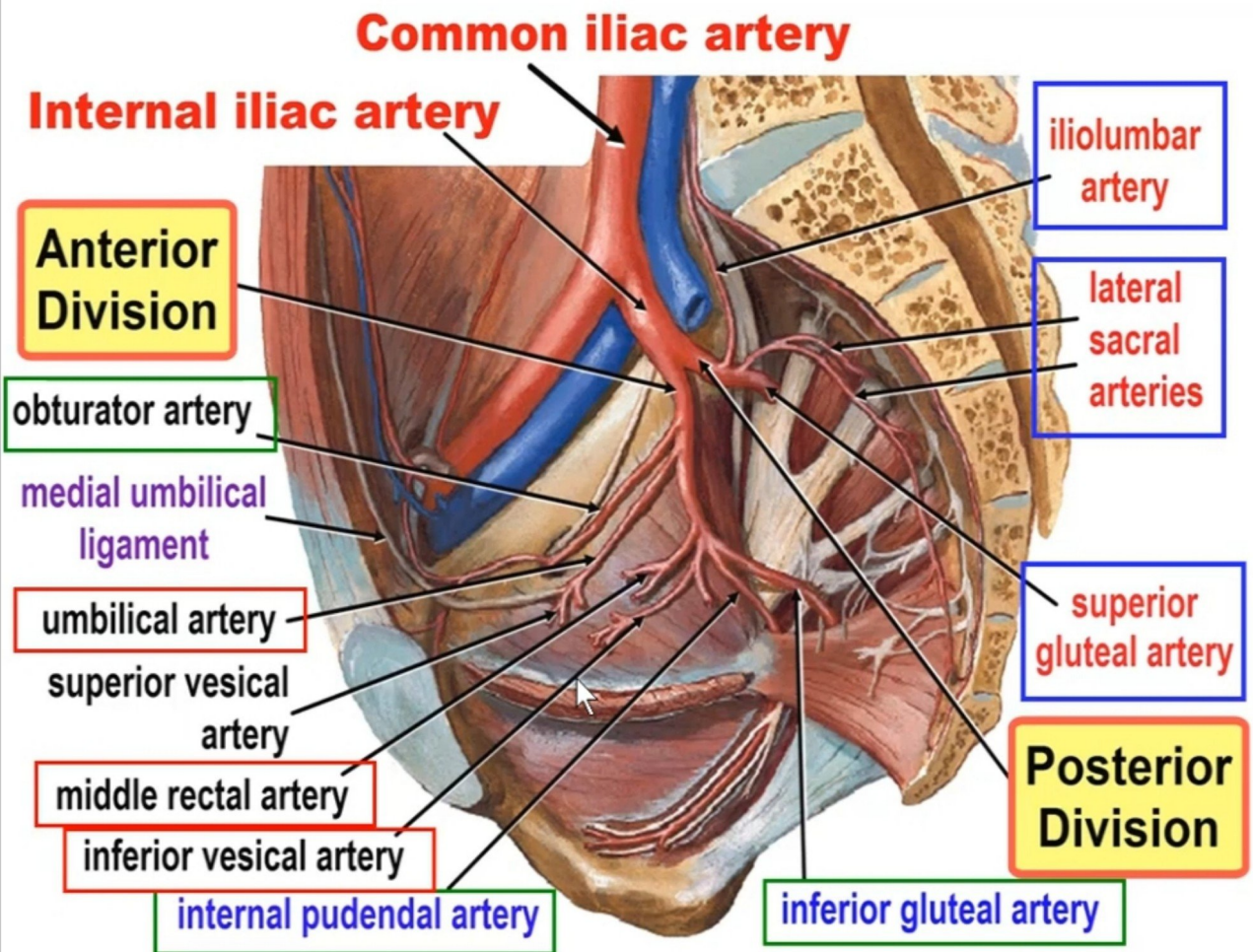
Internal pudendal artery

inferior vesical artery

Inferior vesical artery

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Internal Iliac Artery

Anterior Division

Posterior Division

3 Parietal

4 Visceral

3 Parietal

Obturator

Inf gluteal

Int pudendal

Umbilical

Middle rectal

Inf vesical

Uterine

Iliolumbar

Lateral sacral

Sup gluteal

BRANCHES OF THE INTERNAL ILIAC ARTERY

A. POSTERIOR DIVISION: 3 branches, ALL are parietal

1. Ilio-lumbar artery: gives iliac branch & lumbar branch
2. Two lateral sacral arteries: to the sacral canal, each divides into 2 branches
3. Superior gluteal artery: to the gluteal region

B. ANTERIOR DIVISION: gives parietal & visceral branches

a. PARIETAL BRANCHES: 3 branches

1. Obturator artery: to the thigh
2. Internal pudendal artery: to the external genitalia
3. Inferior gluteal artery: to the gluteal region

b. VISCERAL BRANCHES: 3 in the male & 4 in the female

1. Umbilical artery:

Gives superior vesical branches to the urinary bladder
Obliterates to form the medial umbilical ligament

2. Middle rectal artery: rectum, vagina, seminal vesicle & prostate
3. Inferior vesical in the male or Vaginal artery in the female
4. Uterine artery in the female

OVERVIEW OF THE GENITAL ORGANS

✦ Primary Sex Organ

✦ Secondary Sex organs

✦ External Genital Organs

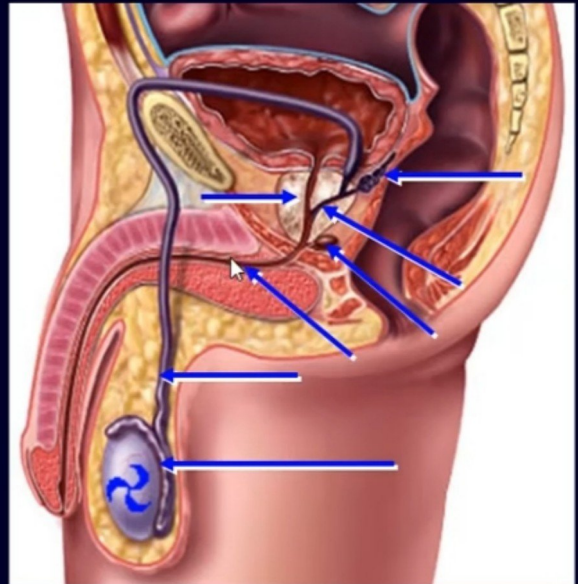


MALE GENITAL SYSTEM

A. Primary Sex Organ: the **Testis** (2 = testes)

B. Secondary Sex Organs:
Genital Ducts & Glands

1. Epididymis
2. Vas Deferens
3. Seminal Vesicles
4. Ejaculatory Ducts
5. Prostate Gland
6. Bulbo-Urethral Glands
7. Urethra



C. External Genital Organ: the **Penis**

THE TESTIS

NUMBER: 2 (Rt & Lt)

Site: inside the scrotum

Why outside the abdomen?

For temperature regulation

FUNCTIONS:

1. Production of the sperms:

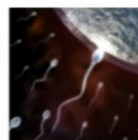
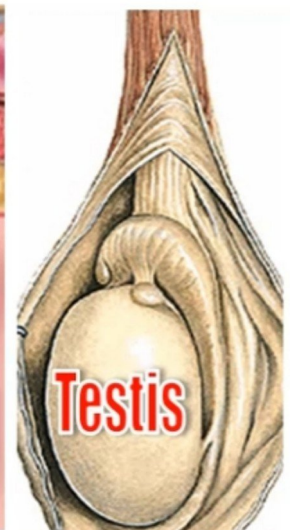
by spermatogonia

2. Secretion of testosterone:

by **Leydig cells**

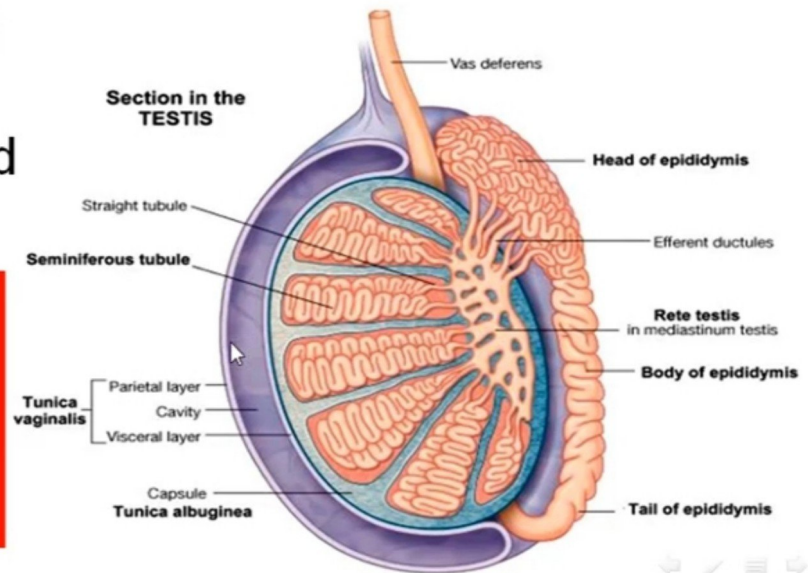
Testosterone is the male sex hormone

→ makes the male look like and speak like a male

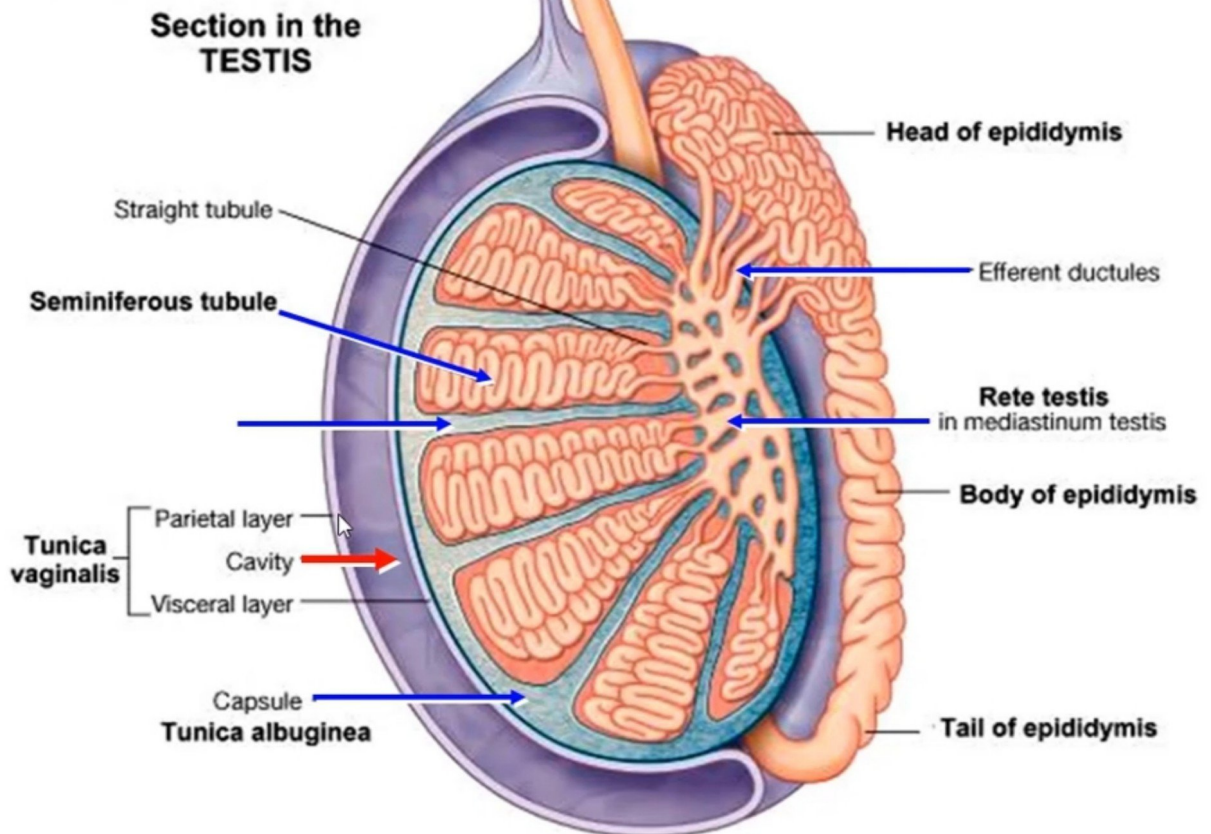


- ♥ **Fibrous Capsule:** tunica albuginea
- ♥ **Divided into lobules (250)** by septa
- ♥ **Each lobule contains** 2 seminiferous tubules
- ♥ **The tubules unite** to form rete testis
- ♥ **The rete testis** is connected with the epididymis by efferent ductules
- ♥ **Is surrounded** by serous sac called tunica vaginalis

STRUCTURE of the TESTIS



STRUCTURE



EPIDIDYMIS

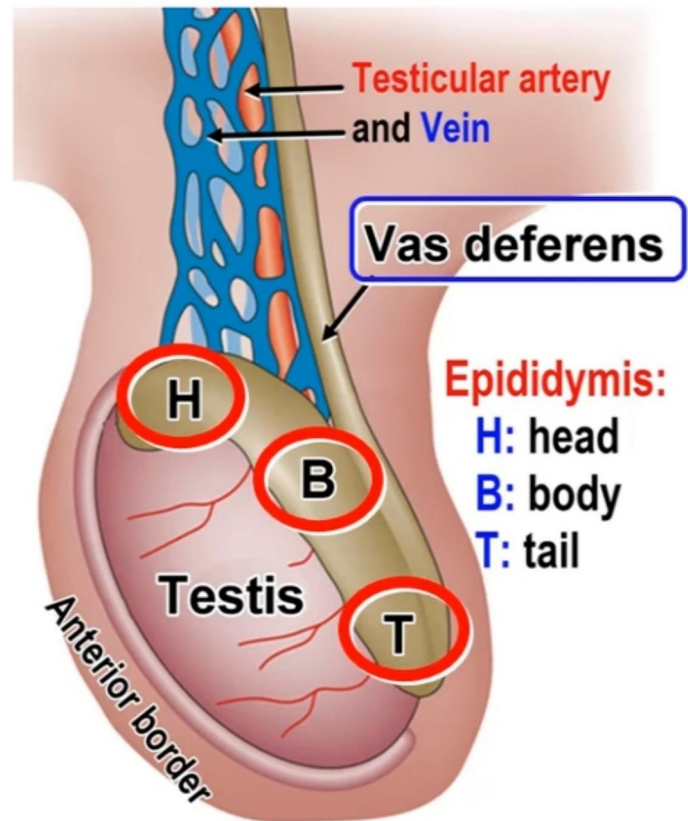
SITE:

DIVISIONS:

- 1. Head:** upper
- 2. Body:** middle
- 3. Tail:** lower
continues as the vas deferens

FUNCTION:

- 1.** Store of the sperms
- 2.** Site of maturation of the sperms
- 3.** Secrete seminal fluid



VAS DEFERENS

Length:

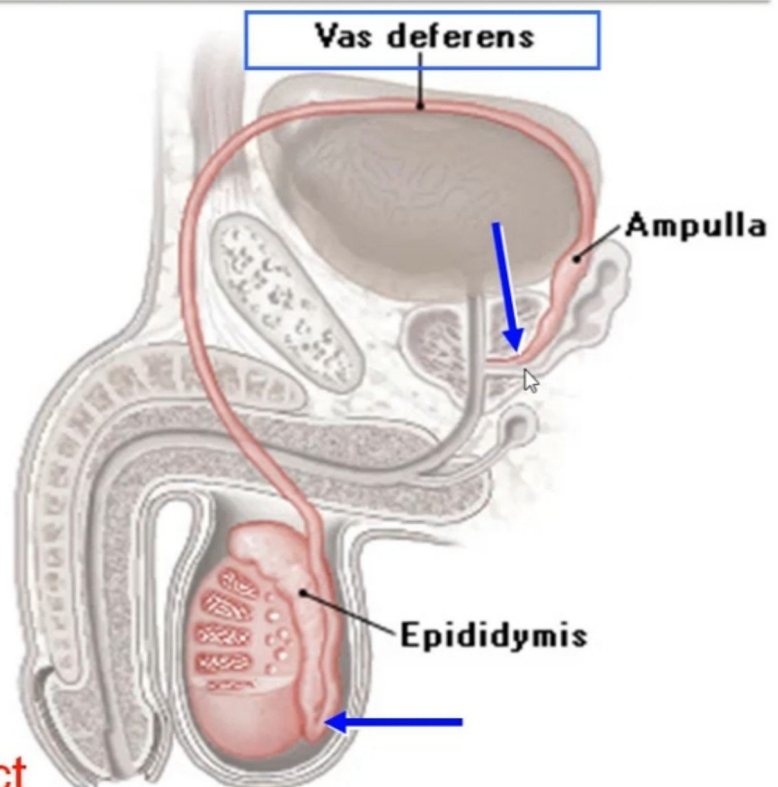
45 cm

Begins:

at tail of the epididymis

Ends:

unites with the seminal vesicle to form ejaculatory duct



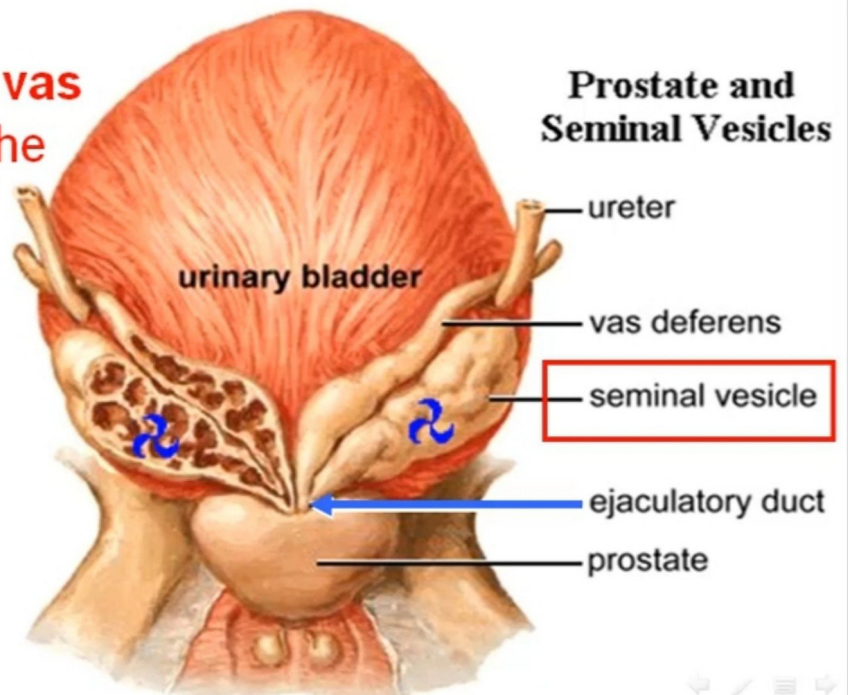
SEMINAL VESICLE

SITE: behind the urinary bladder

UNITES with the **vas deferens** to form the **ejaculatory duct**

FUNCTION:

1. **Secretes** seminal fluid
2. **Secretes** prostaglandins



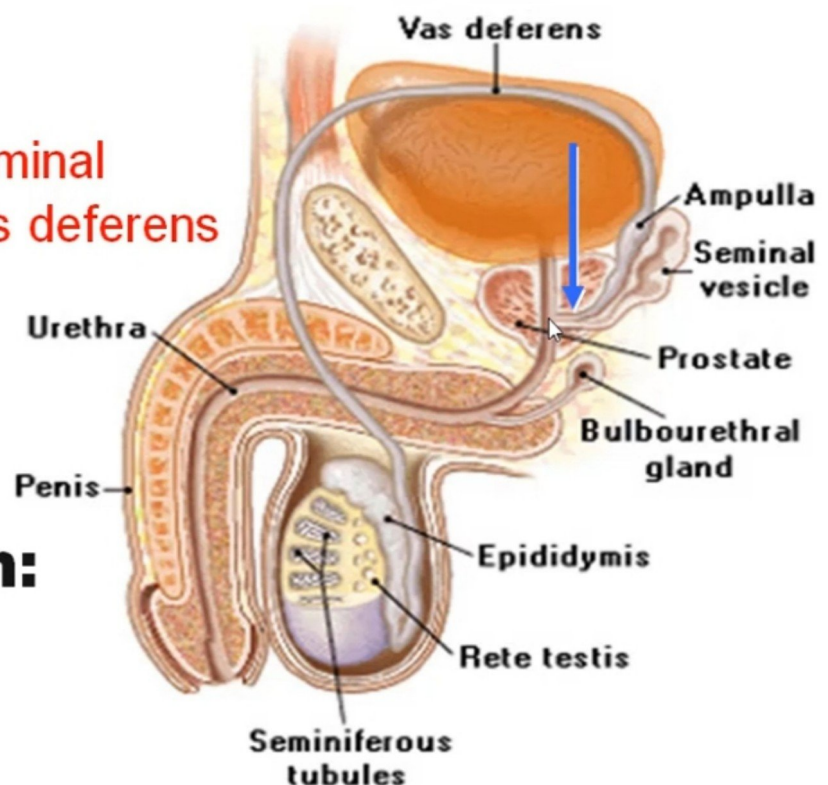
EJACULATORY DUCT

Formation:

by union of the seminal vesicle with the vas deferens

Termination:

it opens into the prostatic urethra



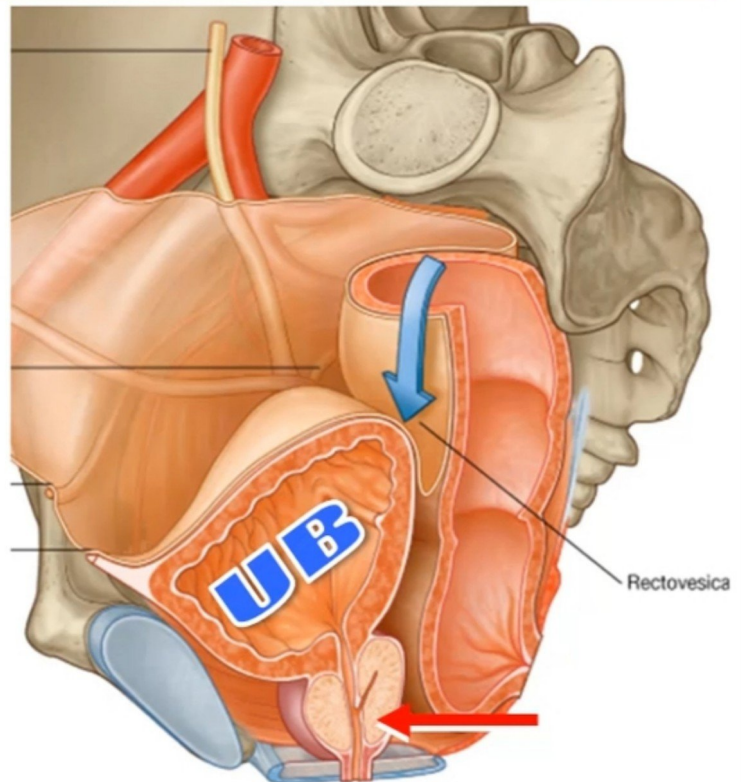
PROSTATE GLAND

POSITION:

Below the urinary bladder

FUNCTION:

1. **Secretion of seminal fluid**
2. **May secrete prostaglandins**



SEMINAL FLUID

It is the fluid containing the sperms

Amount: 3 – 5 ml in normal ejaculate

Source: main and accessory sources

1. **Main Source:** testis and epididymis.
2. **Accessory sex glands:** seminal vesicle, prostate & bulbourethral glands.

Sperm Content: 100 million sperms / ml (300 – 500 millions)

Functions:

1. Contains **fructose** for nutrition of the sperms.
2. It is **alkaline** to neutralize the acidity of the vagina.
3. Contains **prostaglandins** which facilitate transport of the sperms in the female genital tract.



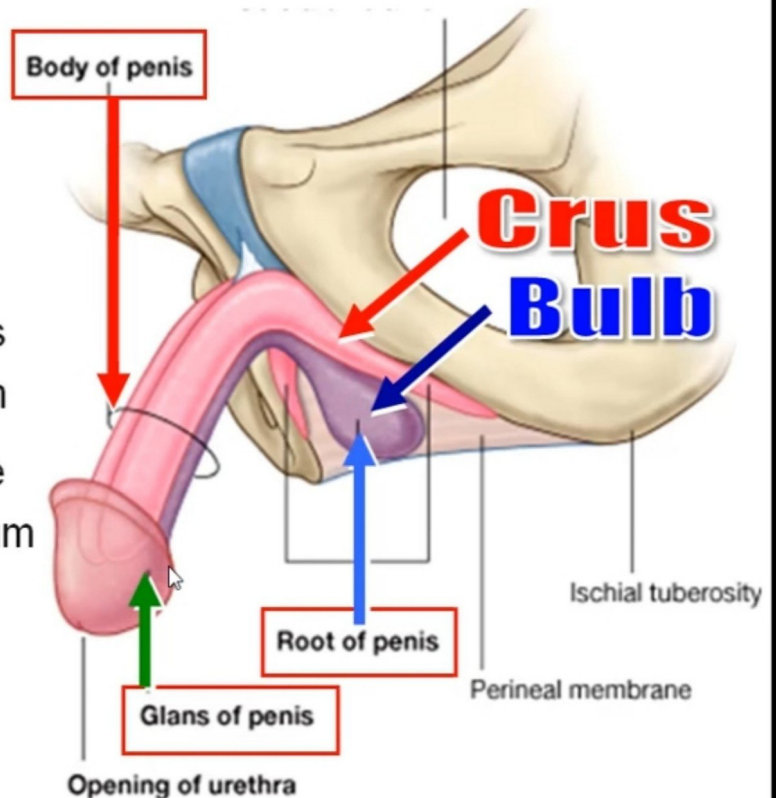
MALE EXTERNAL GENITAL ORGAN

The **PENIS** is formed of

ROOT:

1. **Bulb:** continues as corpus spongiosum
2. **2 Crura:** continue as corpus cavernosum

BODY GLANS



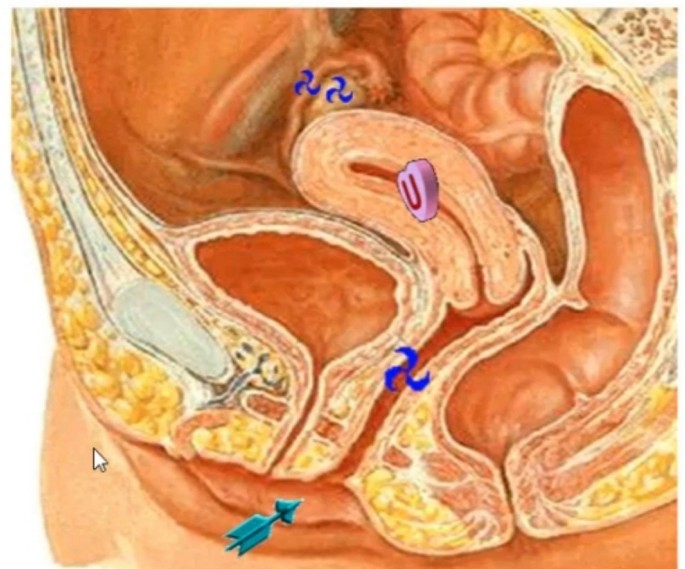
FEMALE GENITAL SYSTEM

A. PRIMARY SEX ORGAN: the OVARY

B. 2ndry sex organs:

Genital Ducts

1. Uterine Tube
2. Uterus
3. Vagina



C. EXTERNAL GENITAL ORGAN: the Vulva

THE OVARY

NUMBER: 2 (Rt & Lt)

Site: inside the pelvis

FUNCTIONS:

