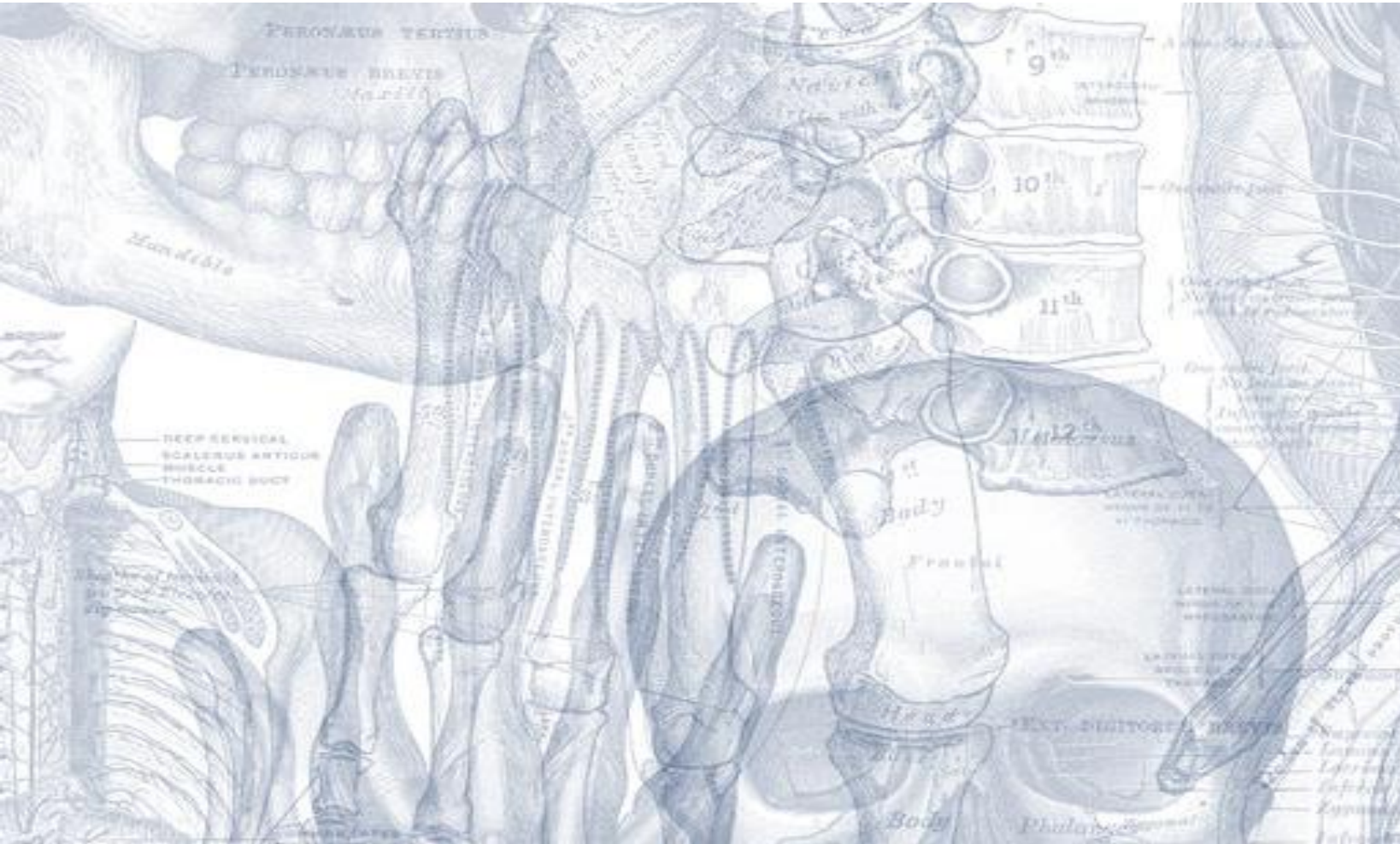


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Anatomy of Female Reproductive System

Please view our [Editing File](#) before studying this lecture to check for any changes.