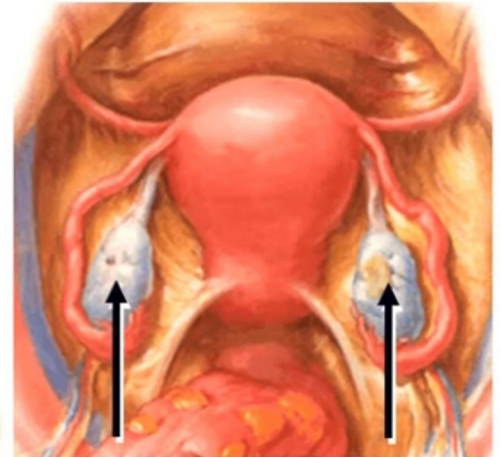
1. Production of the ova:
by oogonia

2. Secretion of the female sex hormones:

1. Estrogen

2. Progesterone

Estrogen makes the female look like
and speak like a female

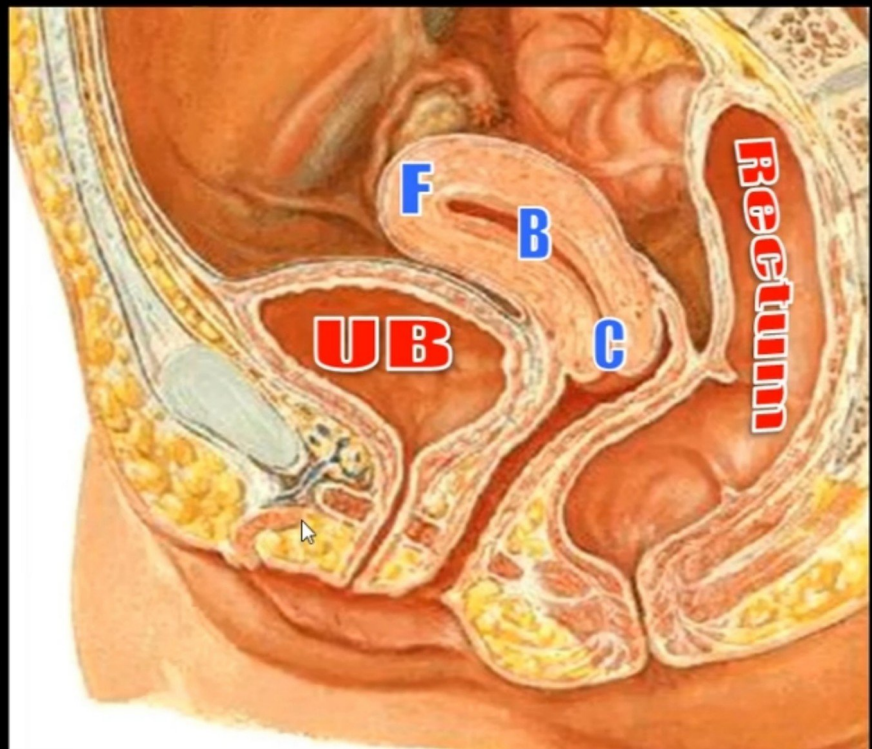


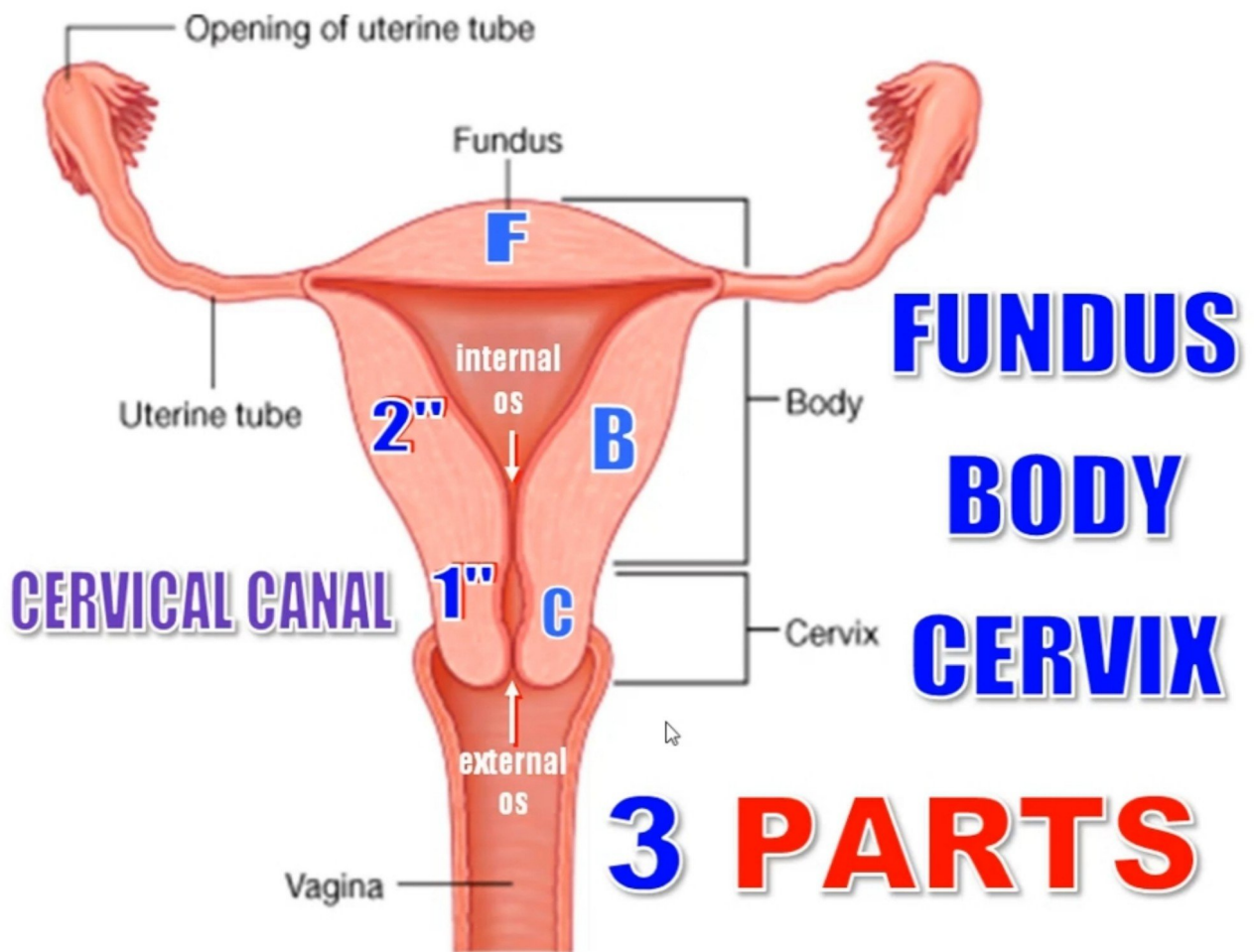
UTERUS

POSITION

PARTS

WALL:
3 layers



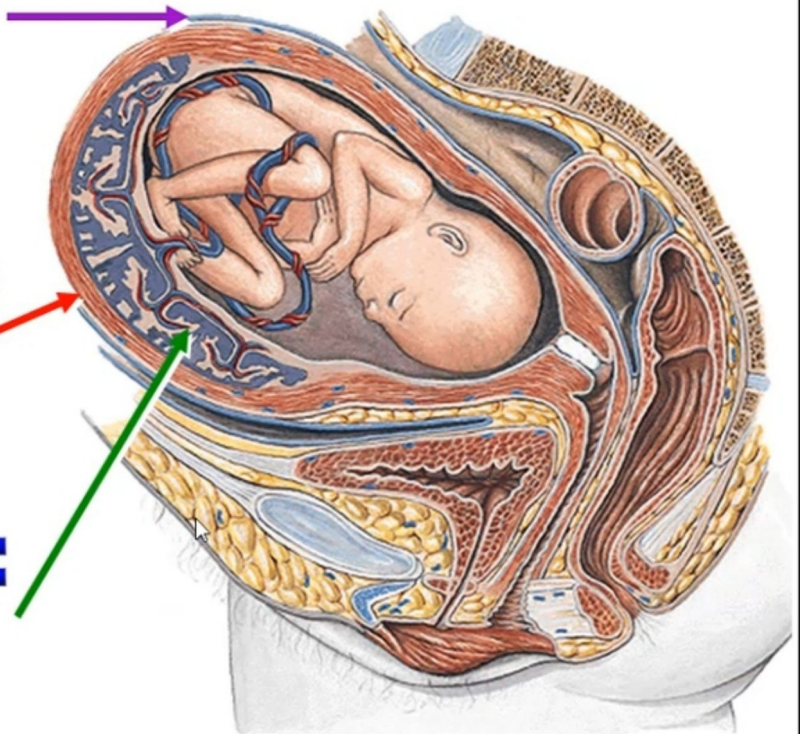


3 LAYERS OF THE UTERUS

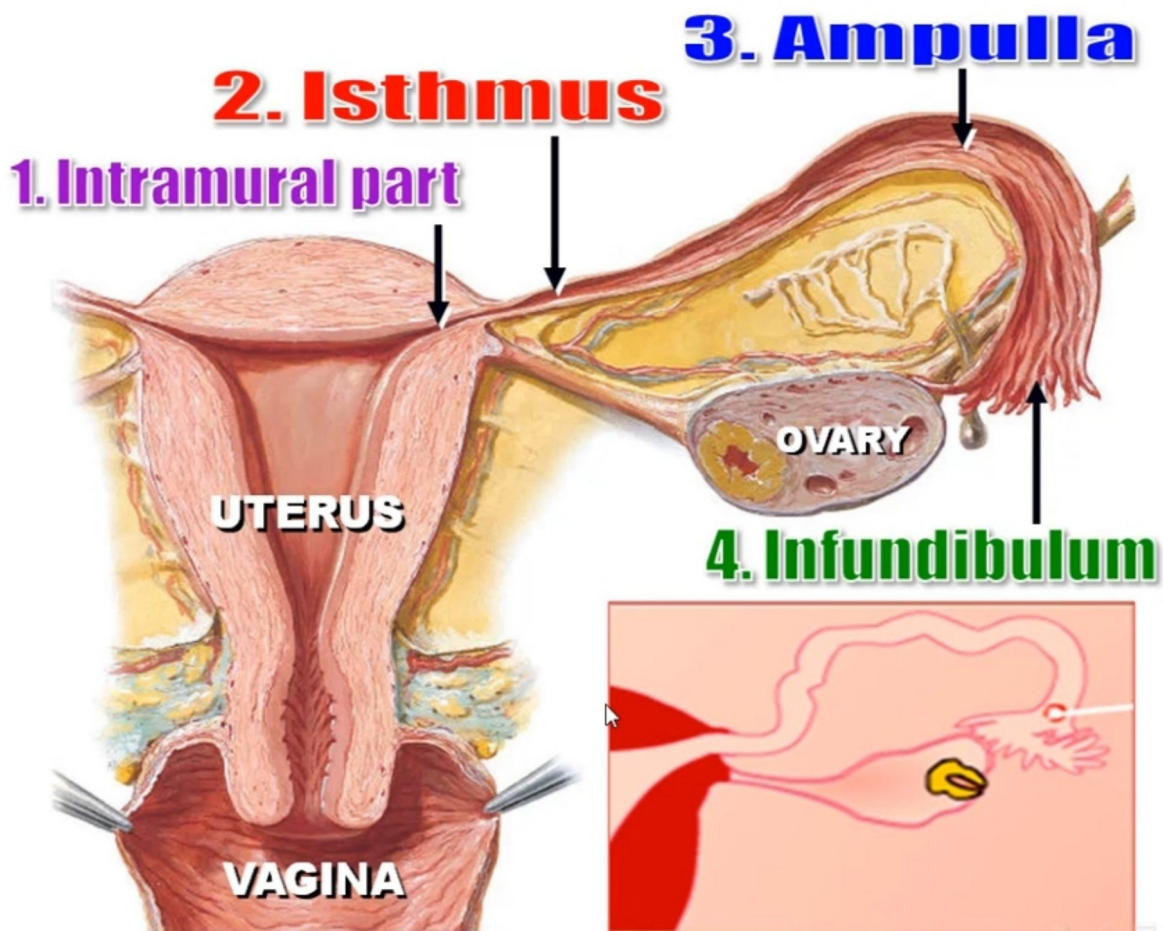
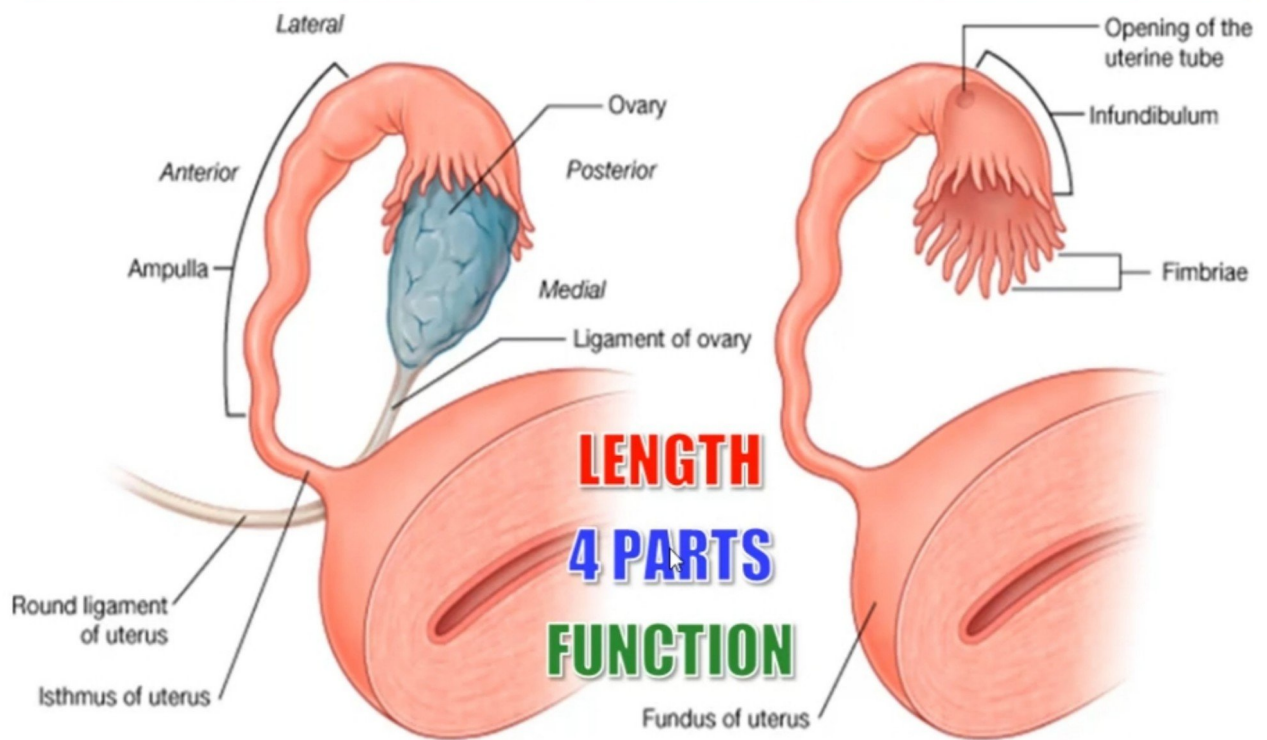
1. OUTER LAYER:
perimetrium

2. MIDDLE LAYER:
myometrium

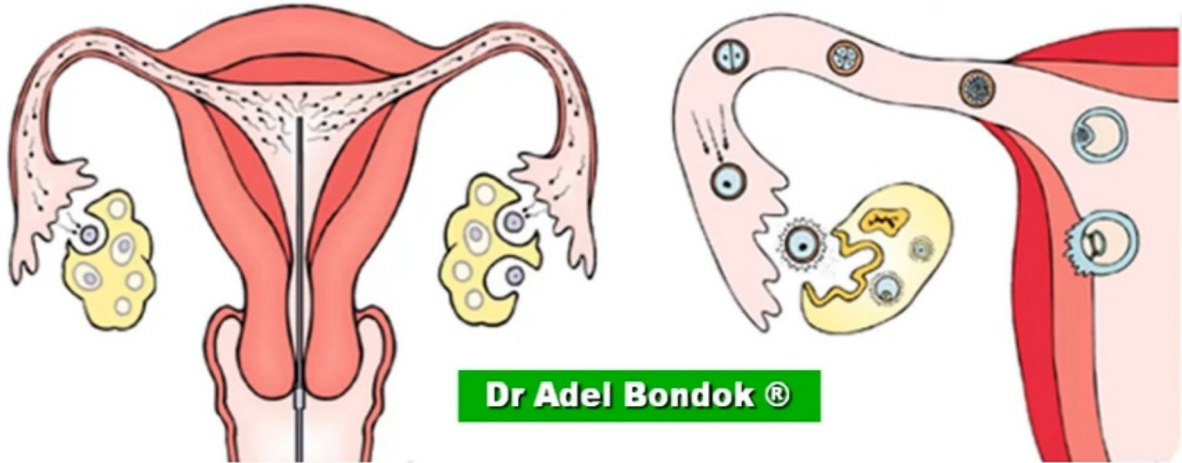
3. INNER LAYER:
endometrium



UTERINE TUBE



Functions of the Uterine Tube



Transport of the sperms to the fertilization site

Transport of the zygote to the uterus

VAGINA: Birth Canal

LENGTH:

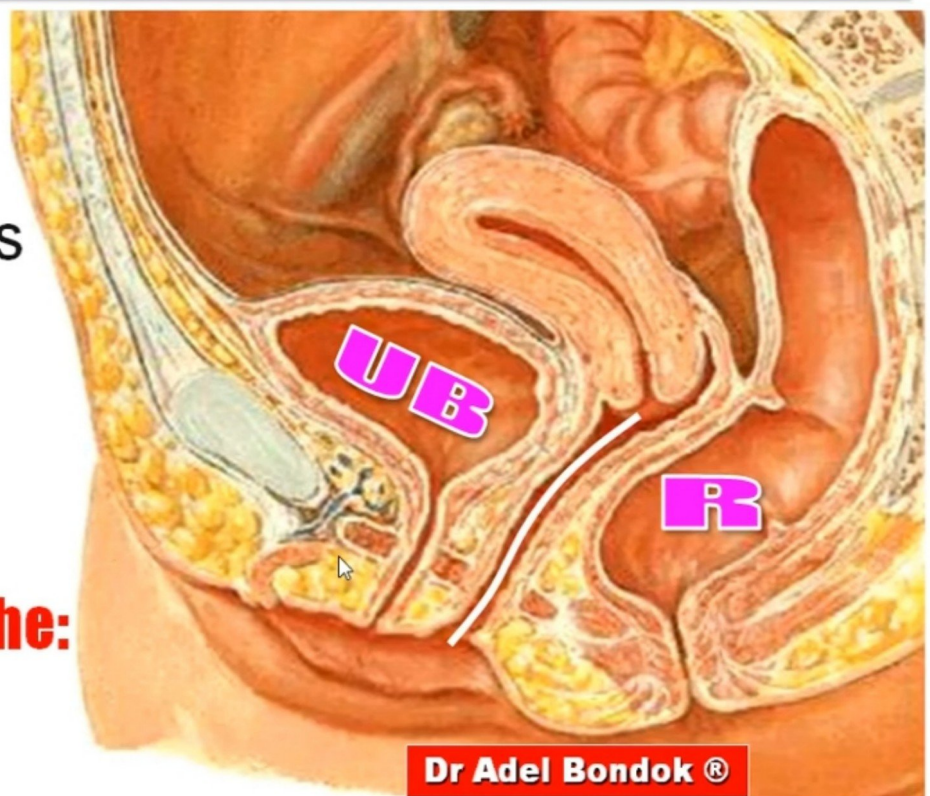
3 – 4 inches

POSITION:

DIRECTION:

Opens into the:

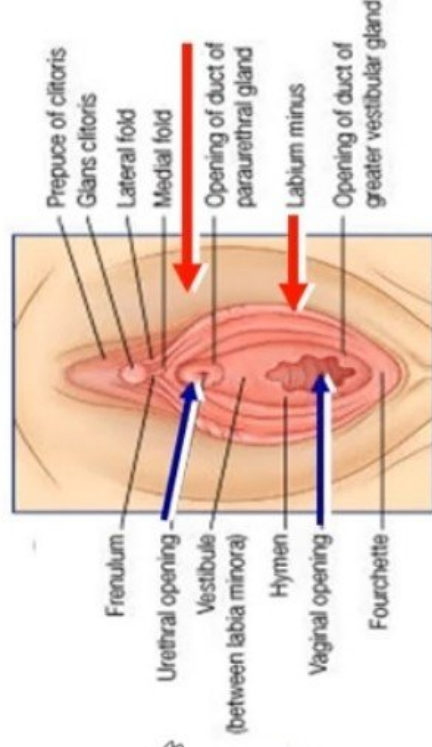
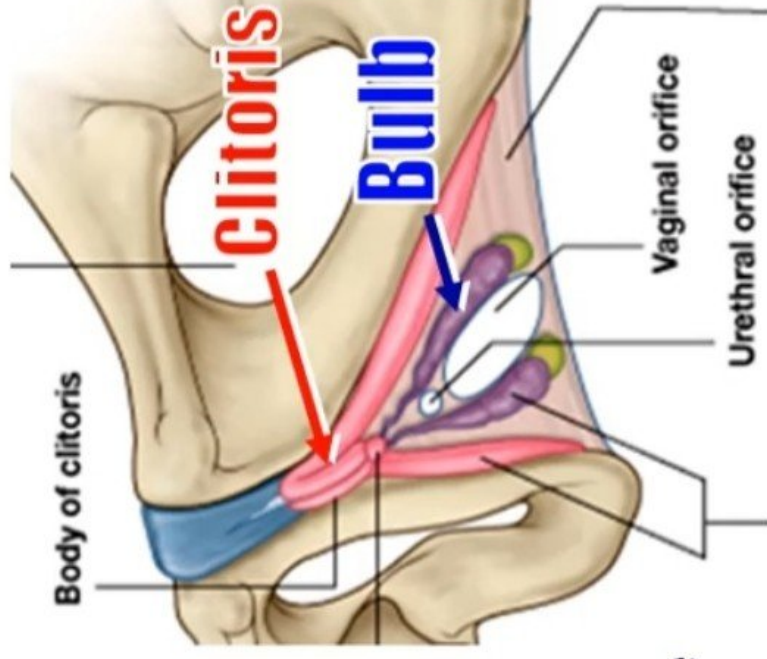
vestibule



FEMALE EXTERNAL GENITALIA

THE VULVA

- 1. Clitoris:** formed of 2 crura
- 2. Bulb of vestibule**
- 3. 2 Skin Folds:**
 - a. 2 Labia minora:** the space between the 2 is the vestibule
 - b. 2 Labia majora**
- 4. 2 Orifices:**
 - a. Urethral orifice:** anterior
 - b. Vaginal orifice:** posterior and closed by the hymen

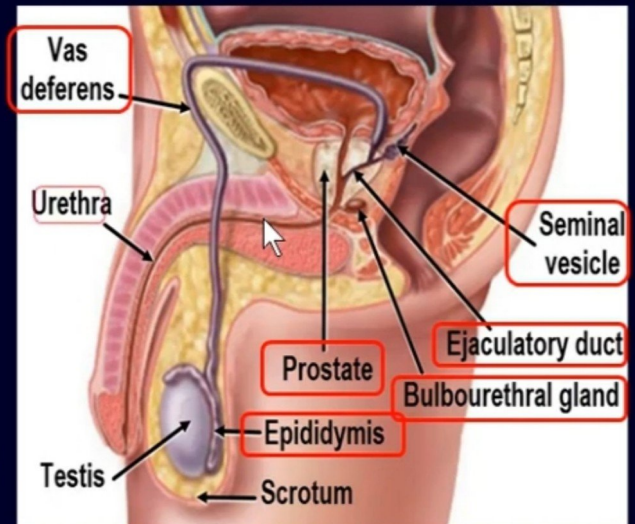


Male Genital System

A. Primary Sex Organ: the **Testis** (2 = testes)

B. Secondary Sex Organs:
Genital Ducts & Glands

1. Epididymis
2. Vas Deferens
3. Seminal Vesicles
4. Ejaculatory Ducts
5. Prostate Gland
6. Bulbo-Urethral Glands
7. Urethra



C. External Genital Organ: the Penis

THE TESTIS


Number: 2 (Rt & Lt)


Site: inside the scrotum

Temperature regulation

High temp destroys the spermatocytes

FUNCTIONS:

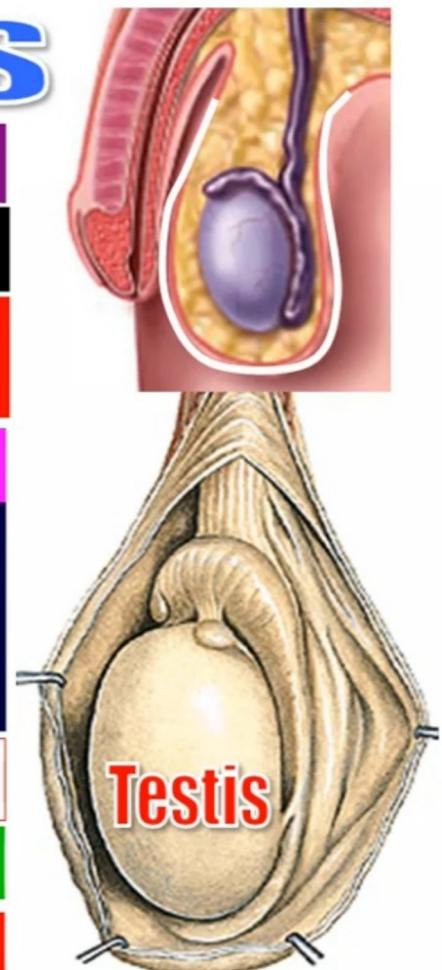
 **Production of the sperms** by spermatogonia

 **Secretion of testosterone** (male sex hormone) by Leydig cells

BLOOD SUPPLY

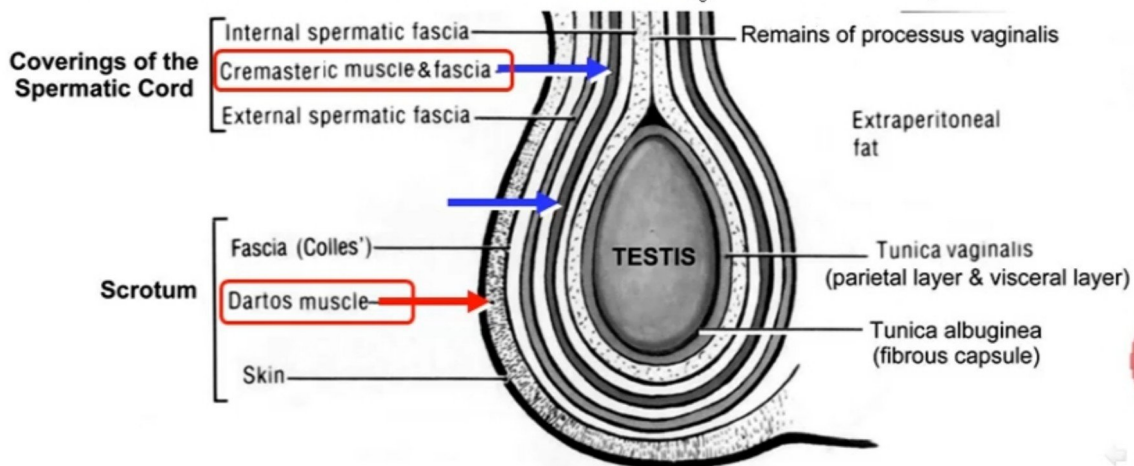
LYMPH DRAINAGE

STRUCTURE



Temperature Regulation of the Testis

1. The scrotum has **2 muscles in its wall** to keep the testis close to or away from the abdomen (contract or relax) :
 - a. Dartos muscle:** wrinkles the scrotum (when cold).
 - b. Cremaster muscle:** pulls the testis upward when cold.
2. **The testicular vessels:** the artery brings warm blood.
3. The scrotum is rich in **sweat glands** (effective cooling).
4. The scrotal skin has almost **no fat** (no insulatin).



3 Advices to you "MEN"
to keep your testis safe & cool !



Don't wear tight jeans



Don't put the laptop on your lap



3 Advices to you "MEN" to keep your testis safe & cool !



Don't wear tight jeans

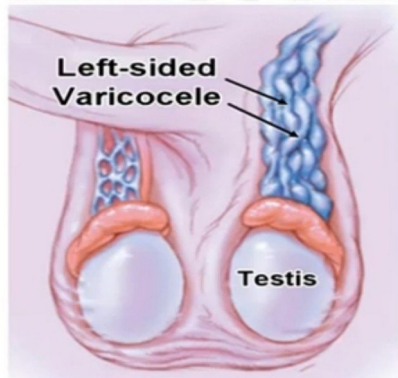


Don't put the mobile in your pant
The electromagnetic waves and the heat destroy the testis

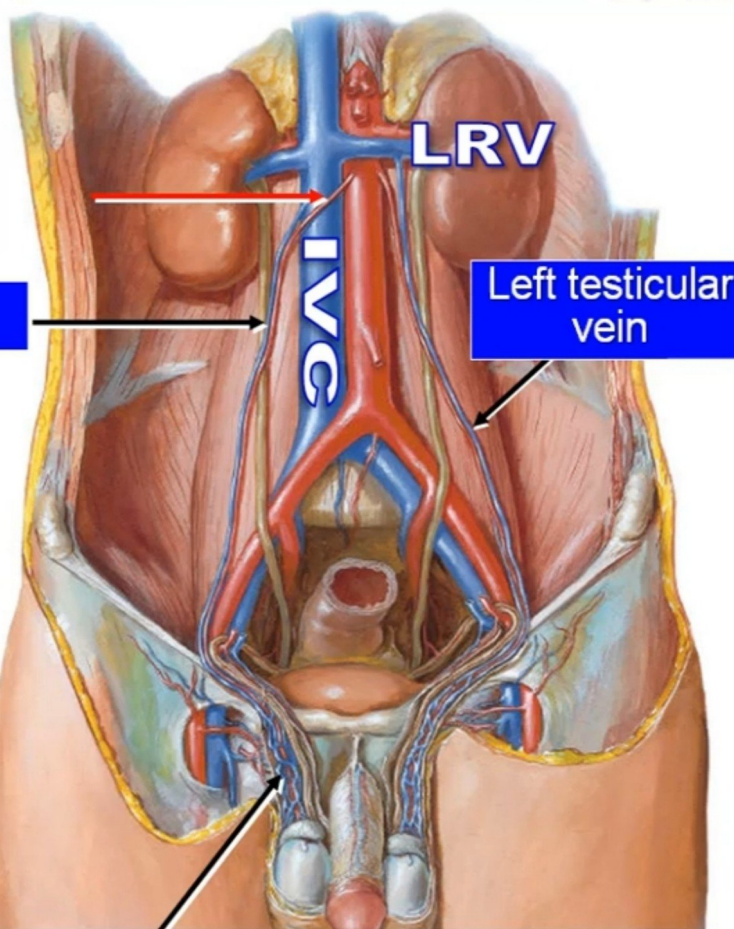
Arterial Supply and Venous Drainage of the Testis

Right testicular vein

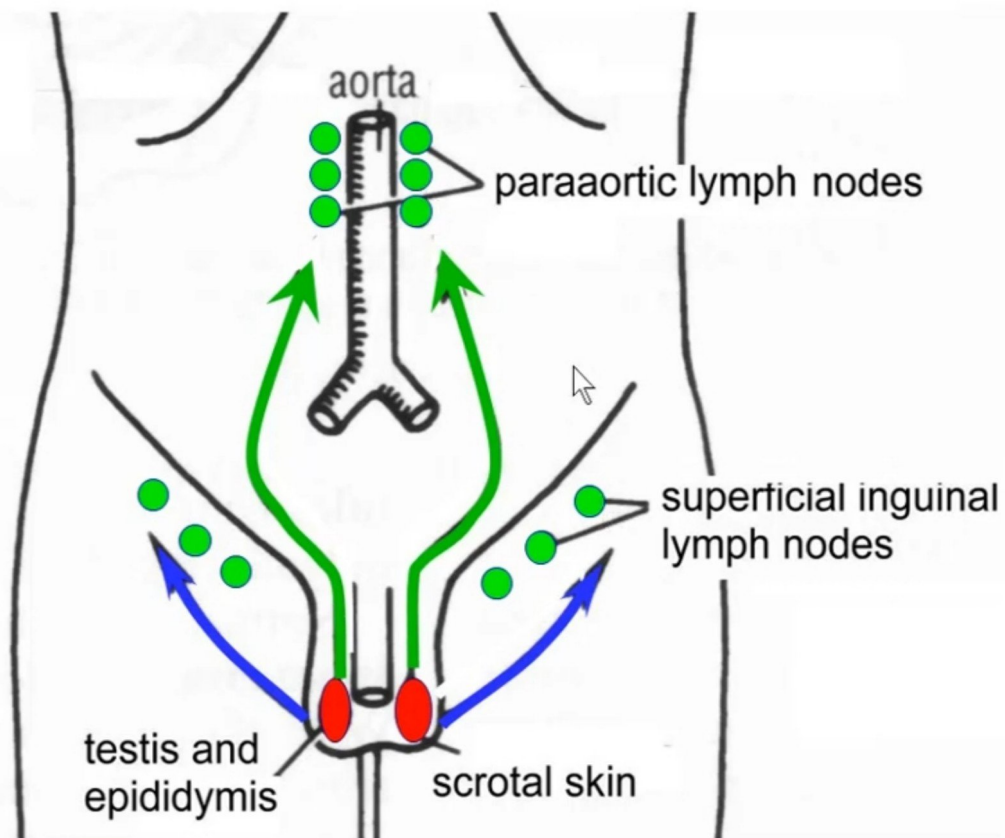
VARICOCELE



↑ Temp of the testis causes infertility



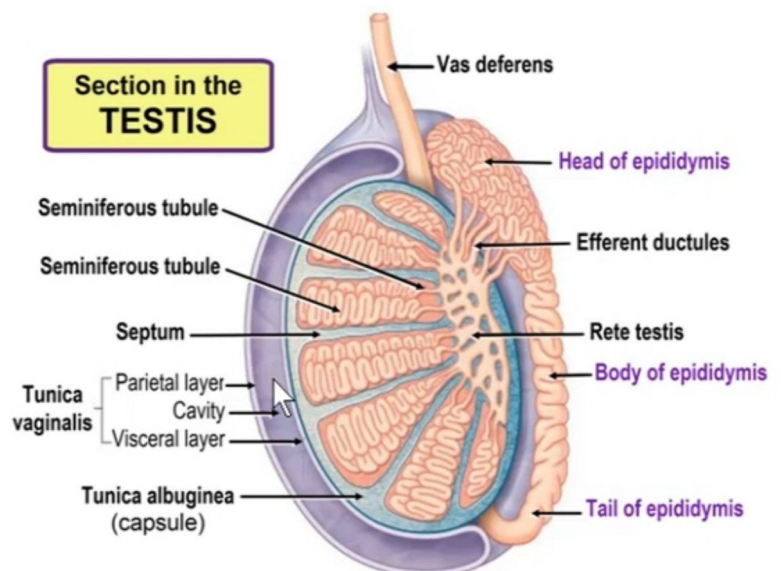
Pampiniform venous plexus > testicular vein



Lymph drainage of the **testis & scrotum**

- ♥ **Fibrous Capsule:** tunica albuginea
- ♥ **Divided into lobules by septa**
- ♥ **Each lobule contains 2 seminiferous tubules**
- ♥ **The tubules unite to form rete testis**
- ♥ **The rete testis is connected with the epididymis by efferent ductules**
- ♥ **Is surrounded by serous sac called tunica vaginalis**

STRUCTURE of the TESTIS



Cells in the Seminiferous Tubules

1. **Spermatogonia:** productions of the sperms.
2. **Sertoli Cells:** supporting cells & give nutrition to the sperms

Functions of the Sertoli Cells

They Secrete 5 substances:

1. **Testicular fluid to support & nourish the sperms.**
2. **Substances that initiate meiosis (spermatogenesis).**
3. **Androgen-binding protein:** concentrates testosterone around the developing sperms.
4. **Hormone inhibin:** inhibits release of **FSH** to control overproduction of the sperms.
5. **Mullerian inhibiting hormone (factor):** prevents formation of the female genital duct

Hormonal Control of the Testis

1. **LH** stimulates Leydig cells to secrete testosterone.
2. **Testosterone** stimulates spermatogenesis.
3. **FSH** >> initiation of spermatogenesis. It increases the production of the sperms by preventing degeneration of spermatogonia
4. **Inhibin:** inhibits overproduction of the sperms

Sexual Development of the Testis

1. **Testicular enlargement** is the first physical manifestation of puberty.
2. **The seminiferous tubules** remain uncanalized till puberty.
3. **Canalization** of seminiferous tubules occurs at puberty.

EPIDIDYMIS

Site

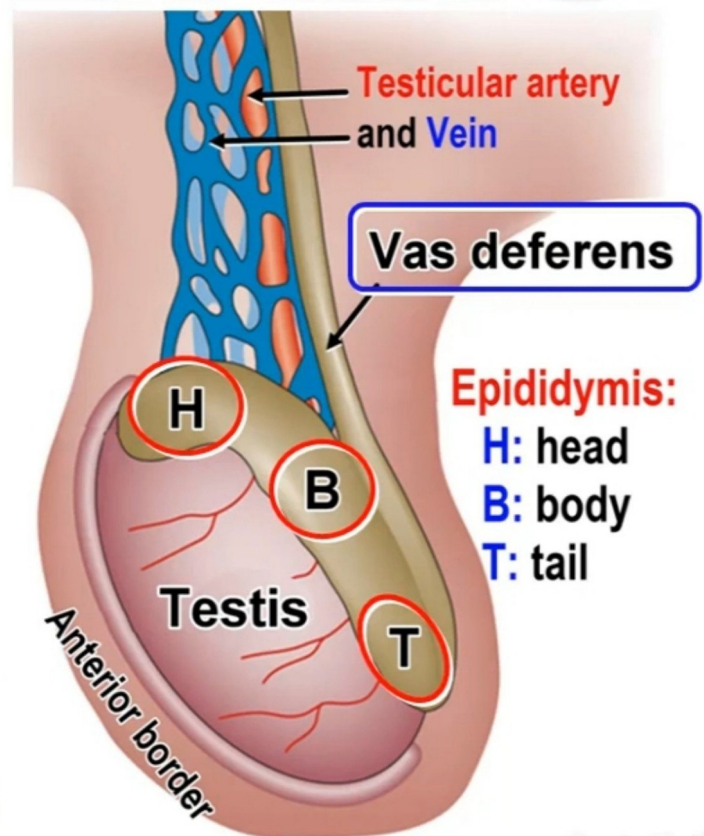
Divisions:

1. **Head: upper**
2. **Body: middle**
3. **Tail: lower**

continues as the vas deferens

Function:

1. Store the sperms
2. Site of maturation of the sperms
3. Secrete seminal fluid



Some Facts

Sperms are produced in the testis

Sperms are stored in the epididymis

Sperms are stored for 3-4 weeks then die

Sperms are ejaculated by contractions of VD & EjD

300 – 500 million sperms are deposited in vagina

Only 300 – 500 sperms reach the fertilization site

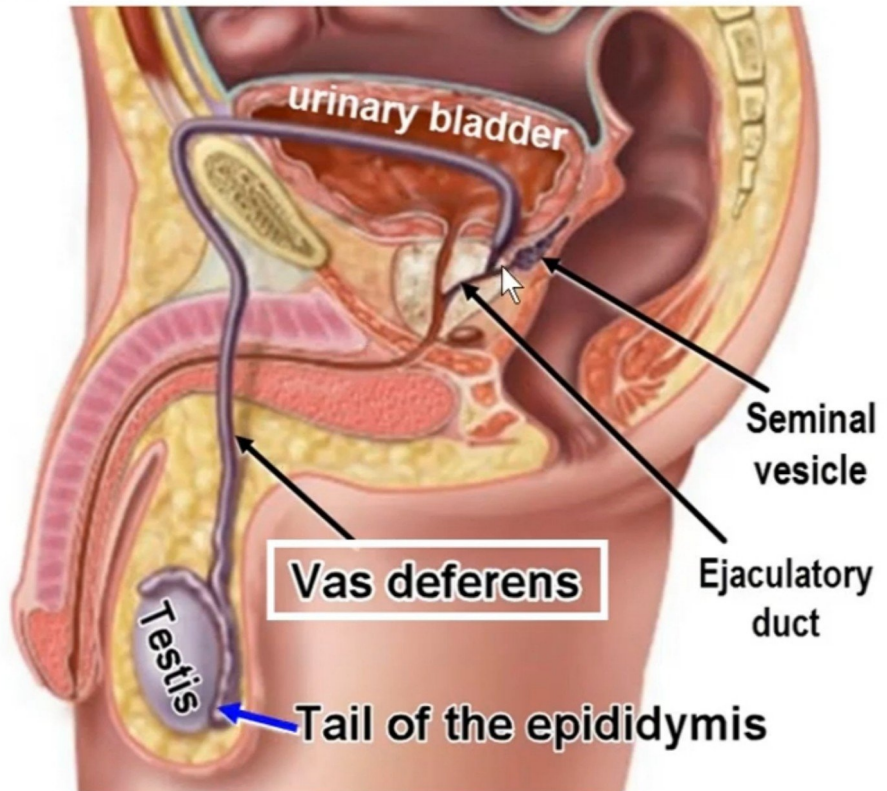
Other sperms die during the journey

VAS DEFERENS

Length:
45 CM

Begins
at tail of the
epididymis

ENDS:
unites with the
seminal vesicle
to form Ejac D

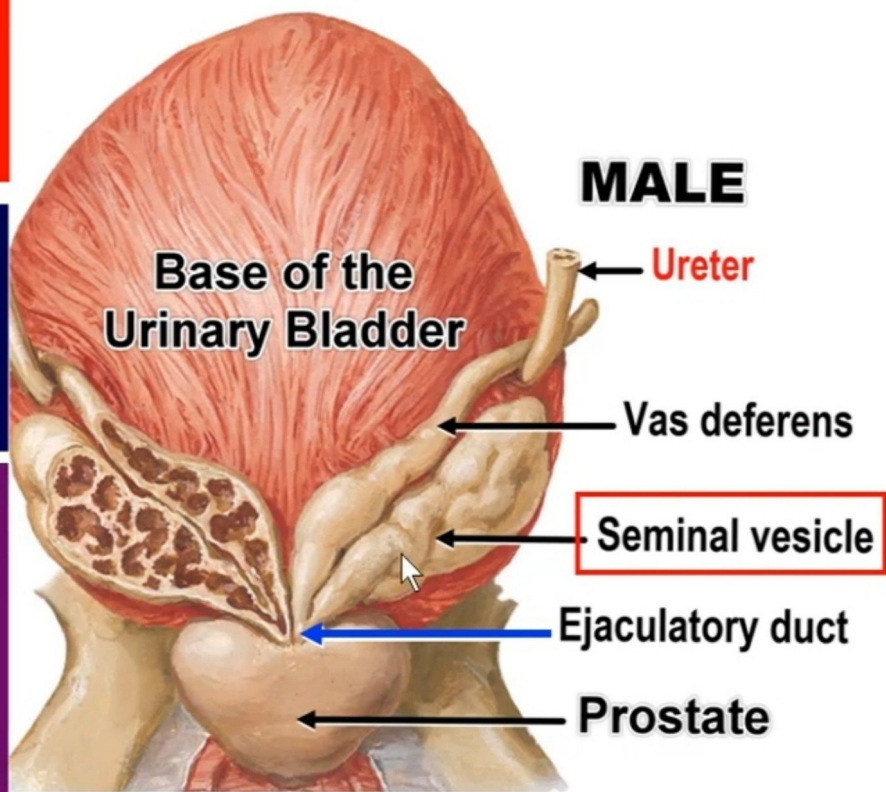


SEMINAL VESICLE

SITE: behind the
urinary bladder

UNITES with the
VD to form
Ejaculatory duct

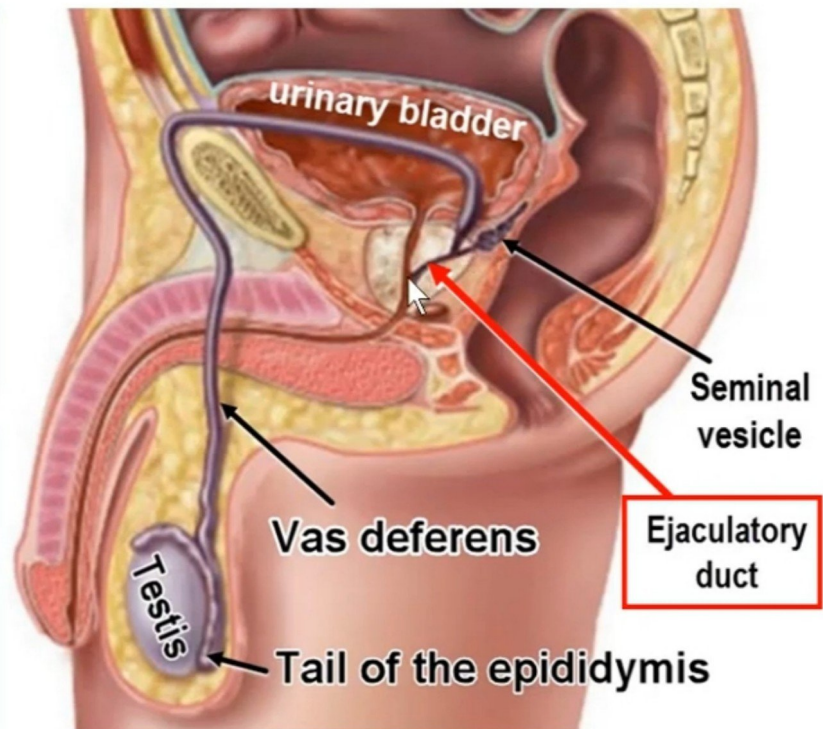
FUNCTION:
1. **Secretes**
seminal fluid
2. **Secretes**
prostaglandins



EJACULATORY DUCT

Formation:
by union of the
seminal vesicle
with the vas
deferens

Termination:
it opens into the
prostatic urethra



Male External Genital Organ

The **PENIS** is
formed of

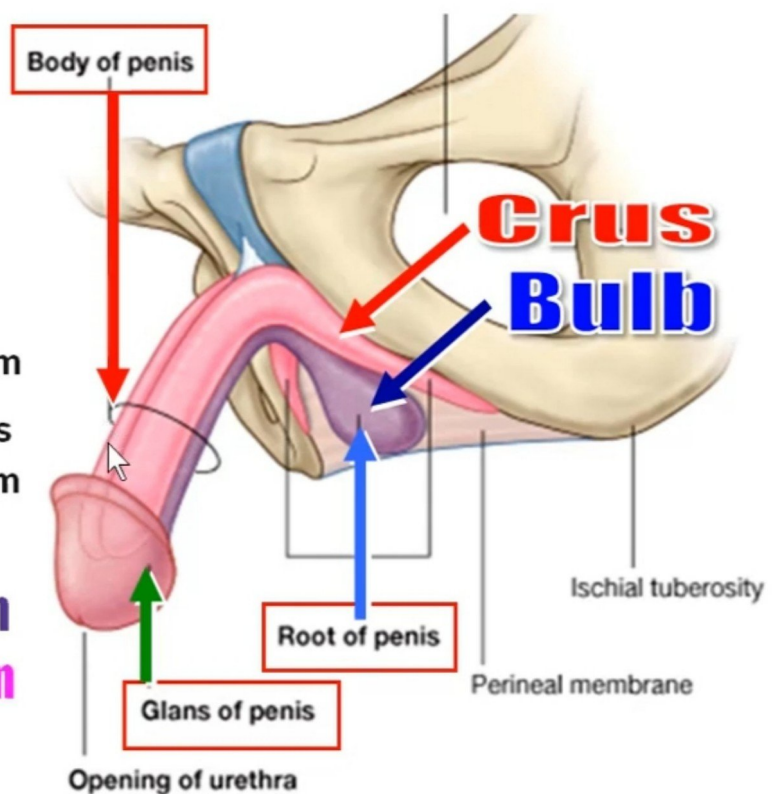
ROOT:

1. **Bulb:** continues as corpus spongiosum
2. **2 Crura:** continue as corpus cavernosum

BODY:

1. **Corpus spongiosum**
2. **Corpus cavernosum**

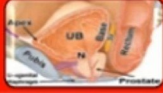
GLANS



Prostate Gland



Location & Shape



Relations & Arterial Supply



Structures Inside



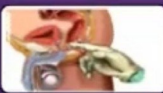
Lobes



Capsule of the Prostate



Function



Clinical Examination

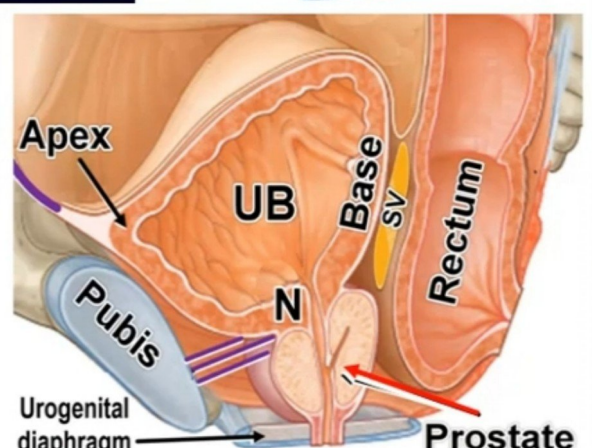
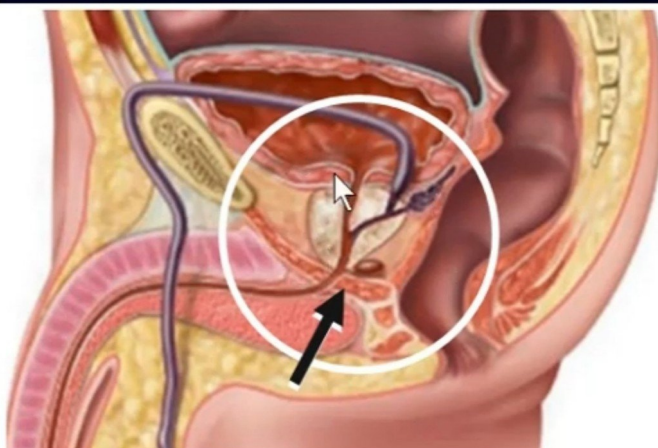
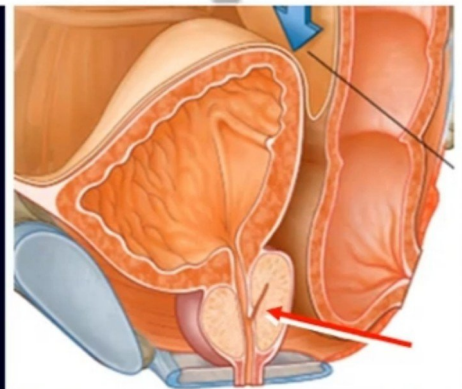
Position & Shape

Below the neck of urinary bladder

Above the deep perineal pouch (UGD)

Behind the lower part of symph pubis

In front of lower 1/3 of the rectum



Relations & AS

Base: bladder neck; pierced by urethra & ejaculatory duct

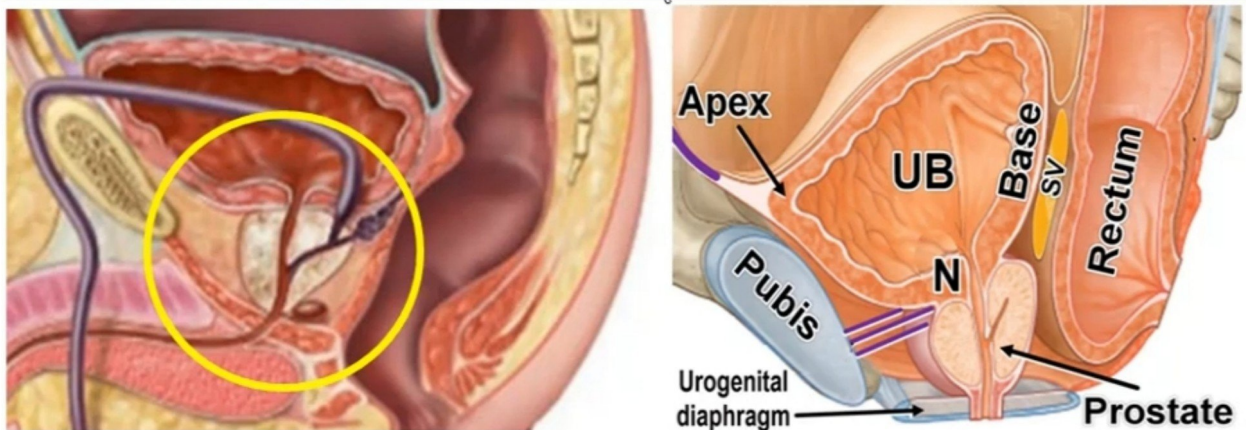
Apex: urogenital diaphragm (deep perineal pouch)

Anterior: retropubic space & puboprostatic lig

Posterior: lower 1/3 of the rectum

Sides: levator ani (levator prostate)

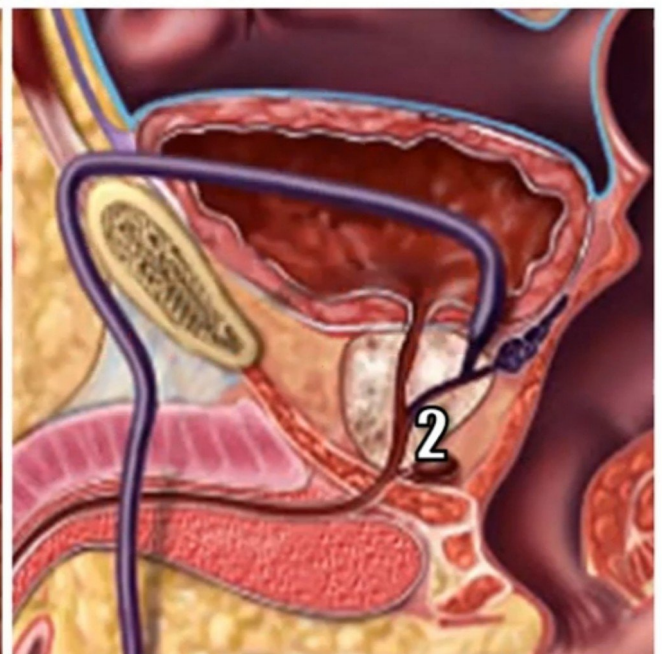
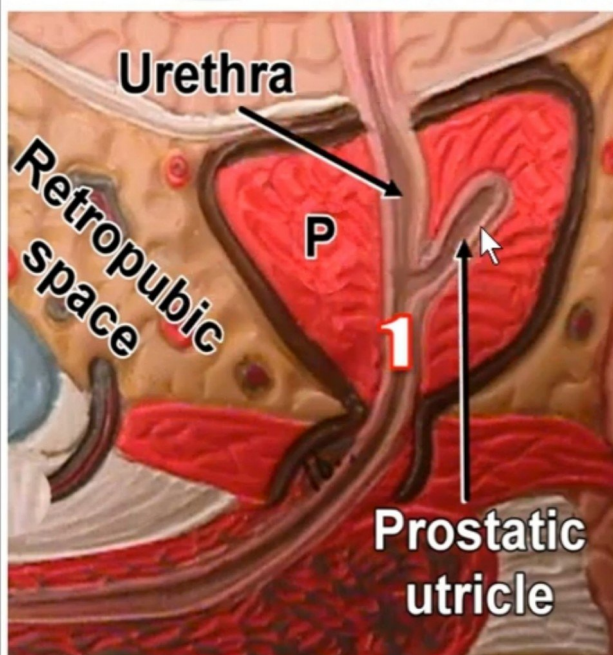
Arterial Supply: inferior vesical & middle rectal arteries



Structures Inside the Prostate

3

1. Urethra
2. Ejaculatory ducts
3. Prostatic utricle



5 LOBES

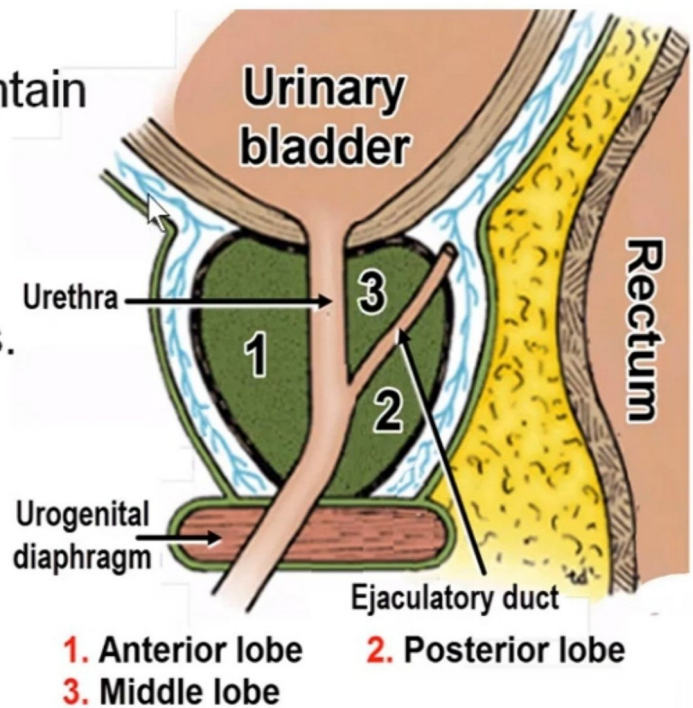
1. Anterior: doesn't contain glands

2. Posterior

3. Middle: rich in glands.
Liable to enlargement obstructing the urethra

4. Right

5. Left

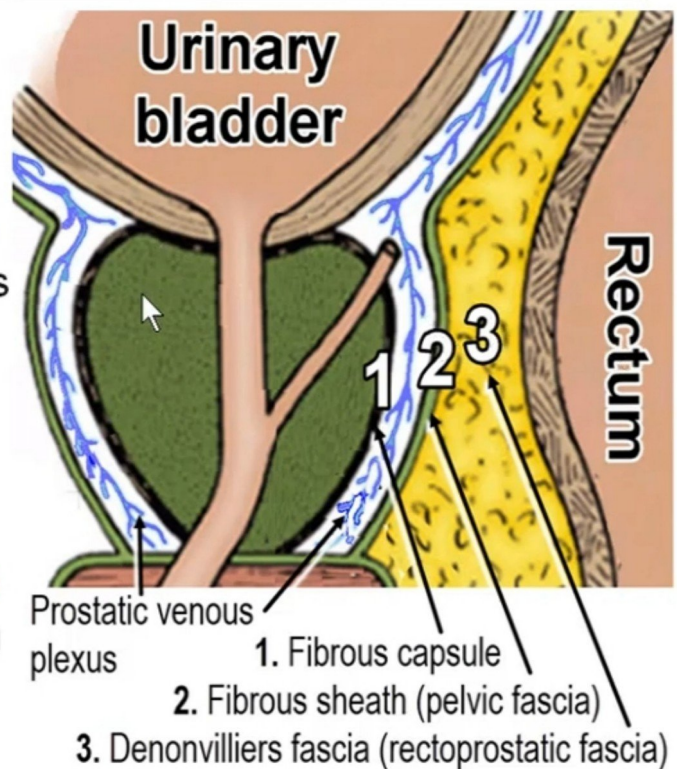


Capsule: 3 layers of fascia

1. Fibrous capsule:
around the gland.

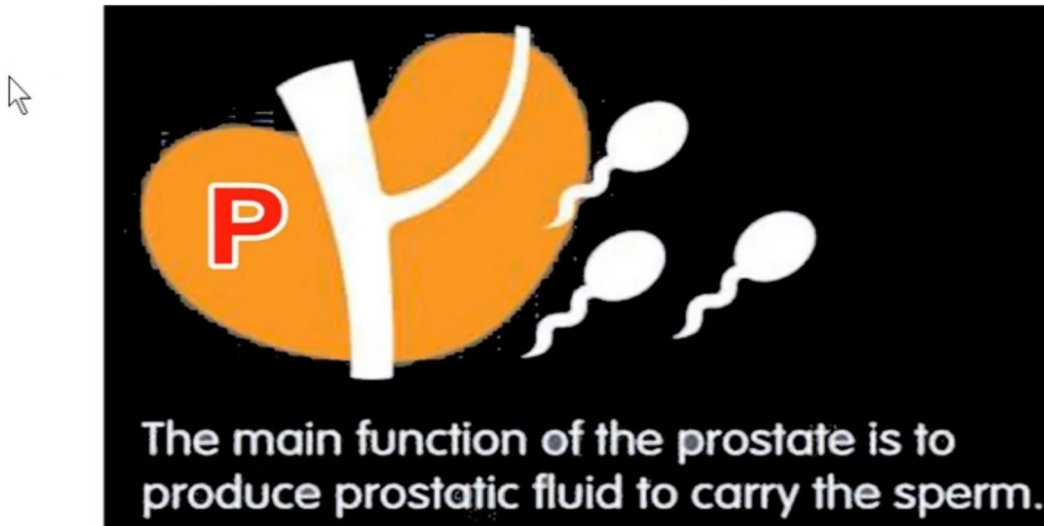
2. Fibrous sheath (pelvic fascia): around the fibrous capsule. Prostatic venous plexus between the fibrous capsule and the fibrous sheath.

3. Rectoprostatic fascia:
separates the prostate from the rectum



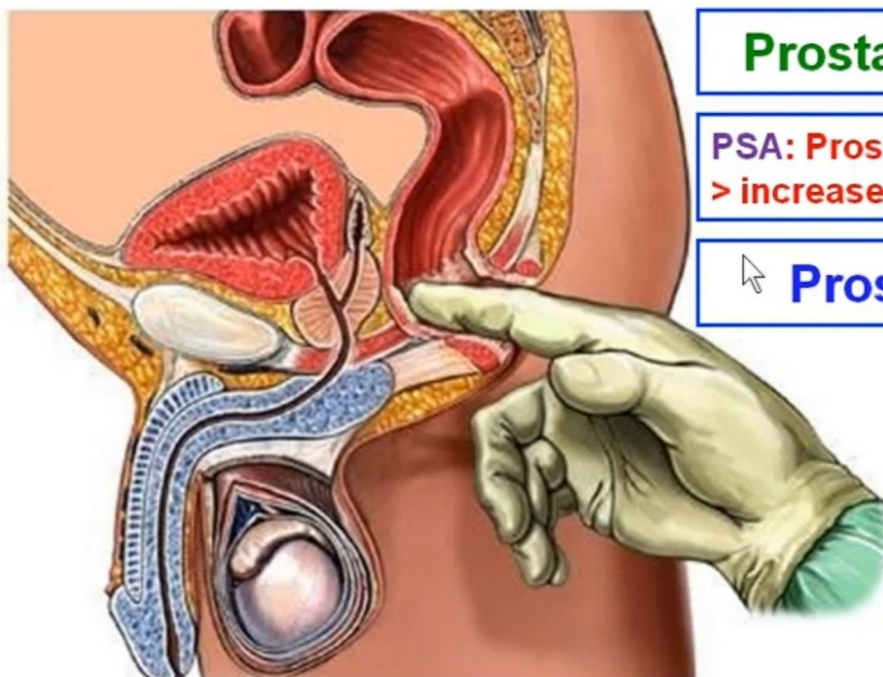
Function of the Prostate

1. **Secretes prostatic (seminal) fluid:** the fluid is **alkaline**. It contains **acid phosphatase**. Acid phosphatase increases in prostate cancer due to obstruction of the ducts of the glands.
2. **May secrete prostaglandin**



Clinical Prostate Examination

PR Examination: examination through the rectum



Prostate ultrasound

PSA: Prostate Specific Antigen
> increases in Prostate cancer

Prostate biopsy

Urinary Bladder

OBJECTIVES

Dr Adel Bondok ®

Position: in adult & children

Shape: Pyramidal, apex, Base, Neck and 3 Surfaces

Peritoneal Covering & Relation

Trigone

Arterial Supply

Position & Shape

Position:

a. Adult

b. Children

Shape: pyramidal

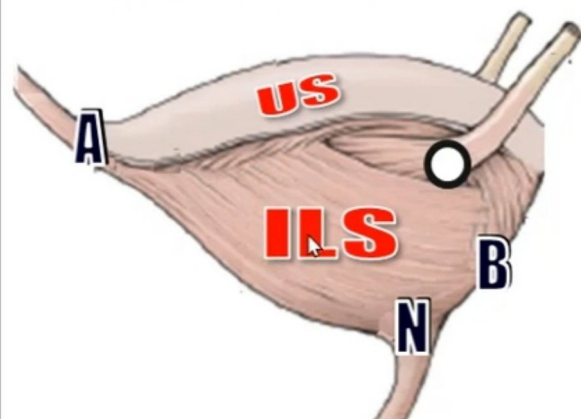
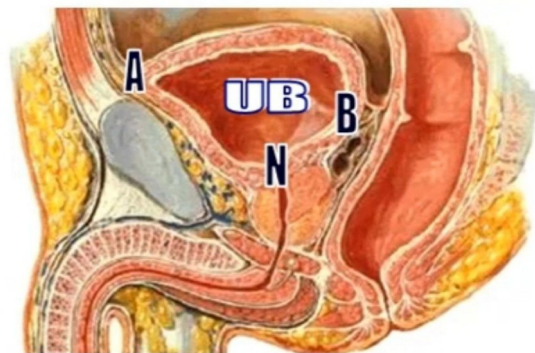
Apex: anterior angle

Base

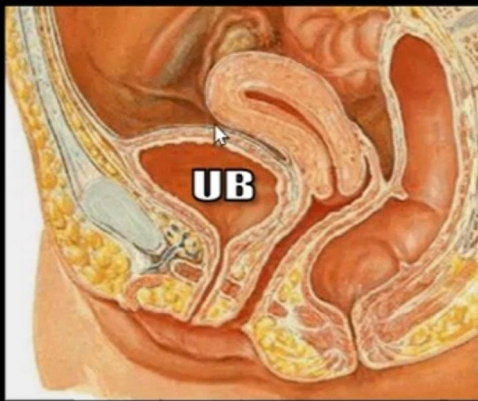
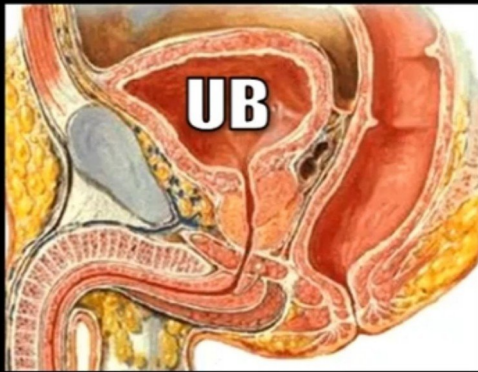
Neck: inferior angle

2 Posterosup angles

3 Surfaces



PERITONEAL COVERING

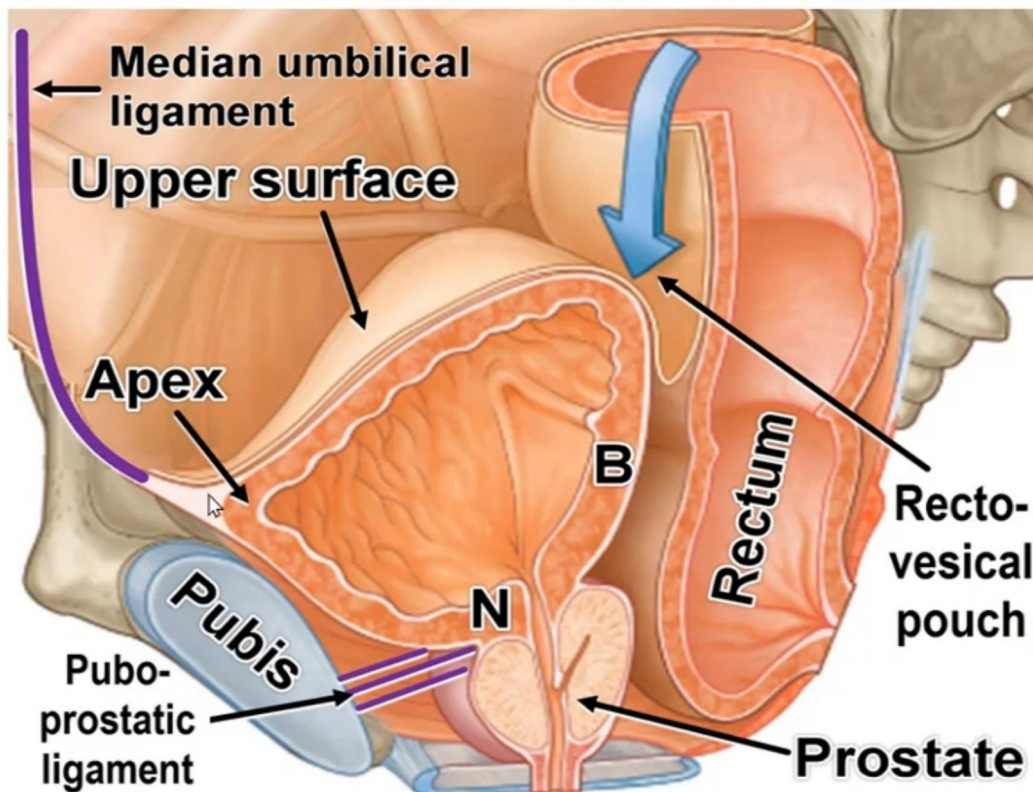


MALE

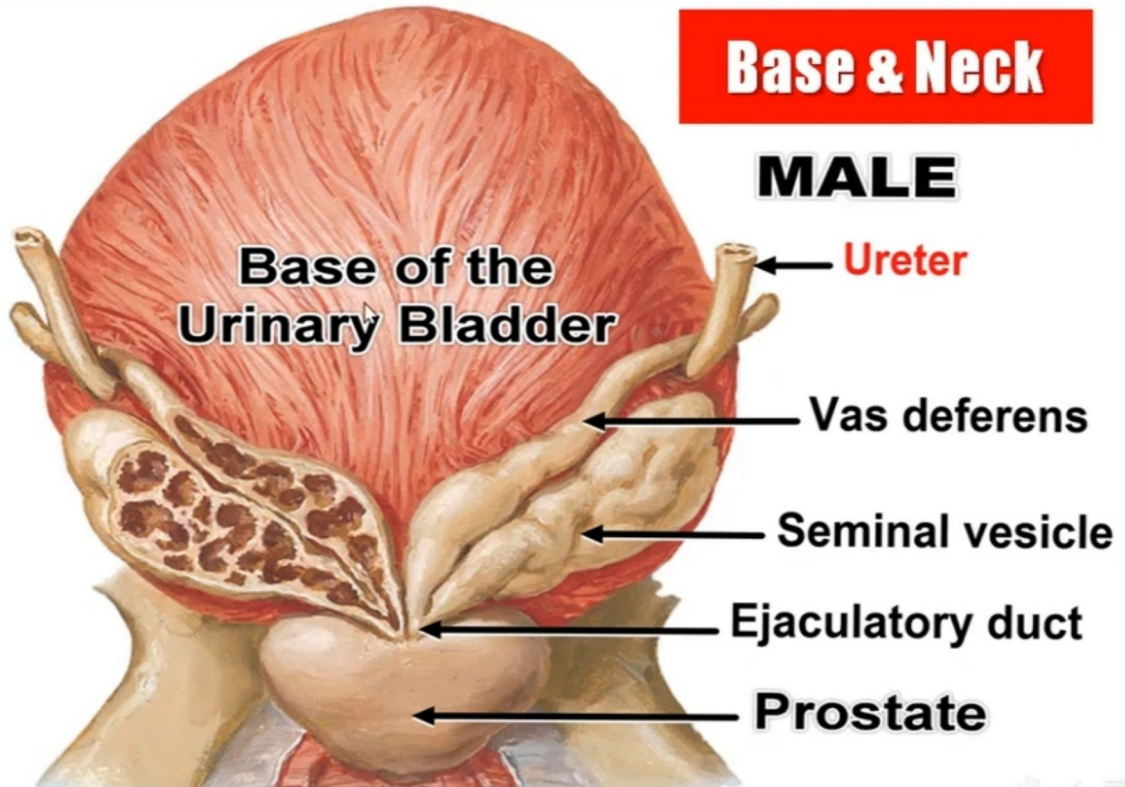
FEMALE

Urinary Bladder

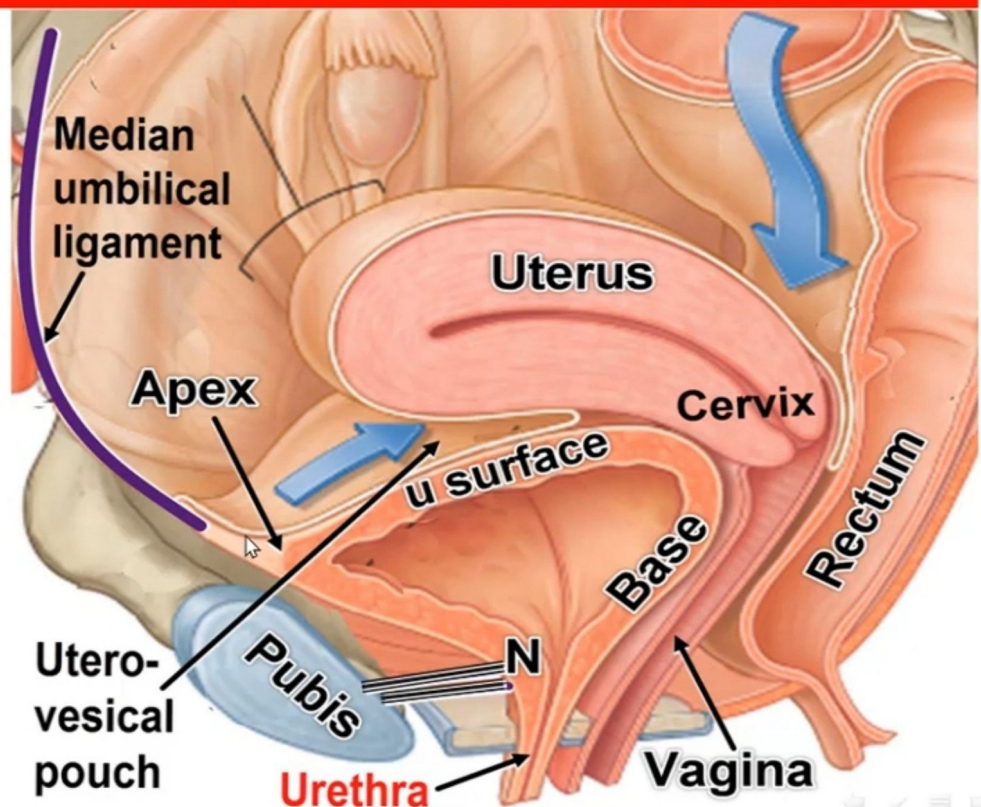
Relations in the Male



Urinary Bladder in the Male

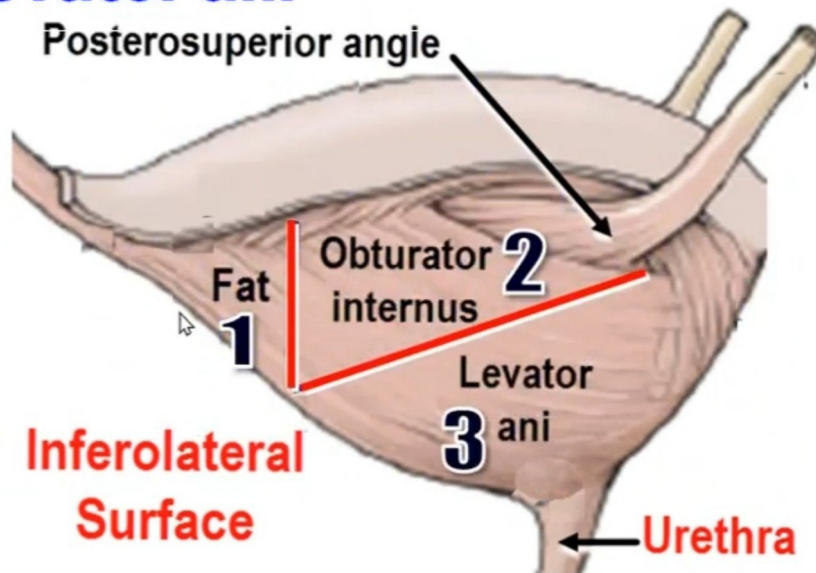


Relations in the Female

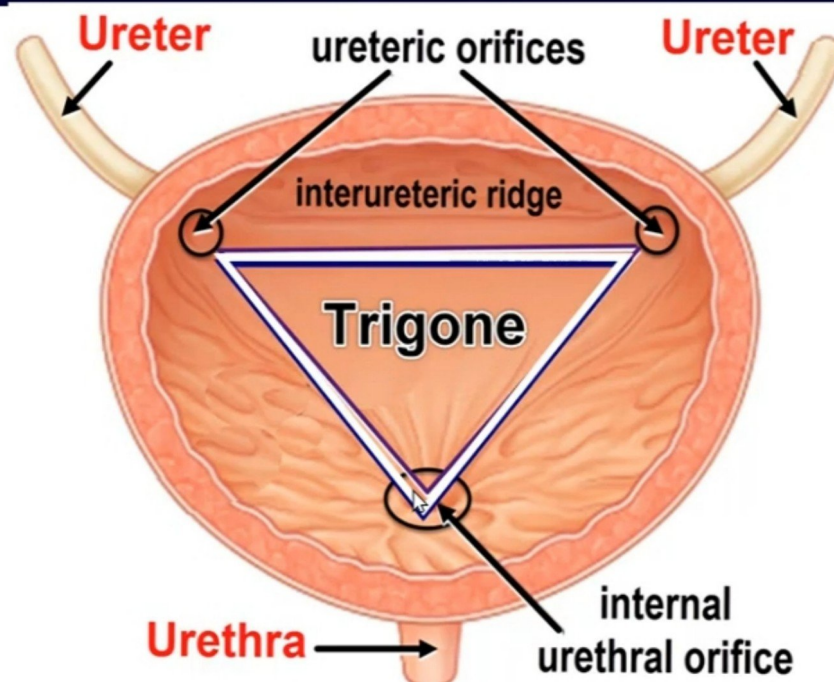


Infero-lateral Surface

1. **Retropubic fat**
2. **Obturator internus**
3. **Levator ani**



TRIGONE OF THE URINARY BLADDER



BLOOD SUPPLY

1. Superior Vesical Artery:

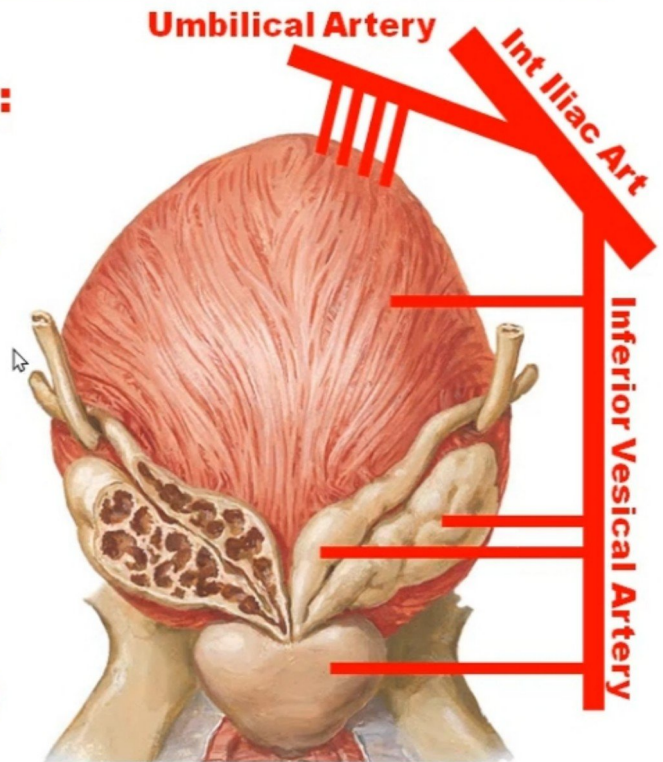
- ✿ in both male & female
- ✿ from the umbilical artery

2. Inferior Vesical Artery:

- ✿ in the male
- ✿ from the internal iliac art

3. Vaginal Artery:

- ✿ in the female
- ✿ from the internal iliac art



SUMMARY OF THE URINARY BLADDER

Position:

Shape:

Peritoneal Covering:

Relations:

Apex: same in male & female

BASE:

1. Male: upper part & lower part.

2. Female

NECK:

1. Male

2. Female

UPPER SURFACE:

1. Male

2. Female

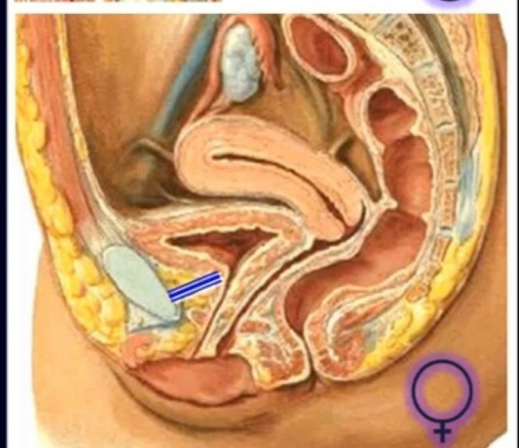
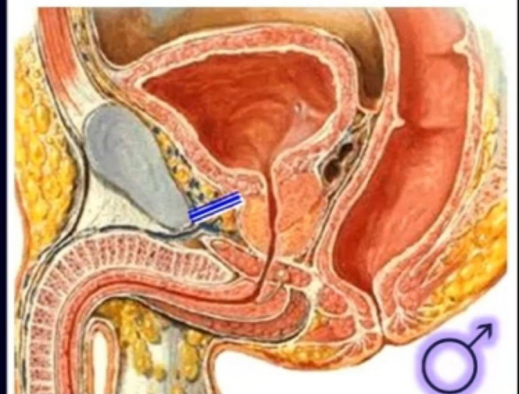
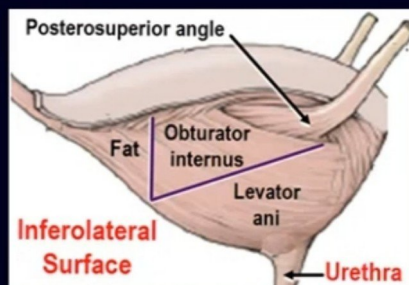
Infero-lateral Surface: same in both

Arterial Supply:

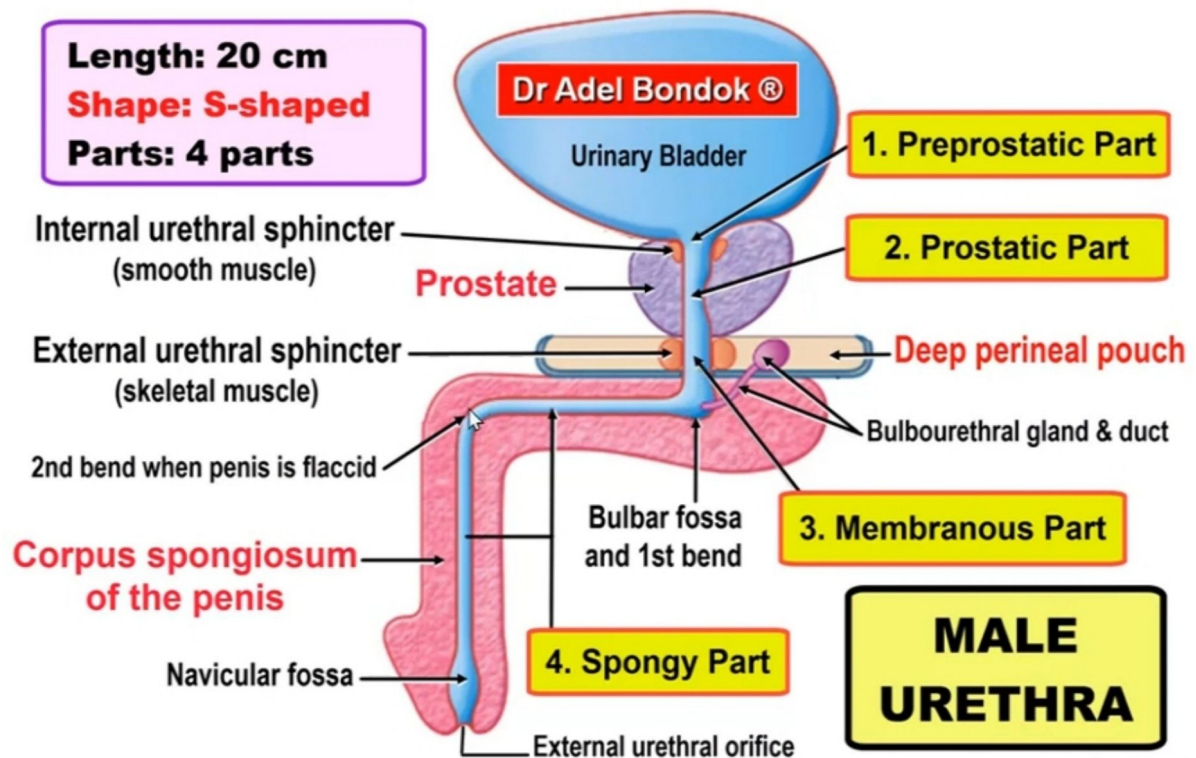
1. Superior vesical in M & F: from umbilical

2. Inferior vesical in the male

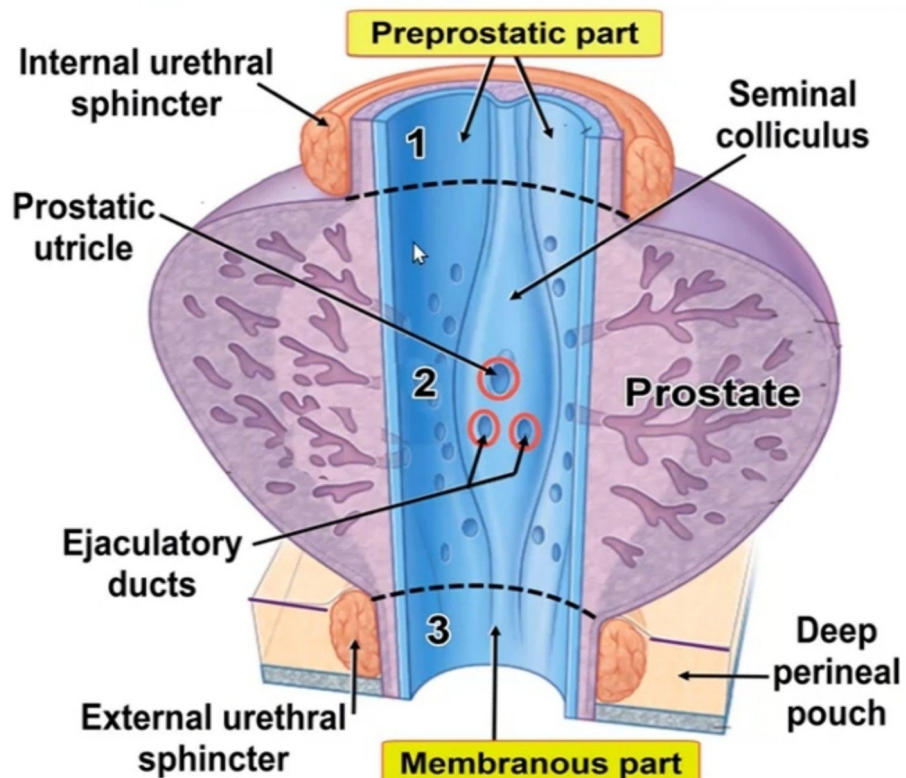
3. Vaginal artery in the female



MALE URETHRA



MALE URETHRA



MALE URETHRA

Prostatic	Membranous	Spongy
1 inch	0.5 inch	6 inches
In the prostate	In the deep perineal pouch	In the bulb and corpus spongiosum
Widest part	Narrowest part	Has 2 dilatations: 1. Bulbar fossa 2. Navicular fossa
Receives openings: 1. Ejaculatory duct 2. Prostatic utricle	Surrounded by external urethral sphincter	Receives openings of bulbourethral glands

Urethral Sphincters

1. Internal Urethral Sphincter:

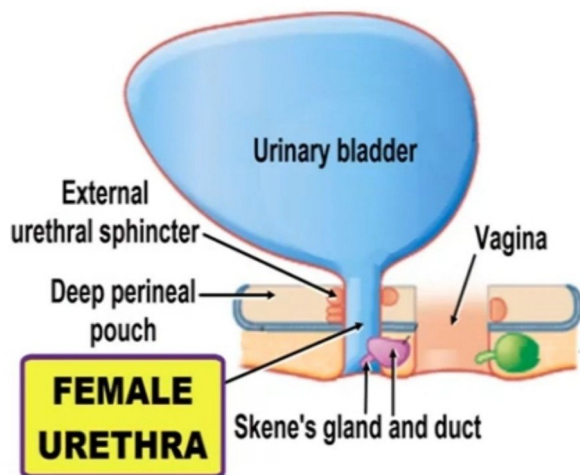
- Lies between the neck of the bladder and the prostate
- Surrounds the preprostatic part
- Smooth muscle supplied by autonomic nerves
- involuntary sphincter for the urinary bladder

2. External Urethral Sphincter:

- Present in the deep perineal pouch (UG diaphragm)
- Surrounds the membranous part
- Skeletal muscle supplied by the pudendal nerve
- Voluntary sphincter for the urethra

Female Urethra

1. 4 cm long
2. Related to the anterior wall of the vagina
3. Opens in the vestibule



The Uterus

Parts & Wall

Normal Position

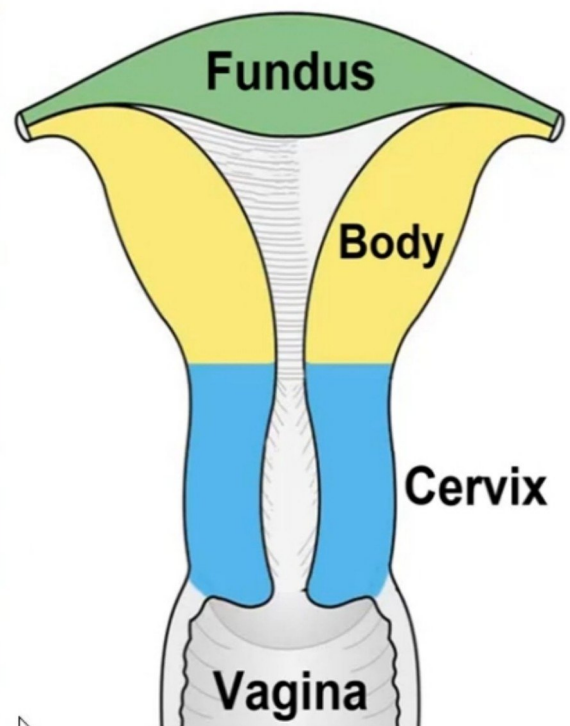
Peritoneal Covering

Relations

Uterine Support

Blood Supply

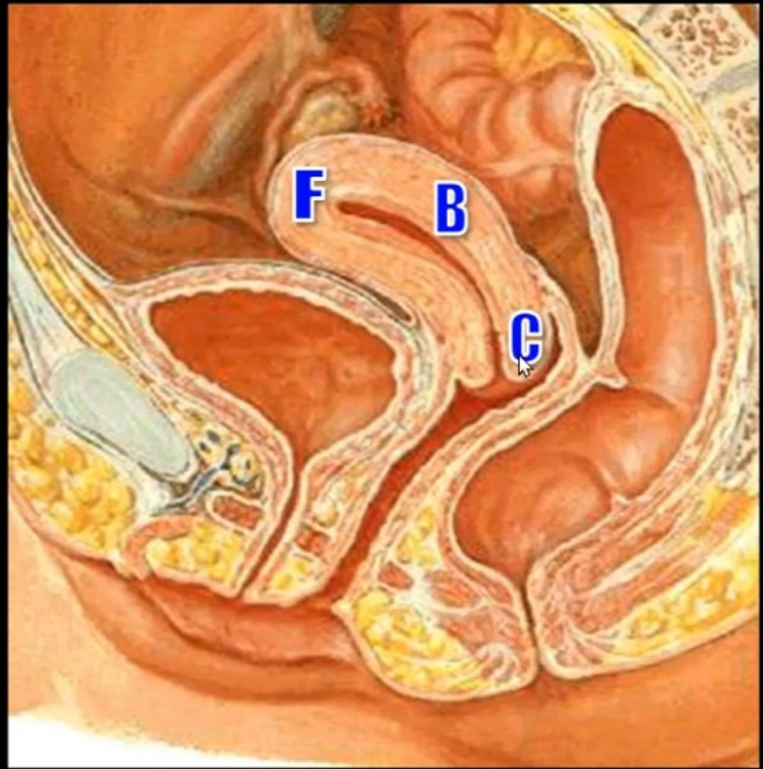
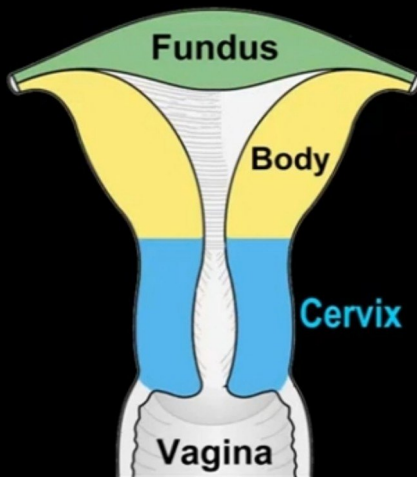
Pregnant Uterus



Dr Adel Bondok®

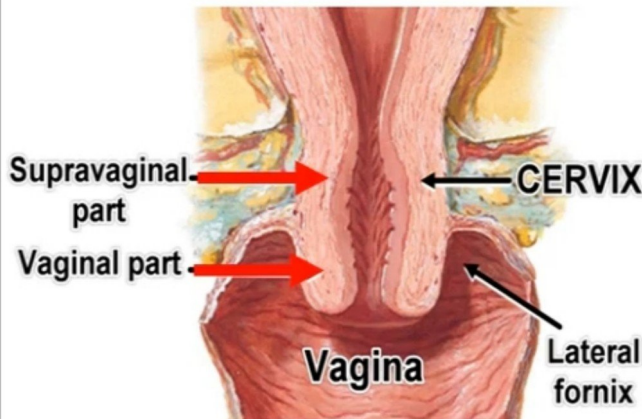
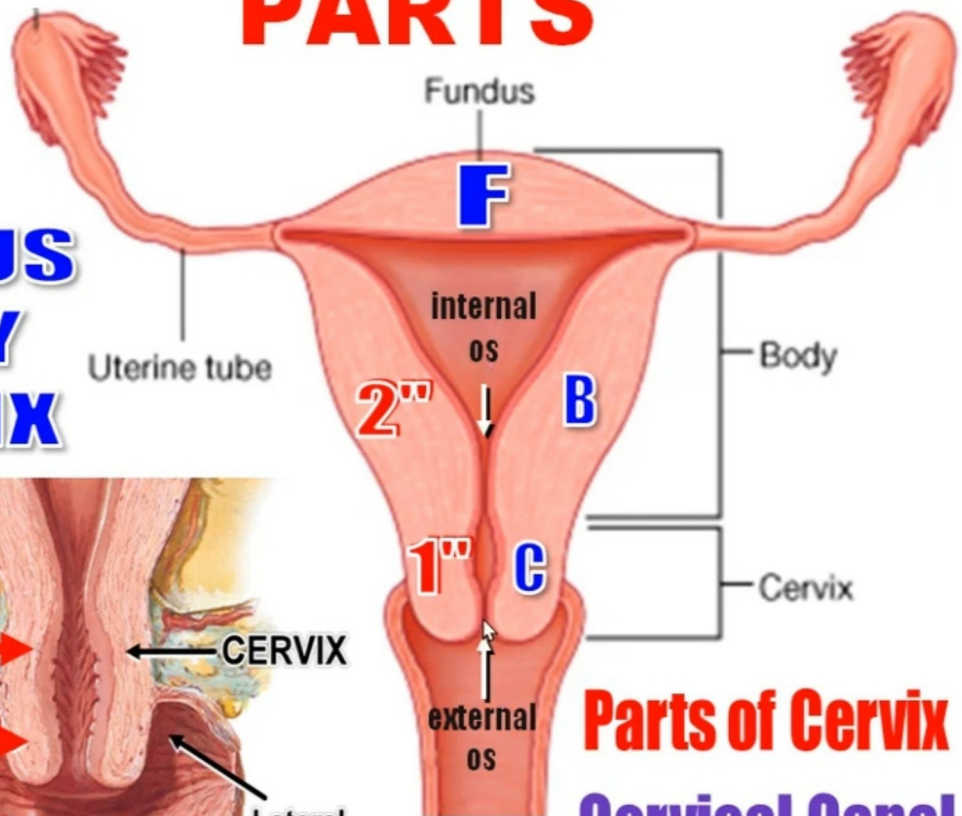
Parts of the Uterus

Fundus
Body
Cervix



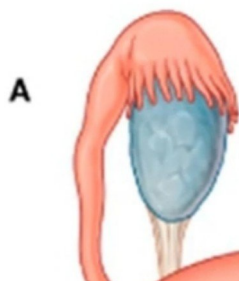
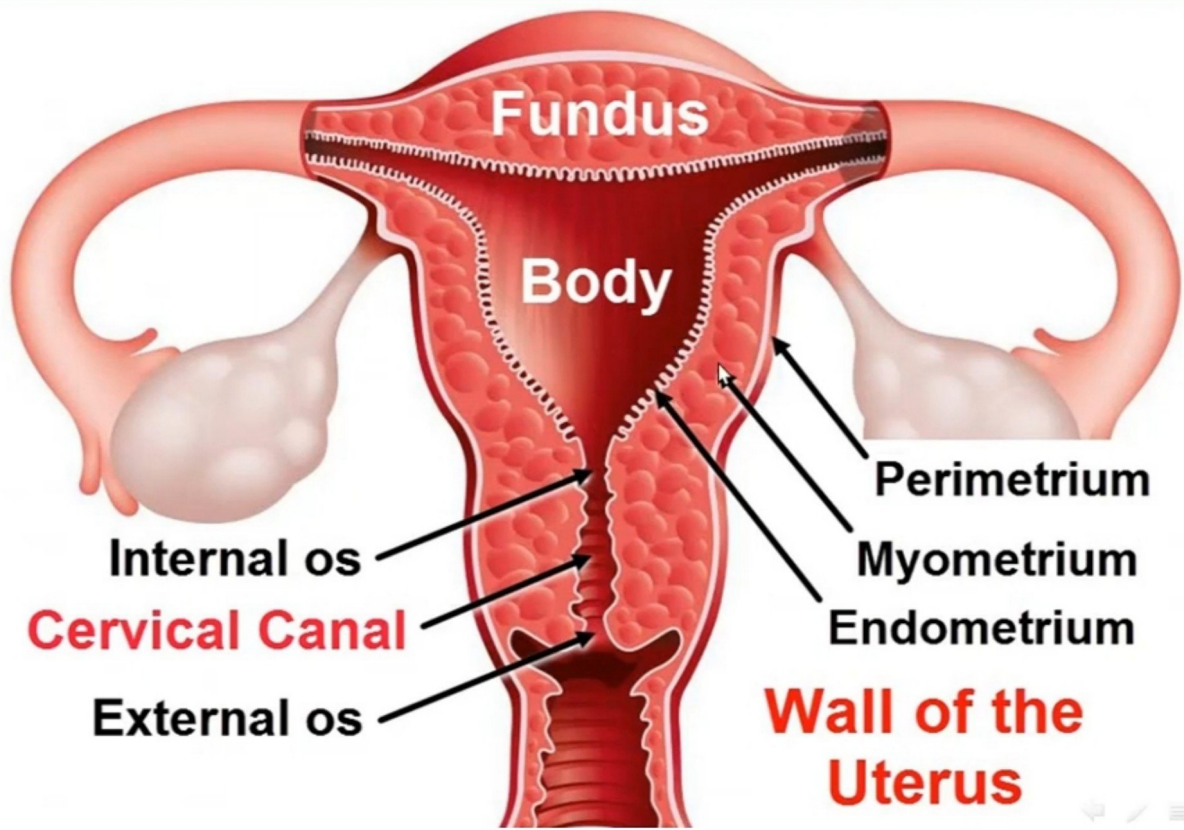
PARTS

FUNDUS
BODY
CERVIX



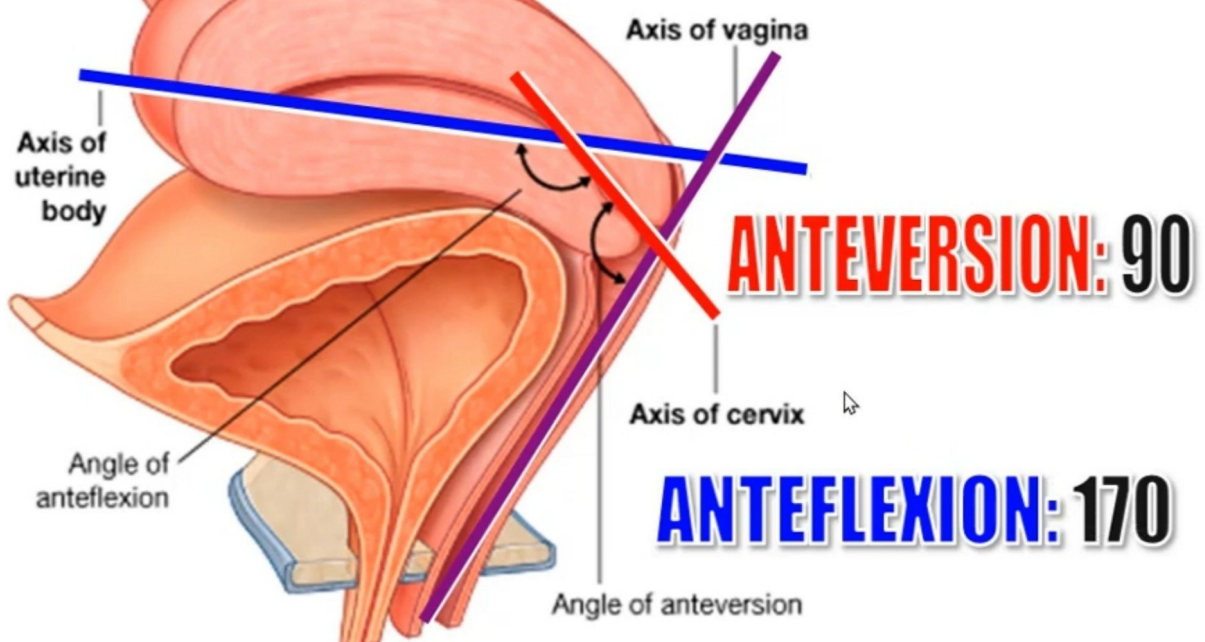
Parts of Cervix
Cervical Canal

3 LAYERS OF THE UTERUS



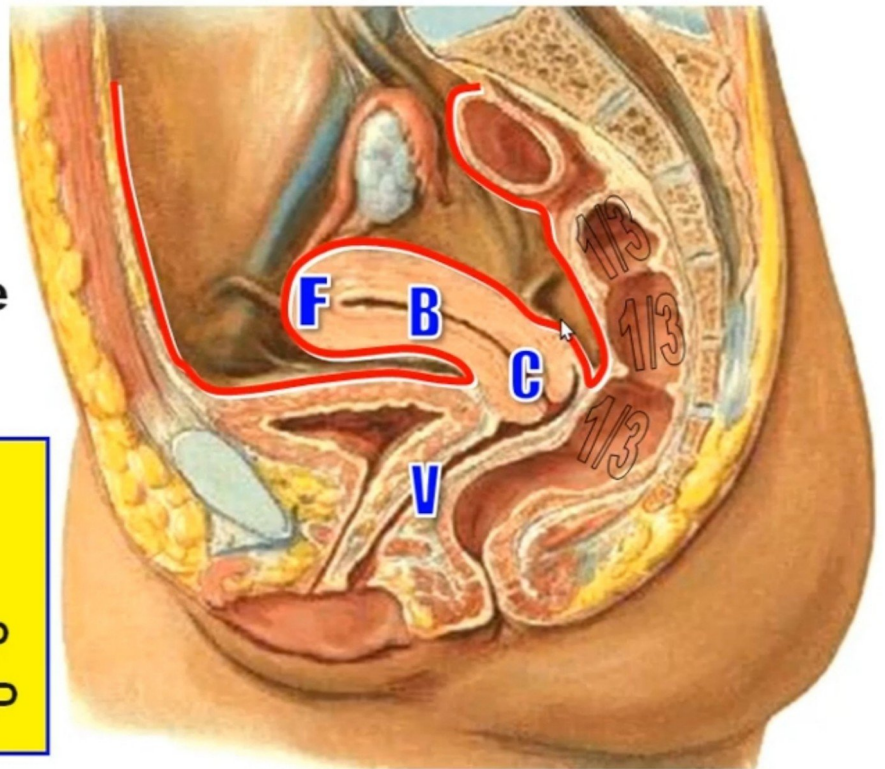
POSITION

Anteversion & Antelexion



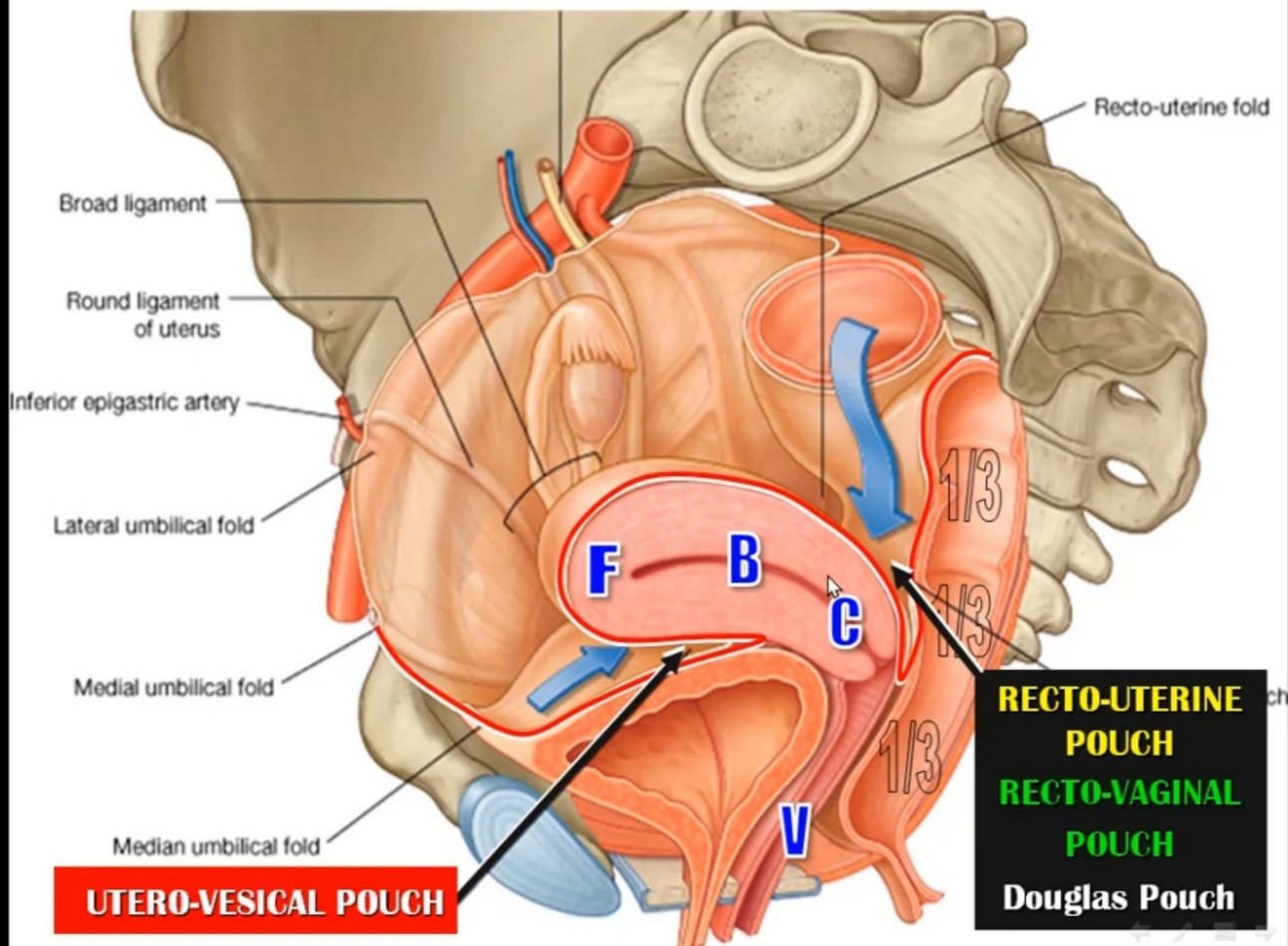
Peritoneal Covering

Completely covered with peritoneum except the anterior surface of the cervix

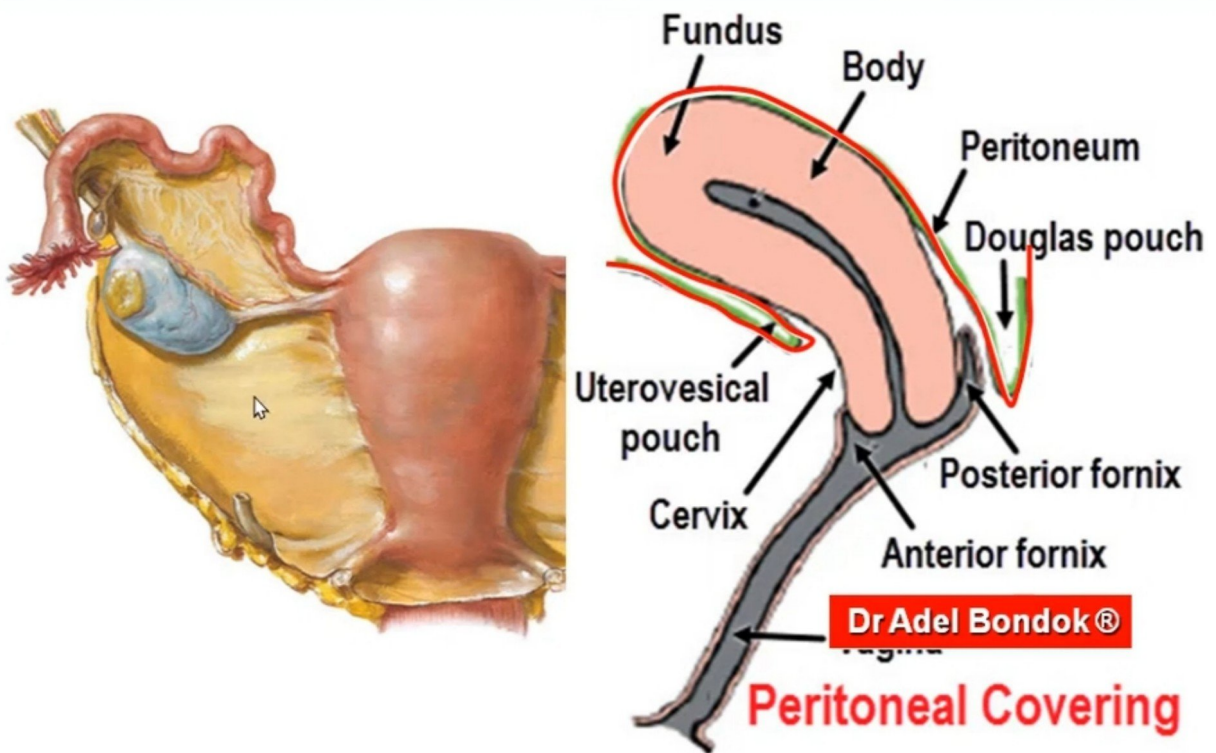


Related to 2 pouches:

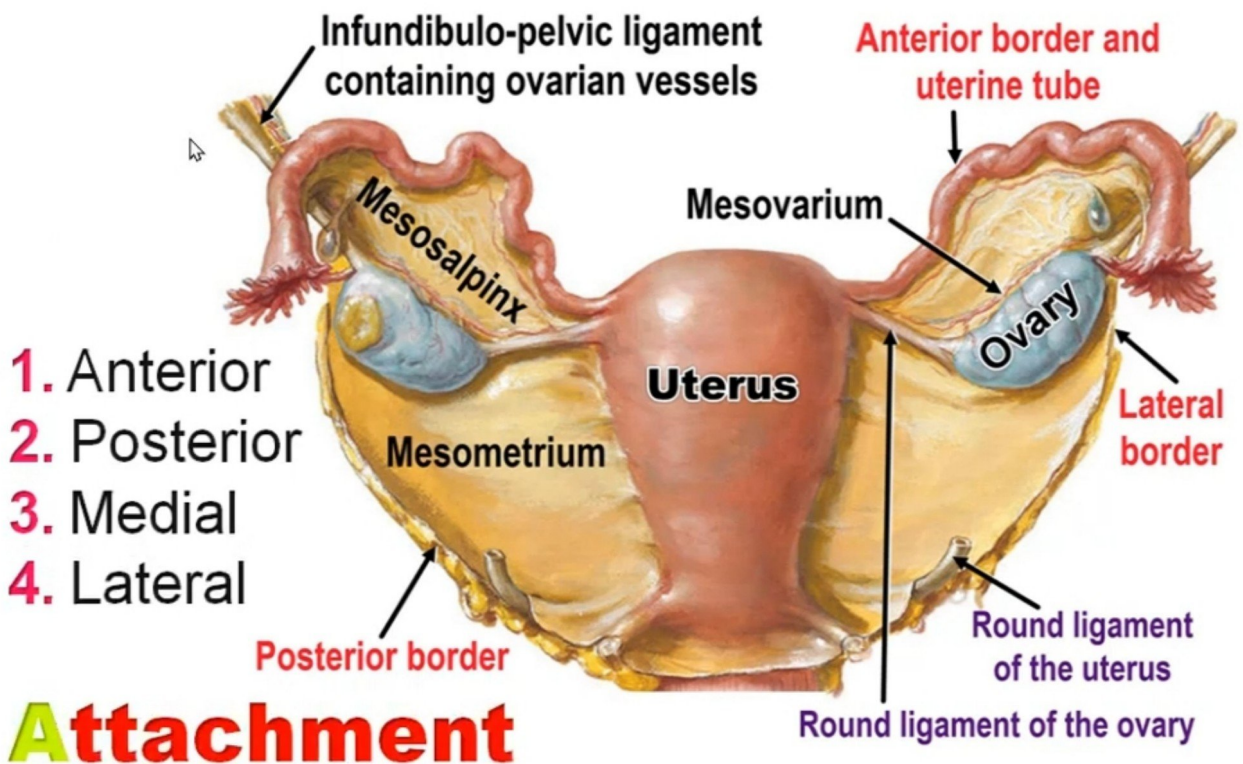
1. Uterovesical P
2. Rectouterine P



Peritoneal Covering



Broad Ligament



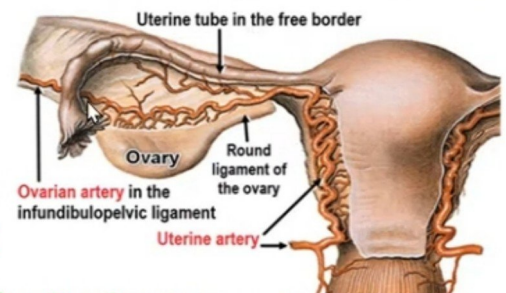
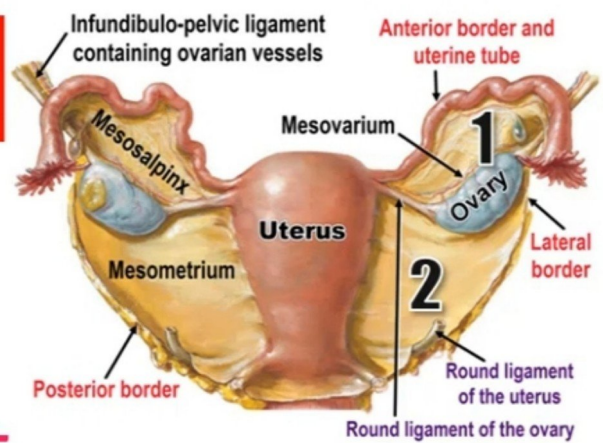
Broad Ligament

PARTS: 4 parts

1. Mesosalpinx
2. Mesometrium
3. Mesovarium
4. Infundibulopelvic lig: lat 1/5

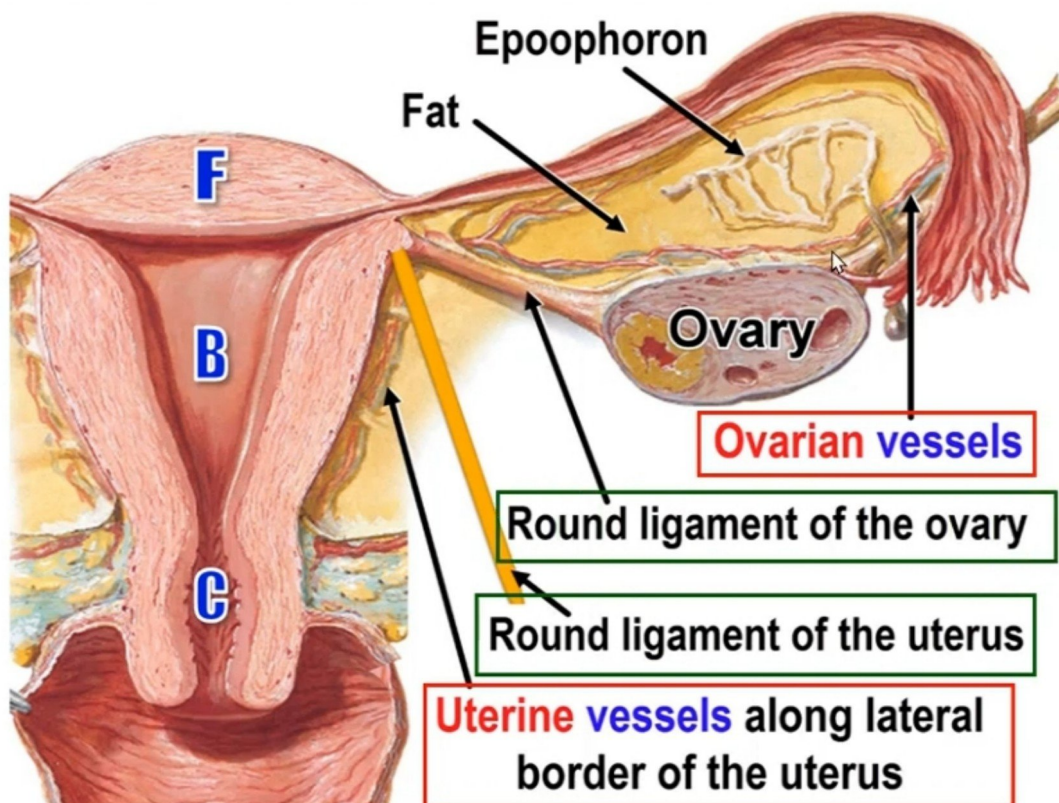
CONTENTS:

1. Uterine tube: medial 4/5
2. 2 vessels: uterine & ovarian
3. 2 ligaments: round ligament of uterus & ovary
4. Embryological remnants
5. Lymphatics, sympathetics and fat

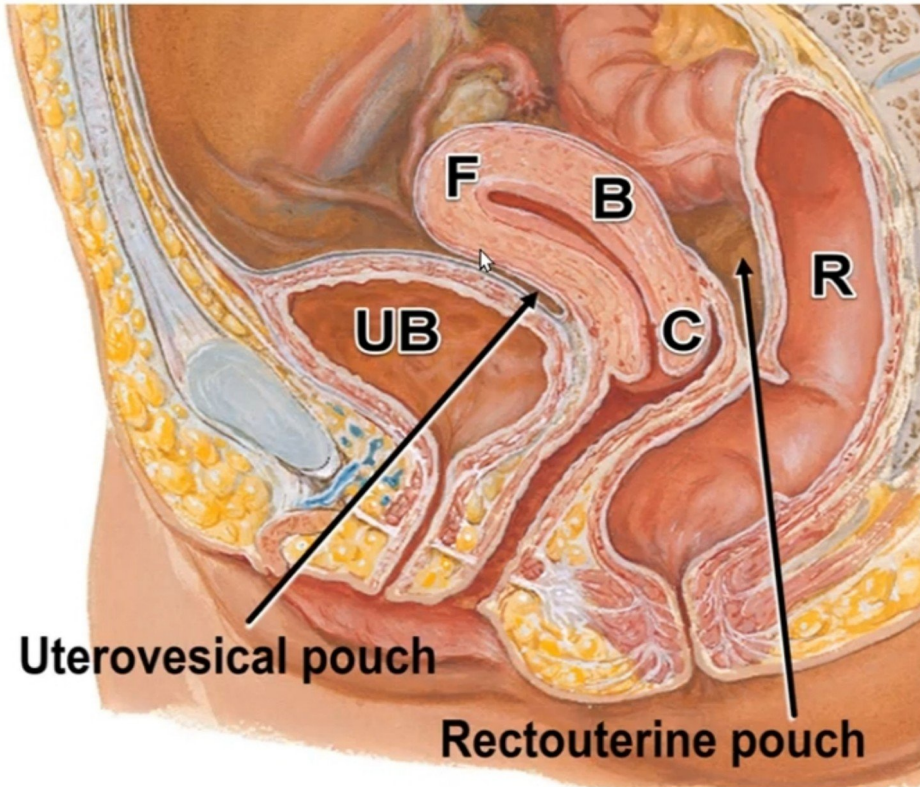


Dr Adel Bondok®

BROAD LIGAMENT

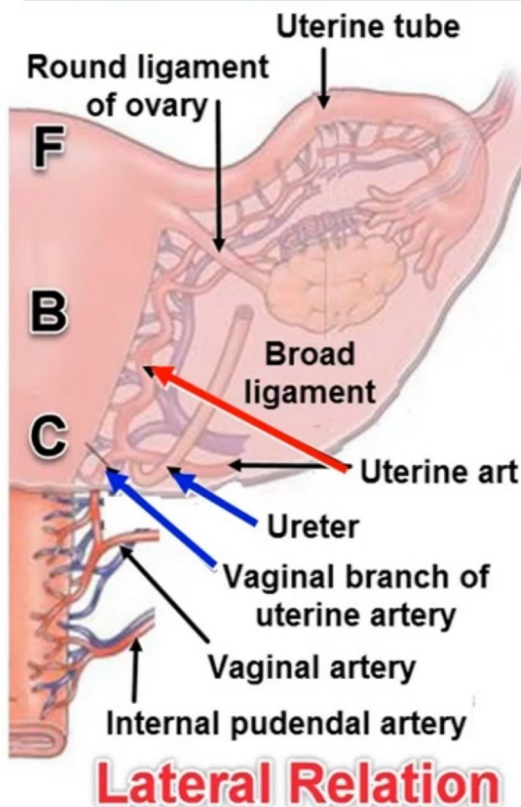


RELATIONS

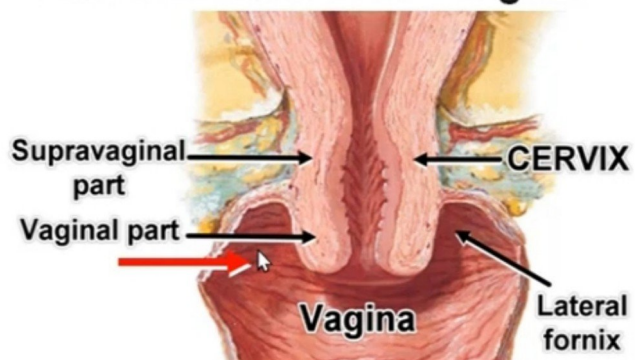


ANTERIOR
POSTERIOR
SIDES

RELATIONS: SIDES



1. Attachment of broad ligament
2. **Body: uterine vessels**
3. **Supravaginal part of Cervix:**
 - a. Vaginal branch of uterine artery
 - b. Ureter
4. **Vaginal part of Cervix:**
Lateral fornix of the vagina



MAIN SUPPORT: 3M + 3F

1. Muscular: 3

- Pelvic Diaphragm
- Urogenital Diaphragm
- Perineal Body

2. Fibrous or Fascial: 3

- Pubocervical ligament:**
between cervix & pubis
- Sacrocerical ligament:**
between cervix & sacrum
- Transverse cervical ligament:**
called cardinal ligament:
between cervix & lateral wall

MINOR SUPPORT: 3 Ligaments

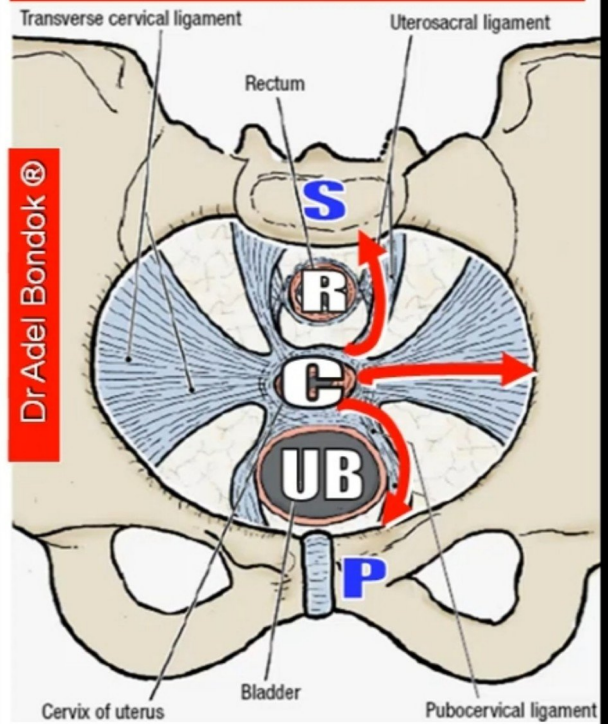
- Broad ligament
- Round ligament of the uterus
- Ligament of the ovary

CLINICAL IMPORTANCE

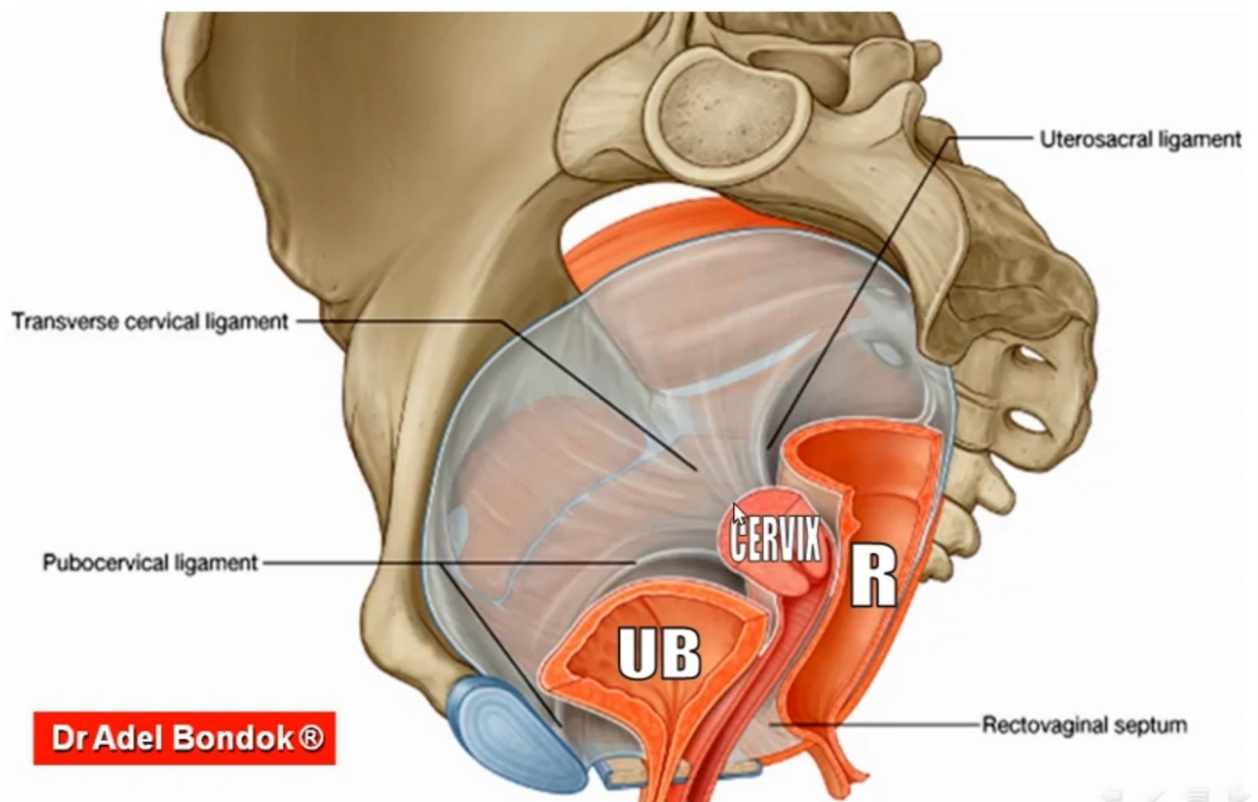
Any weakness causes:

- Prolapse of the uterus
- Retroverted uterus

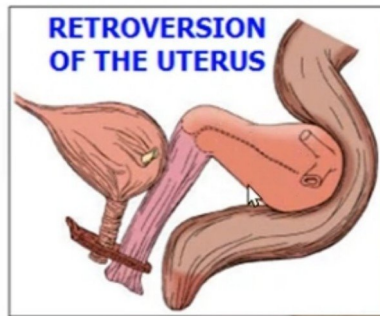
UTERINE SUPPORT



UTERINE SUPPORT



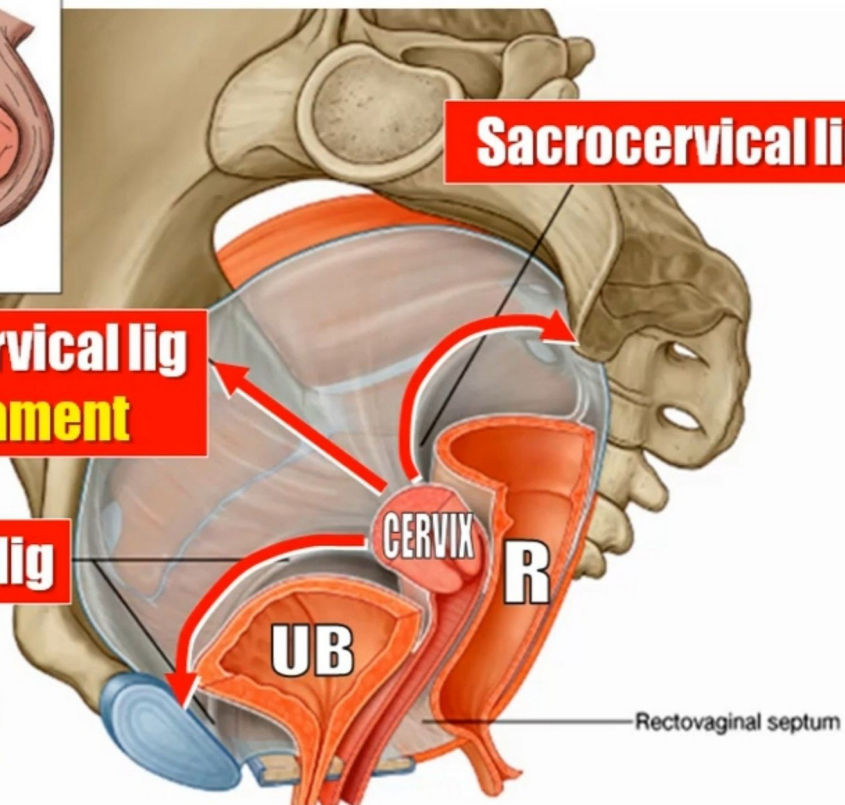
UTERINE SUPPORT



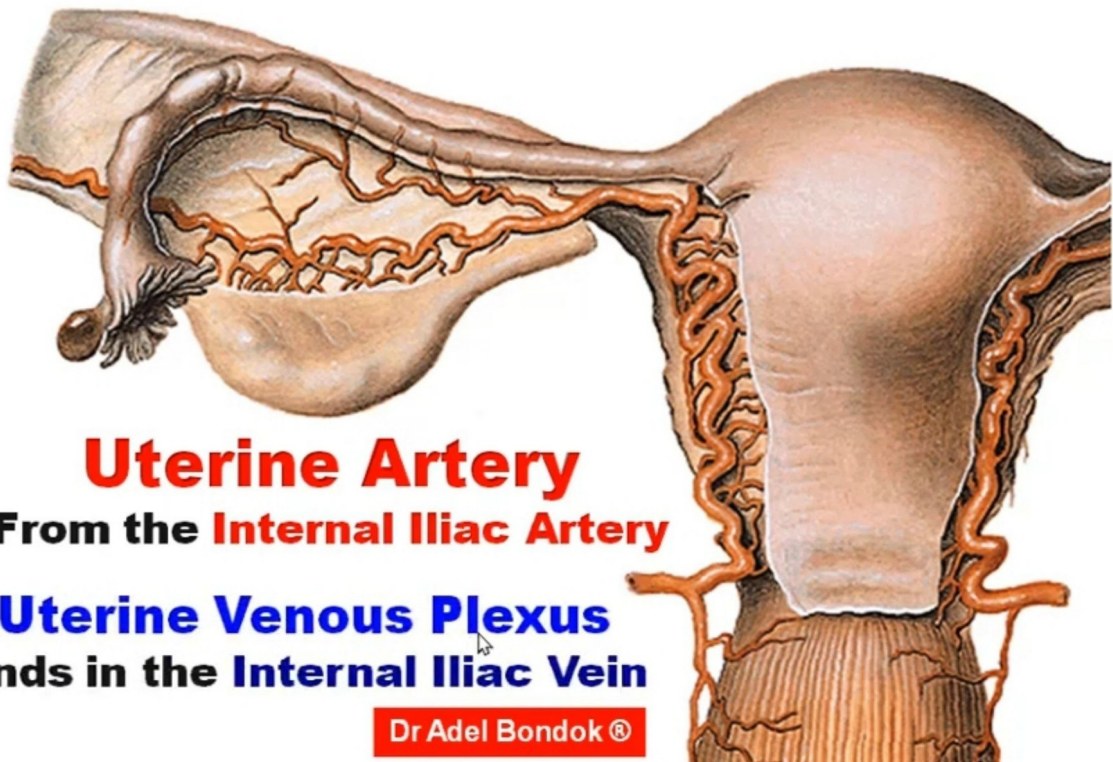
Transverse cervical lig
Cardinal ligament

Pubocervical lig

Dr Adel Bondok®

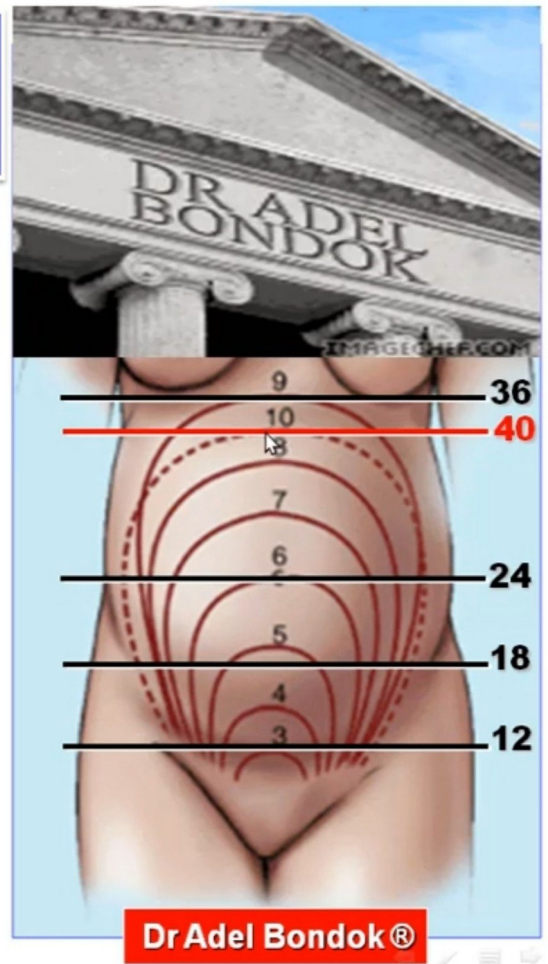


BLOOD SUPPLY

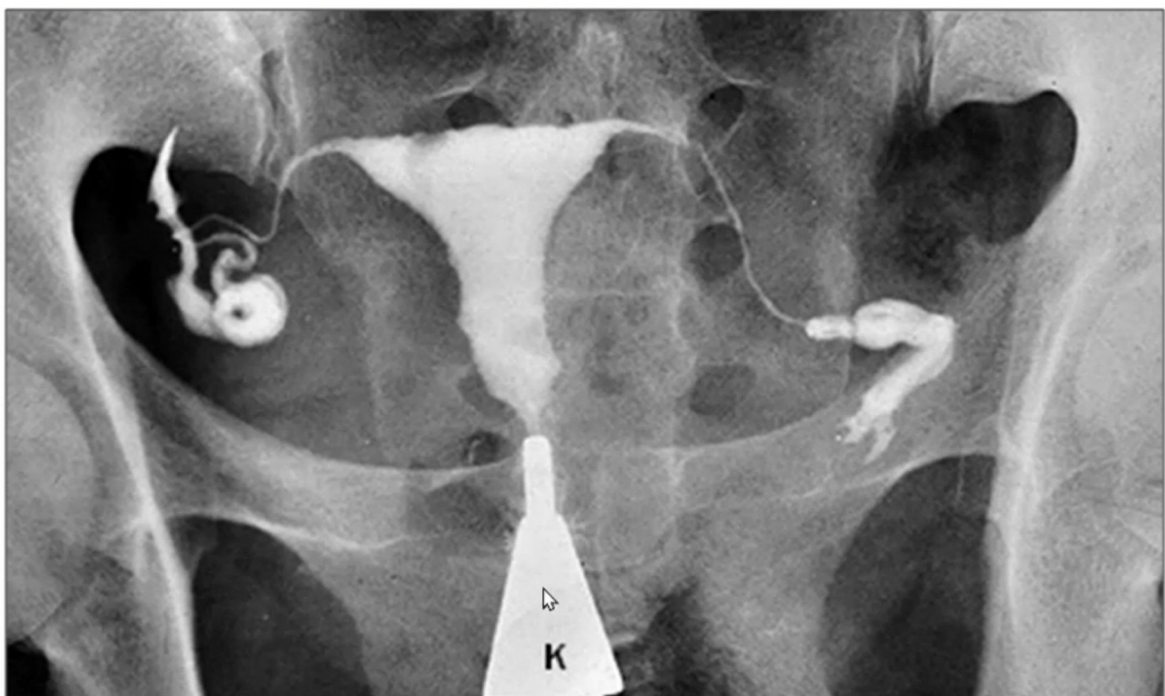


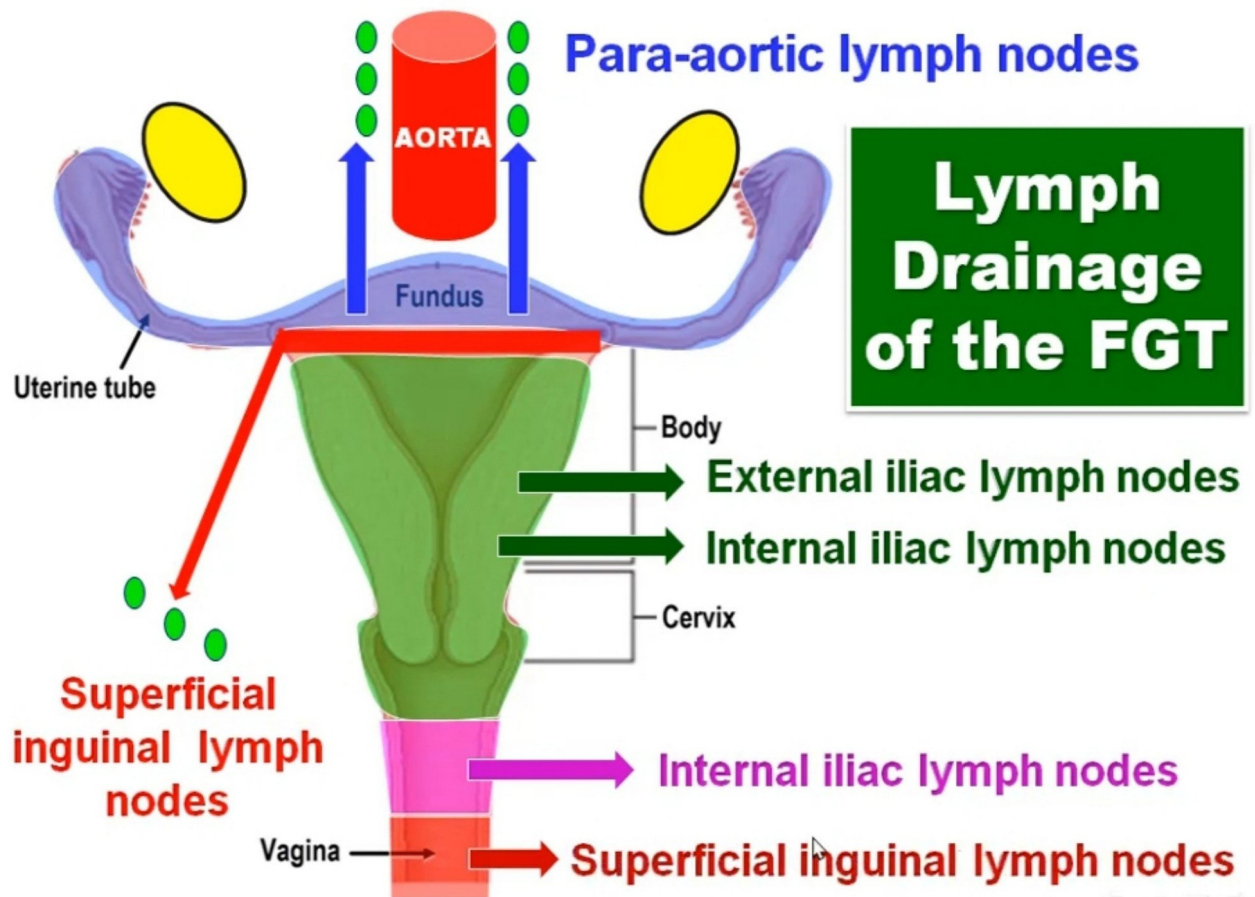
Abdominal Examination of Pregnant Uterus

- U 12 weeks:** the uterus is palpable just above the pubic symphysis.
- U 18 weeks:** the fundus is 1/2 way between the pubic symphysis and the umbilicus.
- U 24 weeks:** the fundus of the uterus is at the umbilicus.
- U 36 weeks:** the fundus of the uterus is at the level of the xiphoid process.
- U 40 weeks:** 2 fingers below the xiphoid process due to descend of the head into the pelvis.



Hystero-Salpingo-Graph





Lymph Drainage of the FGT

🤔 **Ovary, uterine tubes & fundus of the uterus:**

Follow the ovarian artery to the para-aortic lymph nodes.

🤔 **Junction of the fundus & body of the uterus:**

Follow the round ligament of the uterus to the superficial inguinal lymph nodes.

🤔 **Body of the uterus, cervix and upper part of the vagina:**

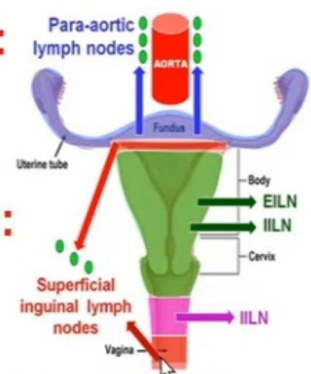
Follow the uterine vessels to the internal iliac lymph nodes
Follow the broad ligament to the external iliac lymph nodes.

🤔 **Vagina: 3 parts**

Upper part: to the external and internal iliac lymph nodes

Middle part: along the vaginal artery to the internal iliac nodes

Lower part: to the superficial inguinal lymph nodes.



OBJECTIVES

Boundaries

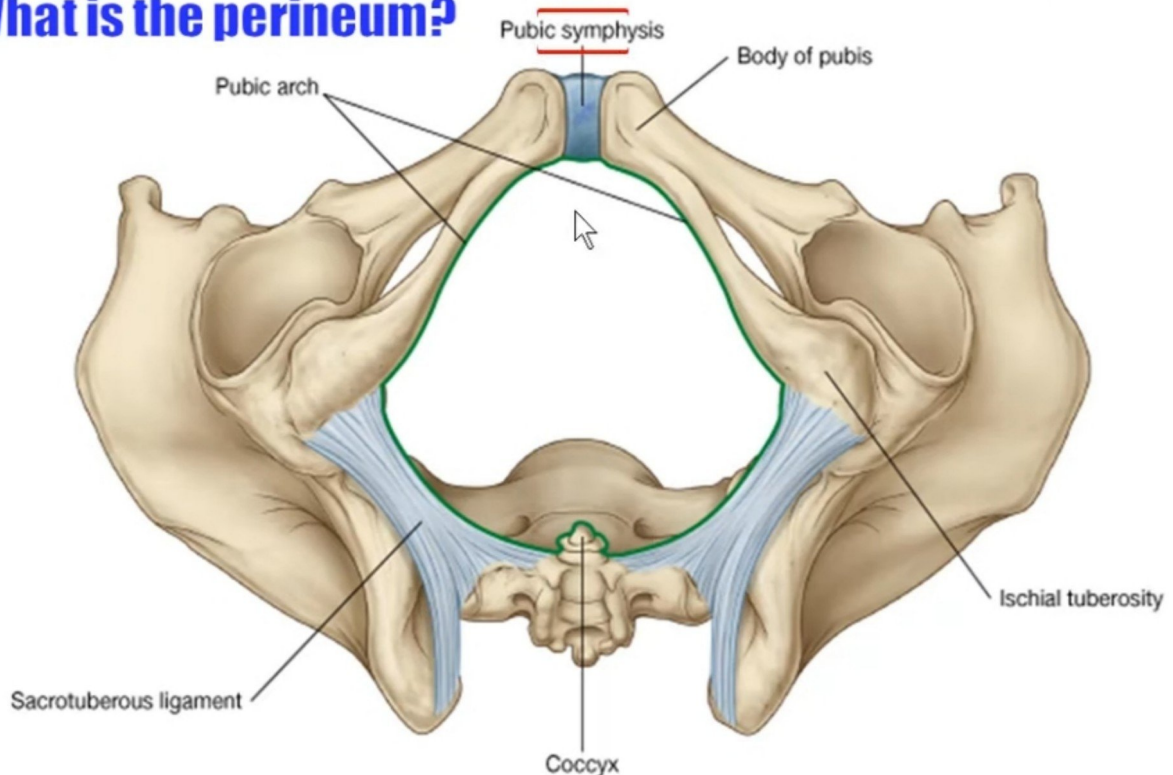
Divisions

Anal Triangle

Urogenital Triangle

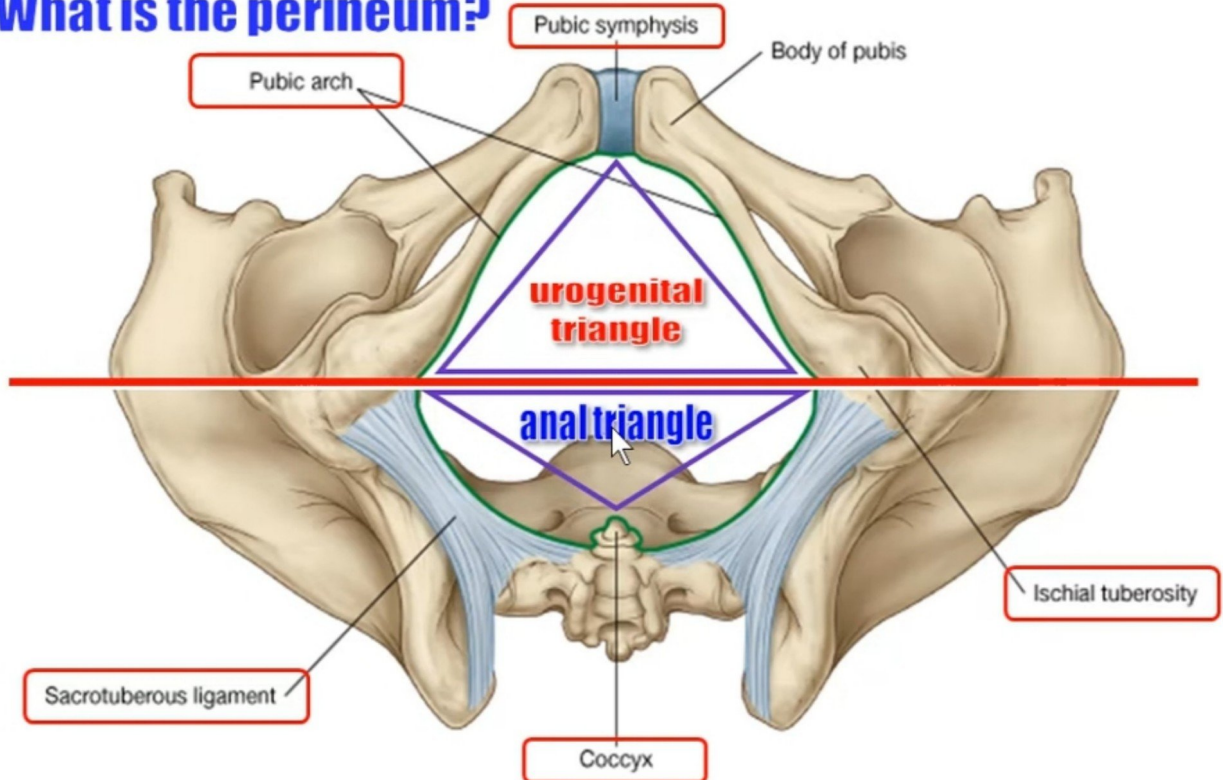
BOUNDARIES & DIVISIONS

What is the perineum?



BOUNDARIES & DIVISIONS

What is the perineum?



BOUNDARIES & DIVISIONS

BOUNDARIES

Anterior: symphysis pubis

Posterior: tip of the coccyx

Sides: Laterally:

1. Pubic arch
2. Ischial tuberosity
3. Sacrotuberous ligament

DIVISIONS

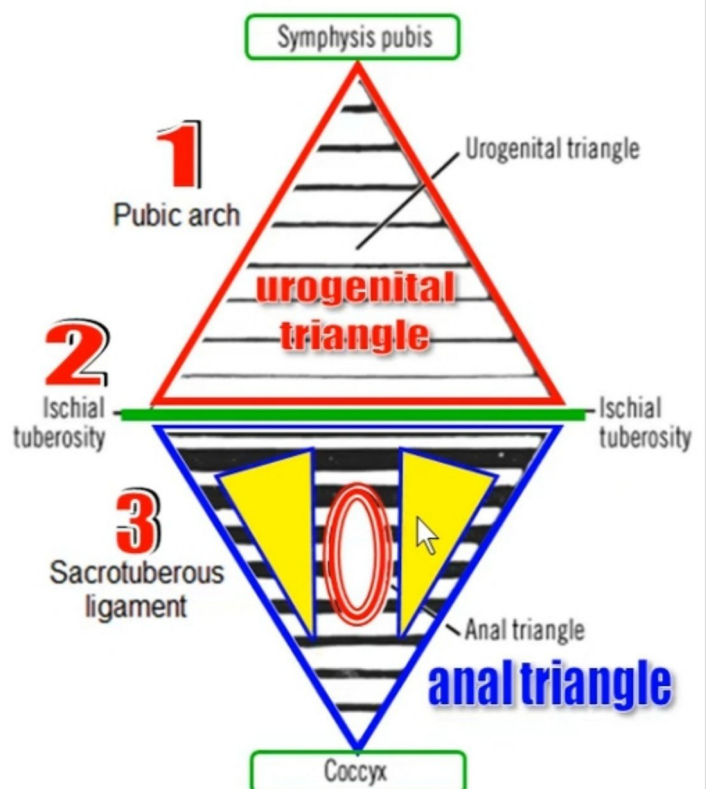
1. Urogenital Triangle: anterior

Contains: 2 perineal pouches

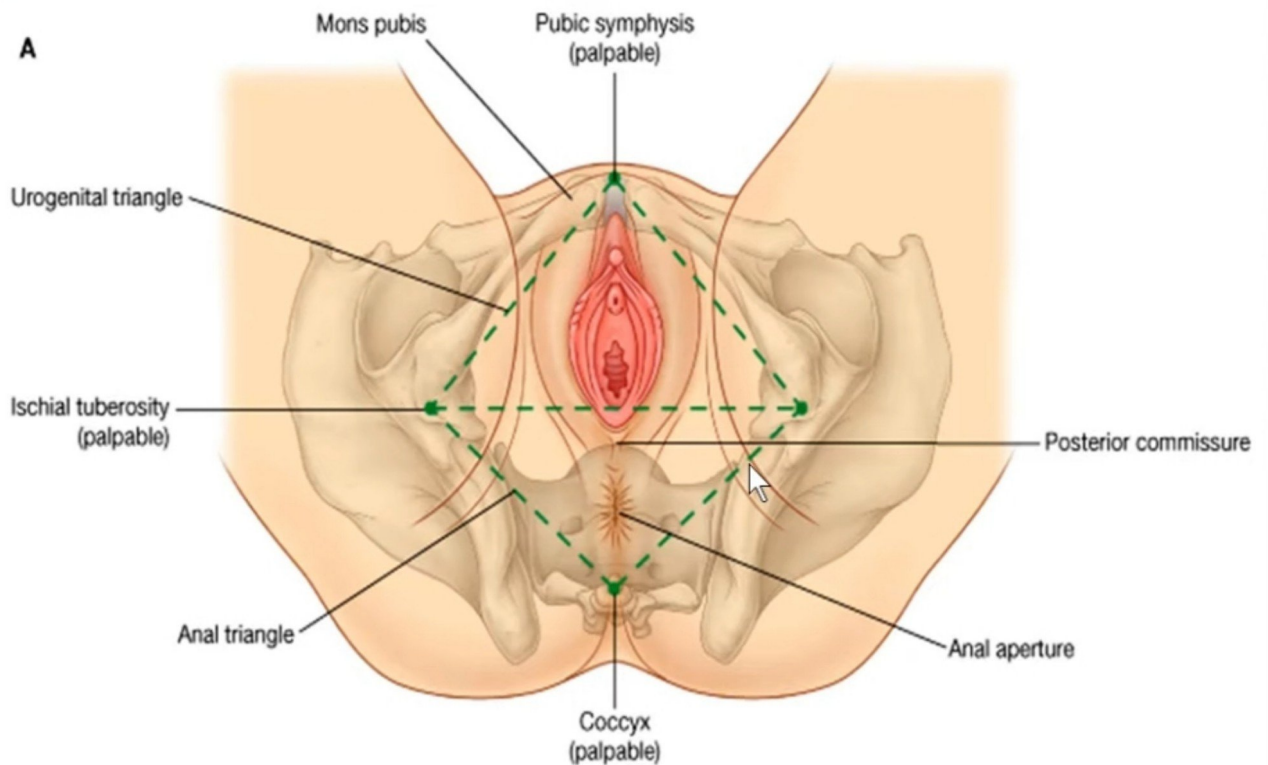
2. Anal Triangle: posterior

Contains:

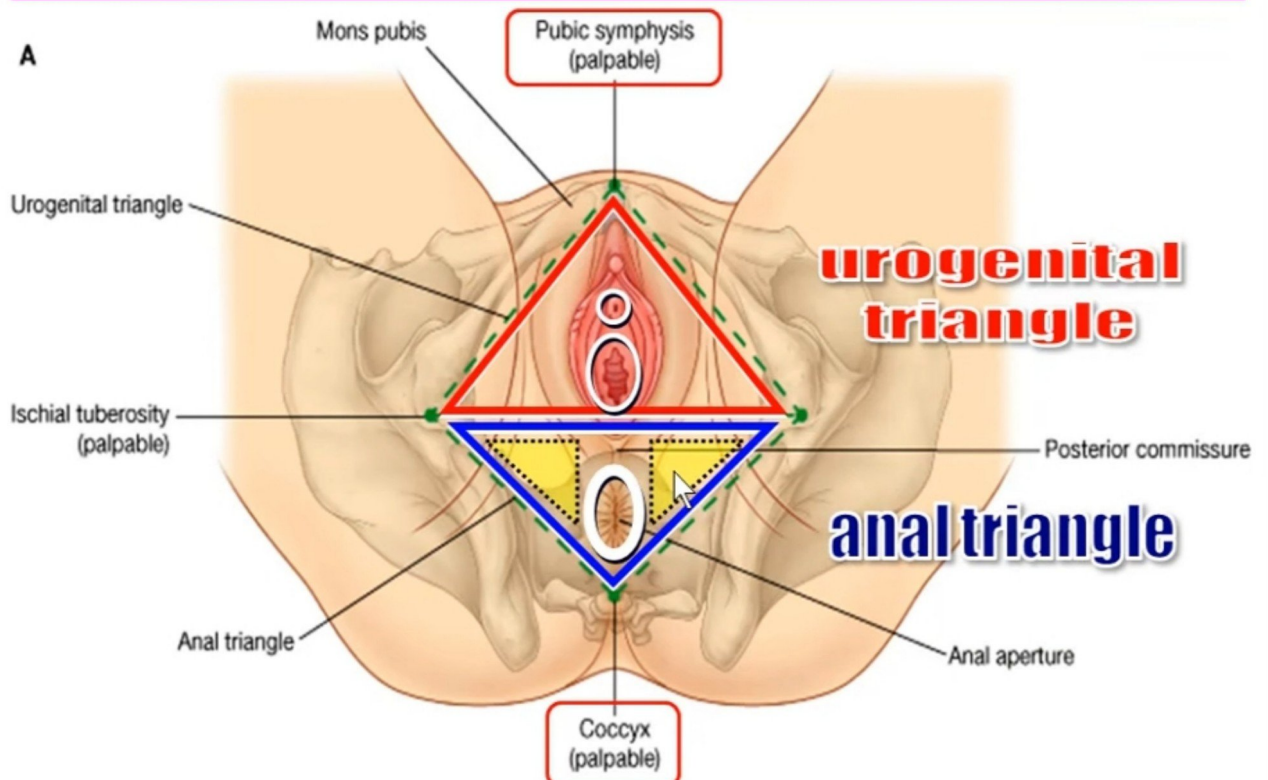
- a. Anal canal
- b. Ischiorectal fossa



FEMALE PERINEUM



FEMALE PERINEUM



ANAL CANAL

LENGTH: 1.5"

EXTENT: from – to

DIRECTION:

RELATIONS:

1. Anterior
2. Posterior
3. Sides

SPHINCTERS:

1. Internal.
2. External

INTERNAL APPEARANCE:

1. Upper ½
2. Lower ½

ARTERIAL SUPPLY:

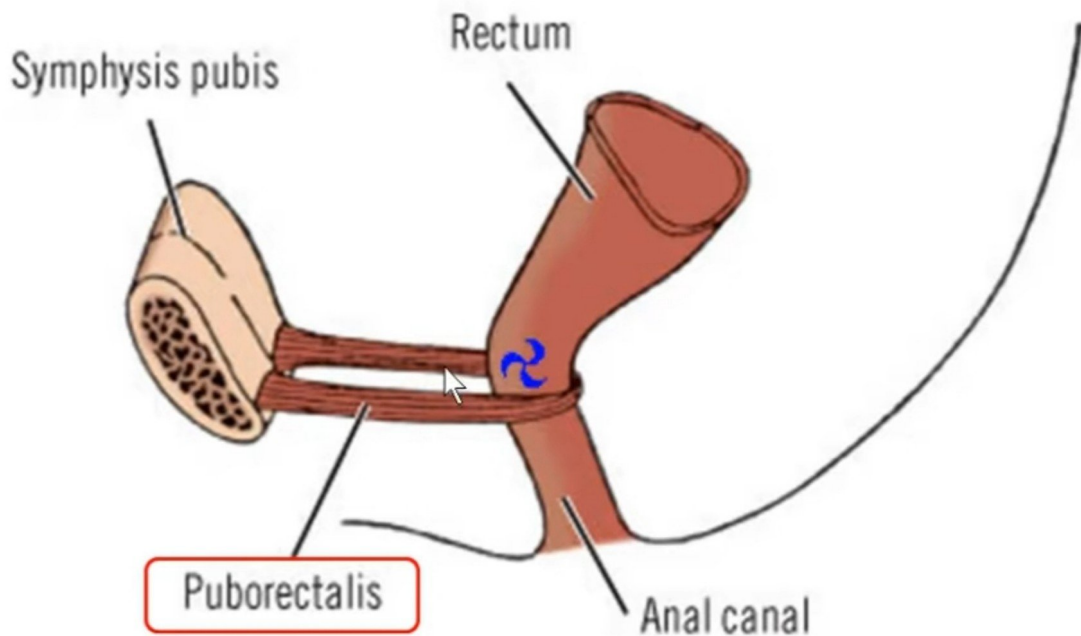
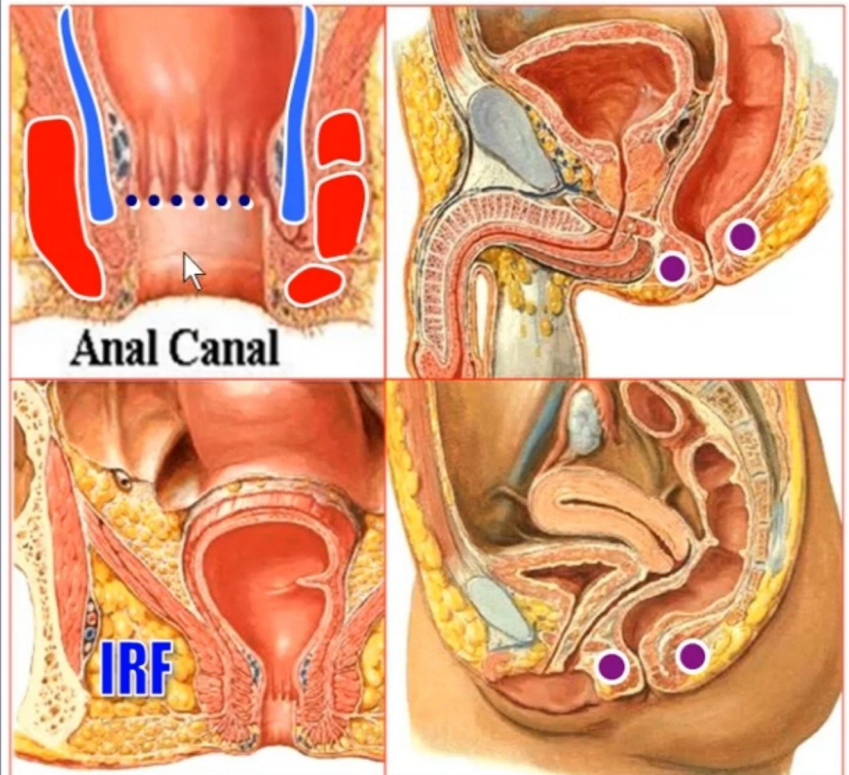
1. Upper ½
2. Lower ½

VENOUS DRAINAGE:

1. Upper ½
2. Lower ½

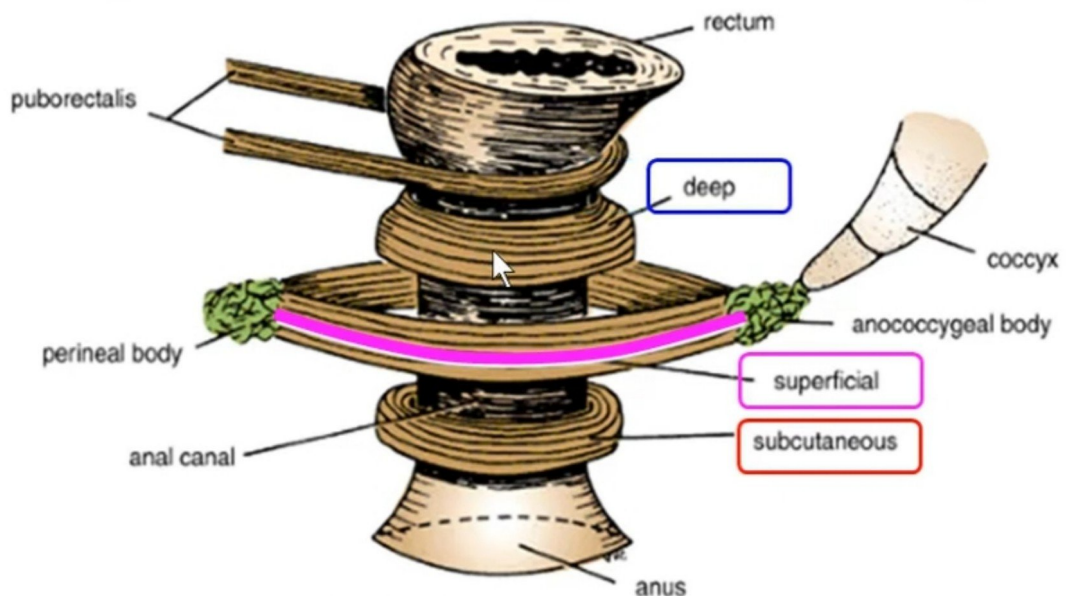
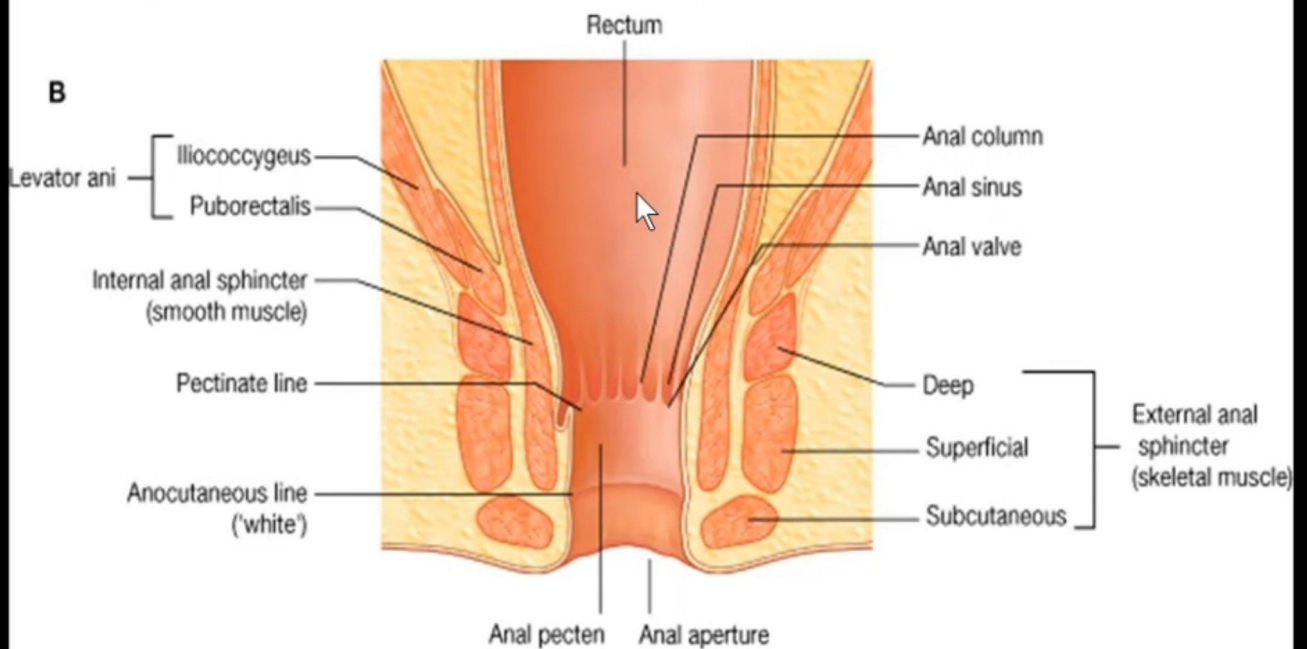
LYMPHATIC DRAINAGE:

1. Upper ½
2. Lower ½



The **recto-anal angle** is produced by the contraction of the **puborectalis muscle**

ANAL SPHINCTERS



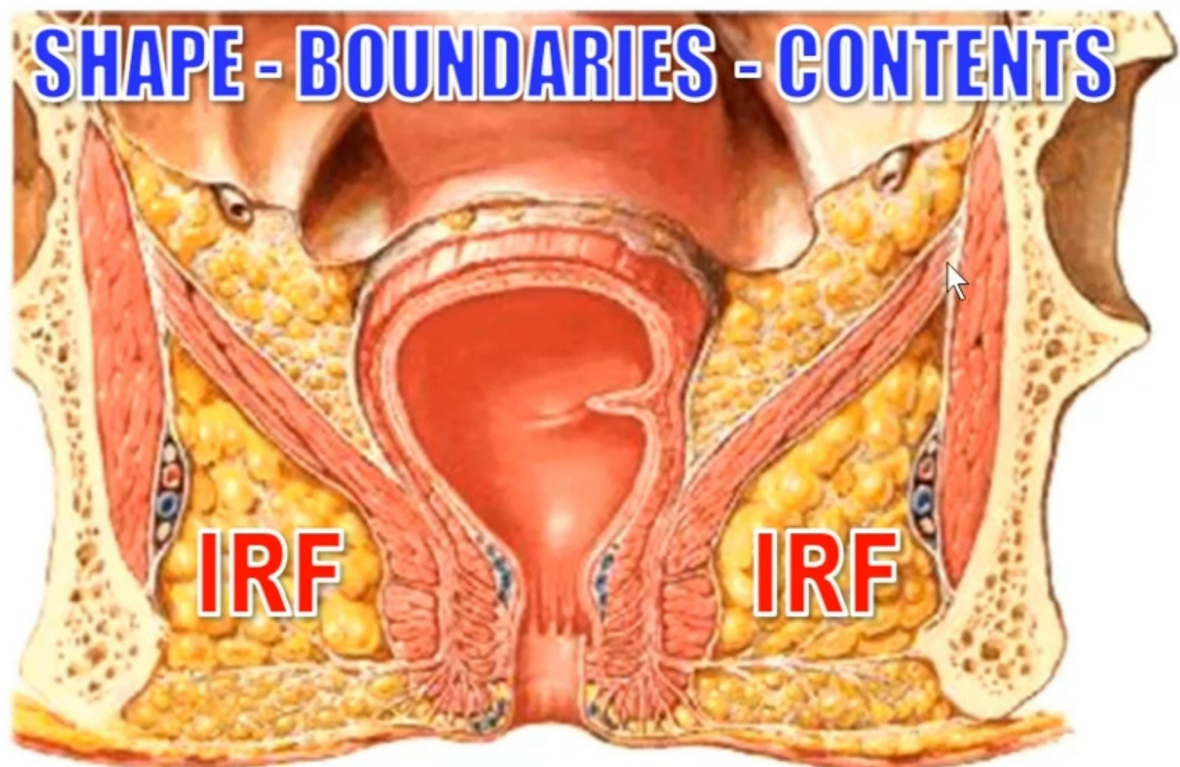
The external sphincter is divided into 3 parts:

- 1. Subcutaneous part:** encircles the lower end of the anal canal and has no bony attachments.
- 2. Superficial part:** is attached to the perineal body in front and the coccyx behind
- 3. Deep part:** encircles the upper end of the anal canal and has no bony attachments

ANAL CANAL

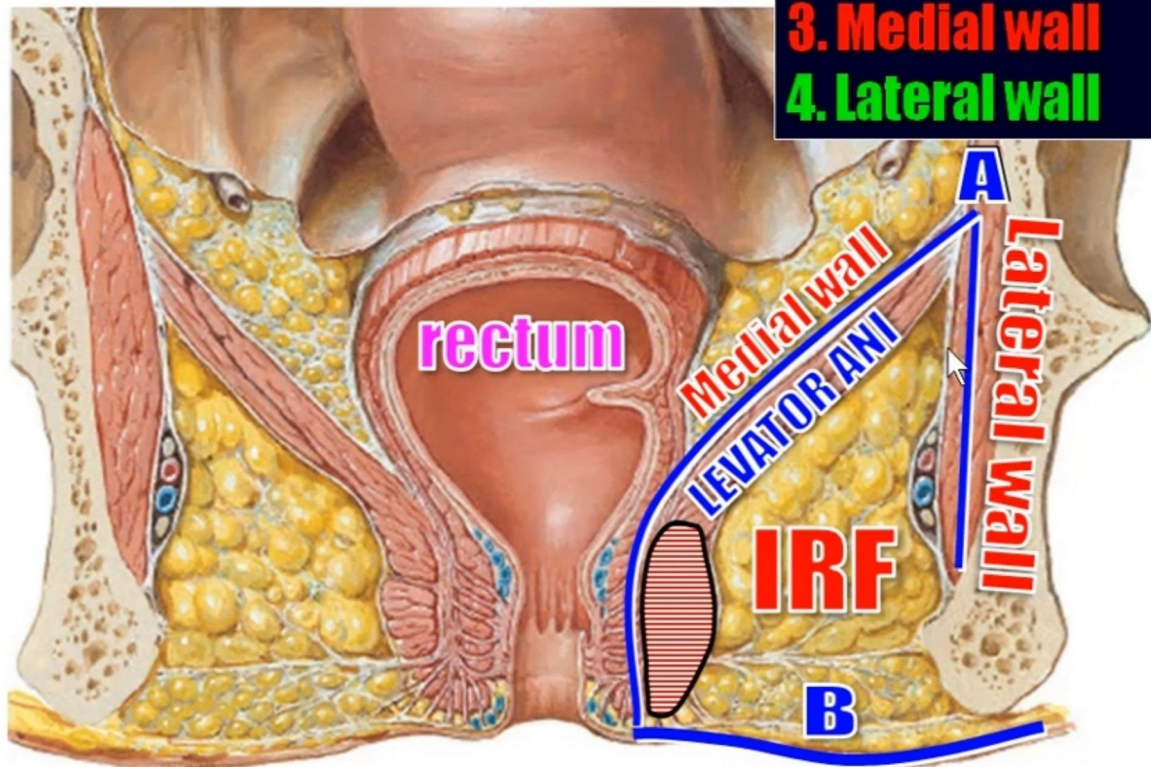
	Upper Half	Lower Half
Development	Endoderm	Ectoderm
Lining Epithel.	Mucous membrane	Skin
Sphincter	Internal sphincter	External sphincter
Nerve Supply	Autonomic	Somatic: inf rectal nerve
Arterial Supply	Superior rectal artery	Inferior rectal artery
Venous Drainage	Superior rectal vein: Portal circulation	Inferior rectal vein: Systemic circulation
Lymph Drainage	Aortic lymph nodes	Superficial inguinal LN
Pain	Not sensitive	Sensitive

ISCHIORECTAL FOSSA



BOUNDARIES

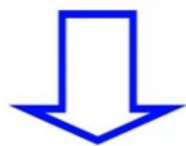
1. Apex
2. Base
3. Medial wall
4. Lateral wall



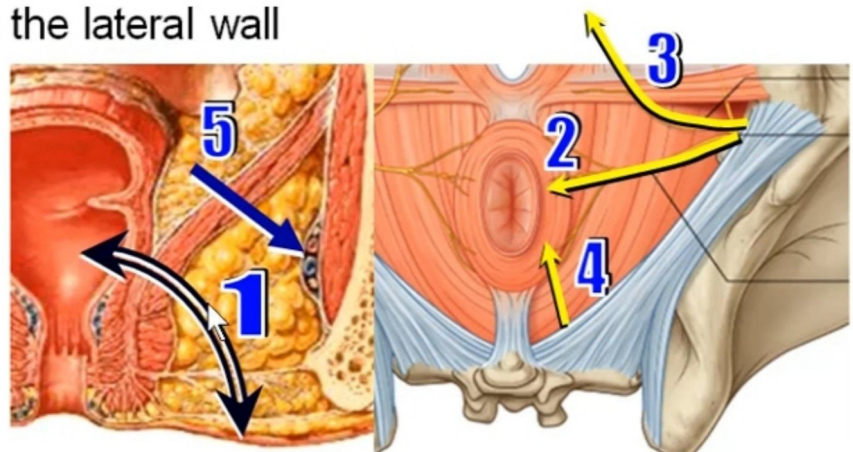
CONTENTS and CLINICAL IMPORTANCE

1. **Pad of fat:** allow distension of the anal canal
2. **Inferior rectal nerve & vessels:** in the middle to the anal canal
3. **Labial or scrotal nerves & vessels:** in the anterior part
4. **Perineal branch of the 4th sacral nerve:** in the posterior part to the external anal sphincter
5. **Pudendal canal:** in the lateral wall

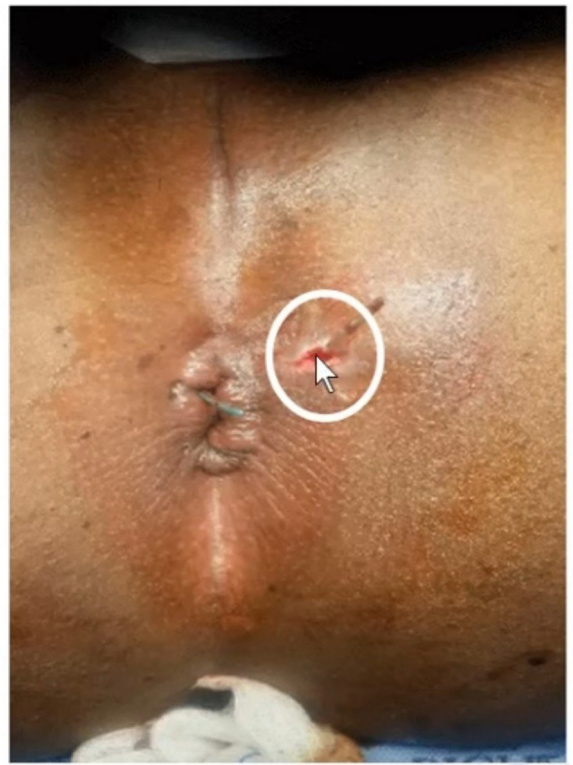
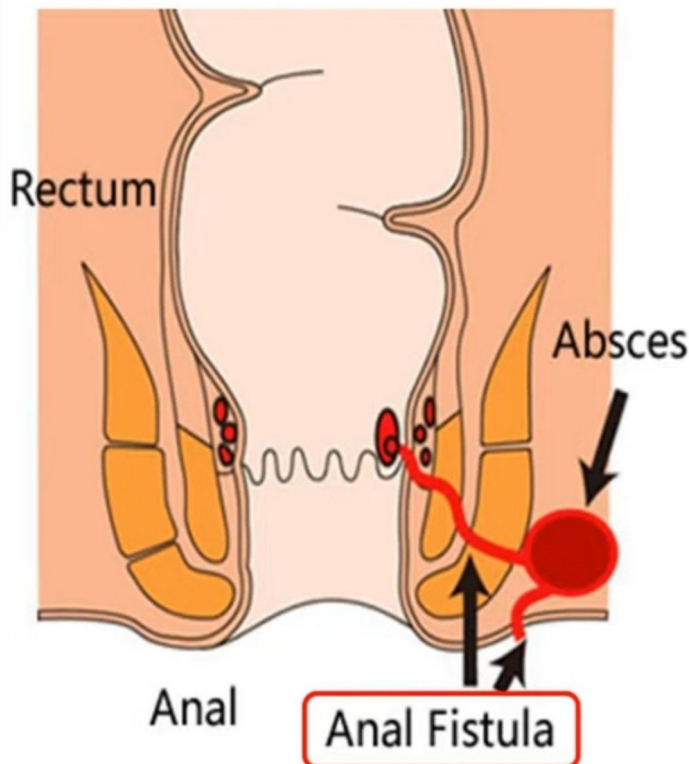
ABSCESS



FISTULA

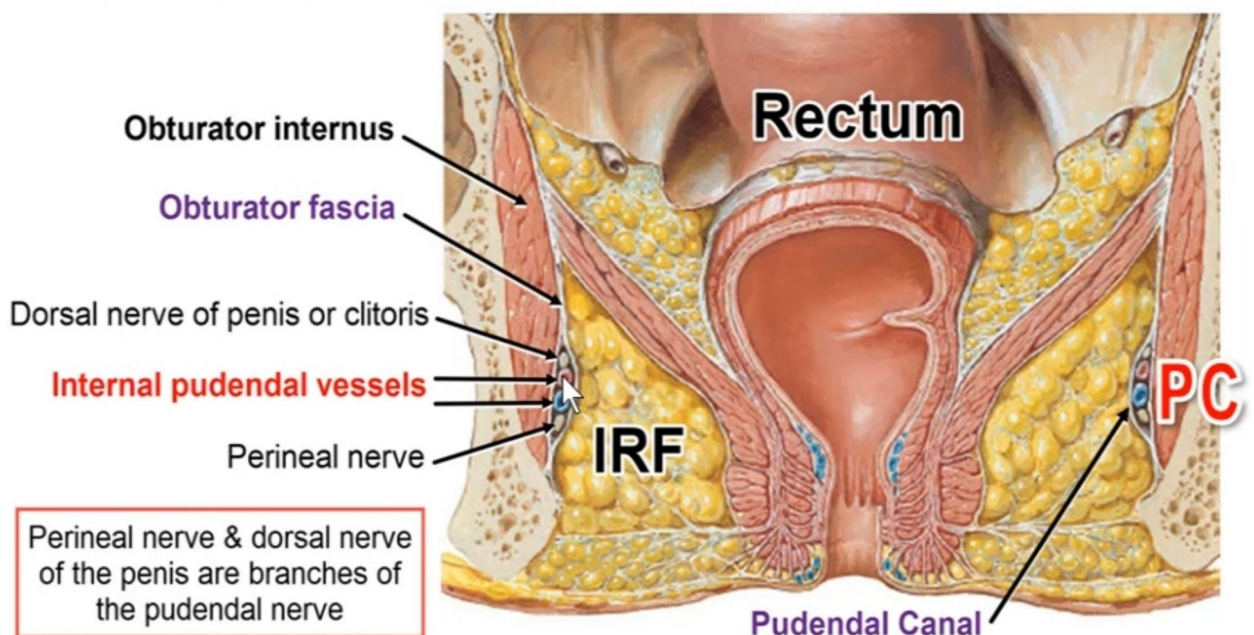


Anal Fistula



Pudendal Canal

Formed by splitting of the obturator fascia
In the lateral wall of the ischiorectal fossa



Fascia of the Urogenital Triangle

1. Superficial fascia
2. Perineal membrane
3. Pelvic fascia



Fascia of the Urogenital Triangle

1. Superficial fascia
2. Perineal membrane
3. Pelvic fascia



Boundaries of the Superficial Perineal Pouch

1. Floor:

membranous layer of the superficial fascia

2. Roof:

perineal membrane

3. Sides:

pubic arch

4. Posteriorly:

fusion of perineal membrane & superficial fascia

5. Anteriorly:

open with the anterior abdominal wall



Boundaries of the Deep Perineal Pouch

1. FLOOR:

perineal membrane

2. ROOF:

pelvic fascia

3. SIDES:

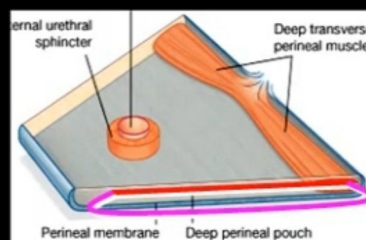
pubic arch

4. ANTERIORLY:

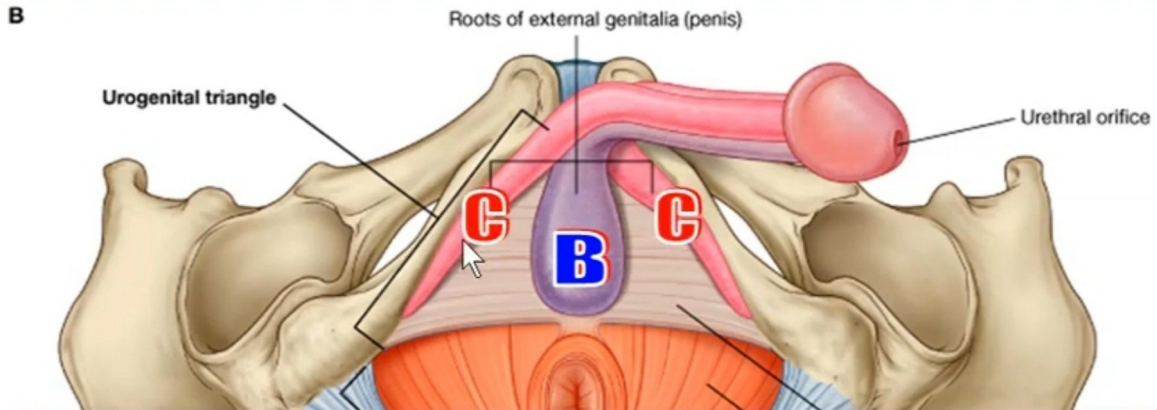
fusion of perineal membrane & pelvic fascia

5. POSTERIORLY:

fusion of perineal membrane & pelvic fascia



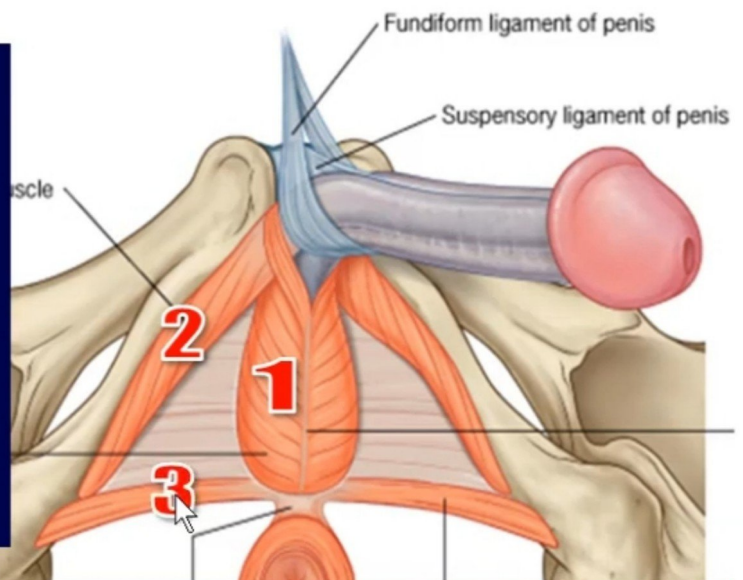
Superficial Perineal Pouch Contents In The Male



A. ROOT OF THE PENIS:

1. Bulb
2. 2 Crura

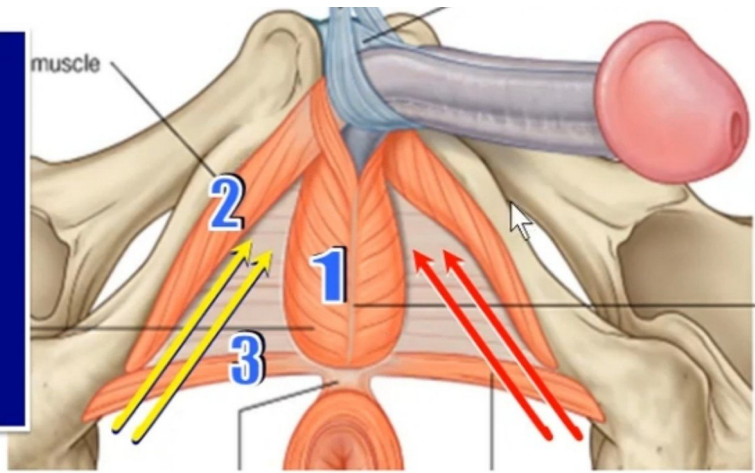
Superficial Perineal Pouch Contents In The Male



B. 3 MUSCLES:

1. **Bulbospongiosus: cover the bulb**
2. **Ischiocavernosus: cover the crus**
3. **Superficial transverse perineal muscle**

Summary Of The Contents In The Male



A. ROOT OF THE PENIS: formed of

1. Bulb
2. 2 Crura

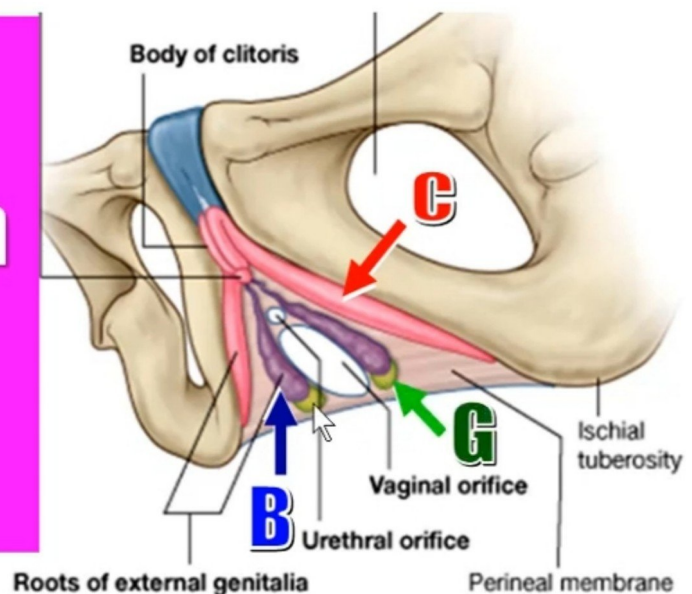
B. MUSCLES:

1. Bulbospongiosus: cover the bulb
2. Ischiocavernosus: cover the crus
3. Superficial transverse perineal muscle

C. VESSELS & NERVES:

1. 2 scrotal nerves
2. 2 scrotal vessels

Superficial Perineal Pouch In The Female

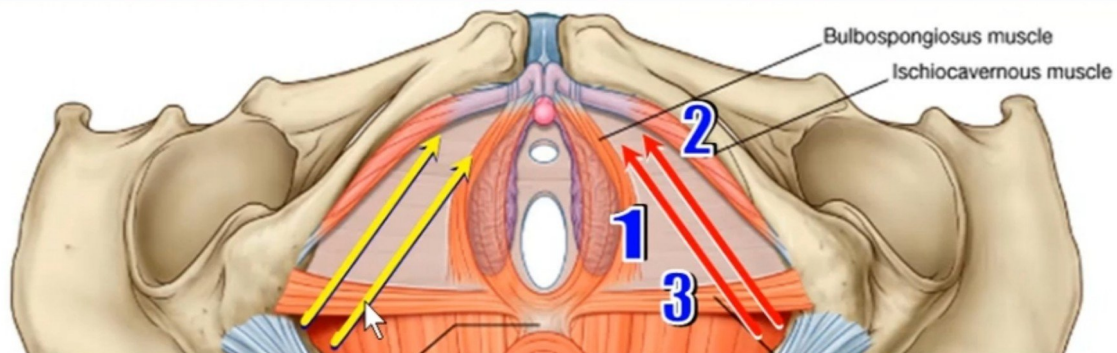


A. Root Of The Clitoris: formed of

1. Bulb of vestibule
2. 2 Crura

B. Greater Vestibular Glands

Superficial Perineal Pouch In The Female



C. 3 MUSCLES:

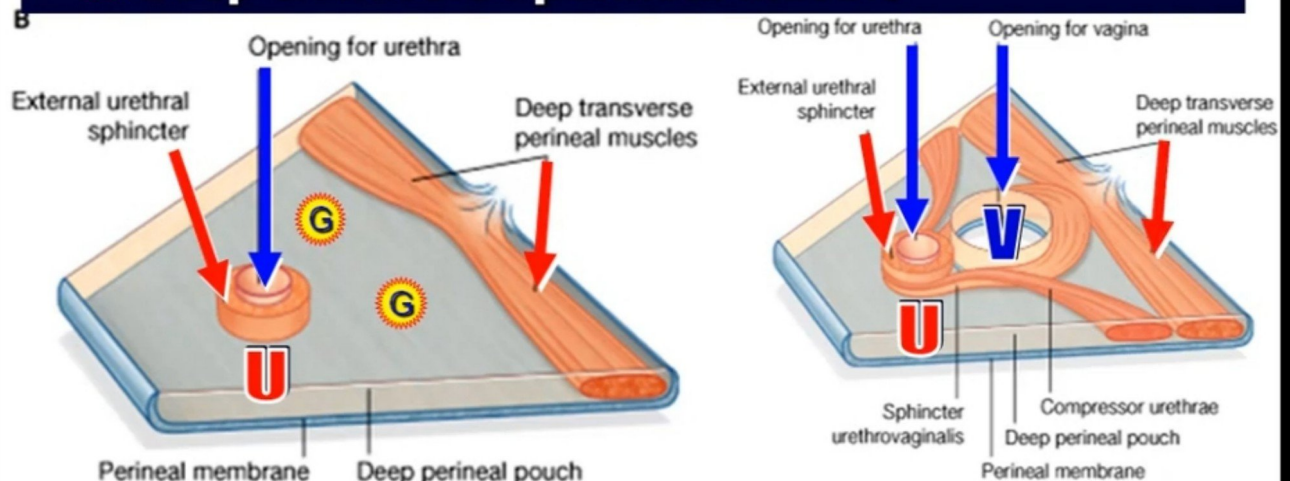
1. **Bulbospongiosus:** cover the bulb
2. **Ischiocavernosus:** cover the crus
3. **Superficial transverse perineal muscle**

D. VESSELS & NERVES:

1. 2 labial nerves
2. 2 labial vessels

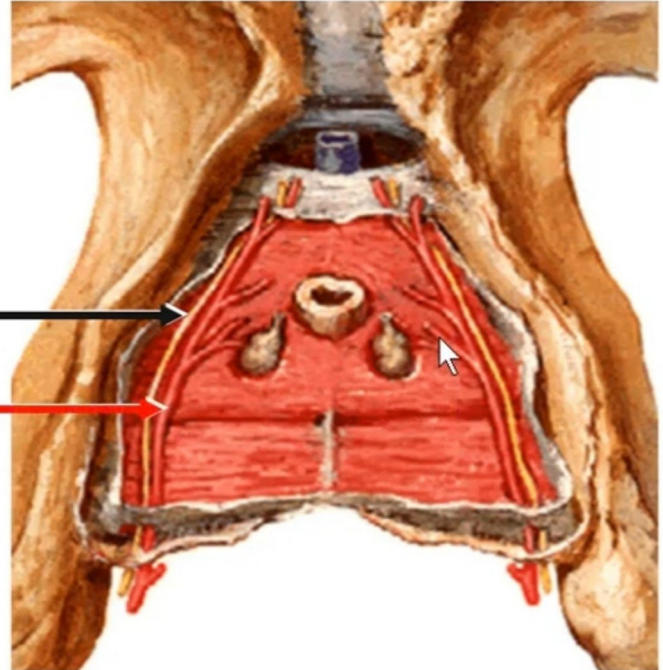
Contents of the Deep Perineal Pouch

1. Urethra in the male & female
2. Bulbourethral glands in the male
3. Vagina in the female
4. Muscles: 2 forming urogenital diaphragm
 - a. External urethral sphincter: around the urethra
 - b. Deep transverse perineal muscle



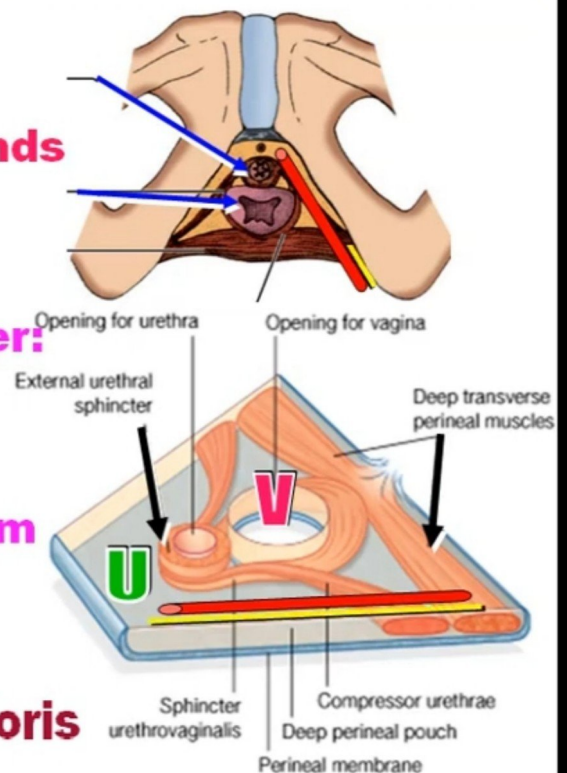
Vessels & Nerve in the Deep Perineal Pouch

1. Dorsal nerve of the penis or clitoris
2. Internal pudendal vessels & branches



Summary of the Contents of the Deep Perineal Pouch

1. Urethra
2. Vagina or bulbourethral glands
3. 2 Muscles:
 - a. External urethral sphincter: around the urethra
 - b. Deep transverse perineal m
4. Internal pudendal vessels.
5. Dorsal nerve of penis or clitoris



Deep Perineal Pouch

Urogenital Diaphragm

1. **Urethra** in the male & female
2. **Bulbourethral glands** in the male
3. **Vagina** in the female
4. **Two Muscles: Urogenital diaphragm**
 - a. External urethral sphincter
 - b. Deep transverse perineal muscles
5. **Perineal Vessels & Nerves:**
 - a. **Dorsal nerve of the penis or clitoris**
 - b. **Internal pudendal vessels & branches**