Color Code

- Important
- Doctors Notes
- Notes/Extra explanation

Objectives

At the end of the lecture, students should:

- ✓ List the organs of female reproductive system.
- ✓ Describe the pelvic peritoneum in female.
- ✓ Describe the position and relations of the ovaries.
- ✓ List the parts of the uterine tube.
- ✓ Describe the anatomy of uterus regarding: subdivisions, cavity, relations, ligaments & main support.
- ✓ Describe the anatomy of vagina regarding: structure, extent, length & relations.
- ✓ Describe the supply (arteries, veins, lymph, nerves) of female reproductive system.

Introduction



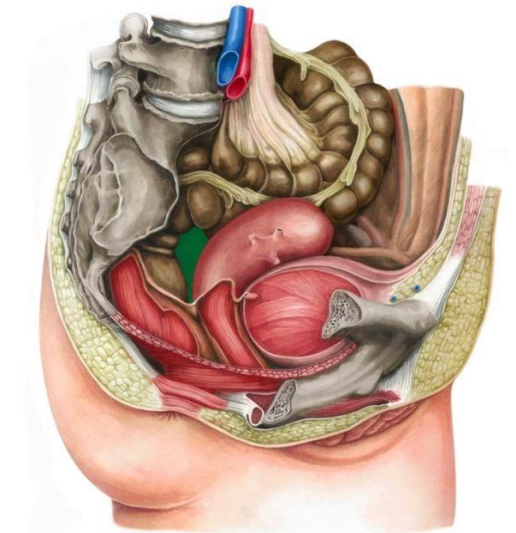
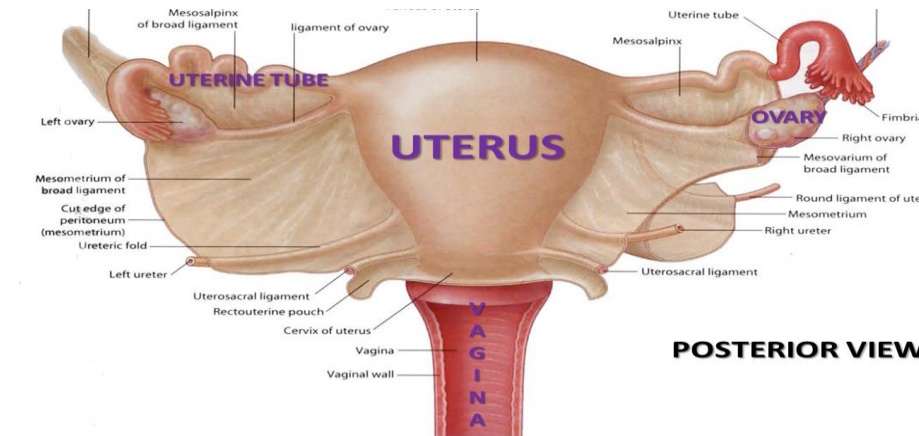
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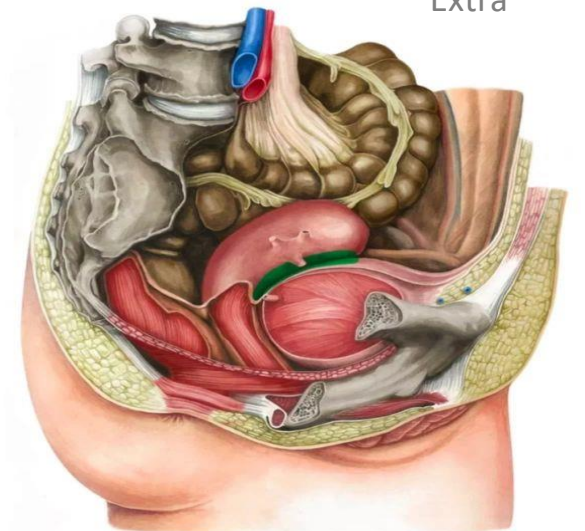
The female reproductive system has 4 main organs:

1. Ovaries
2. Fallopian tube
3. Uterus
4. Vagina

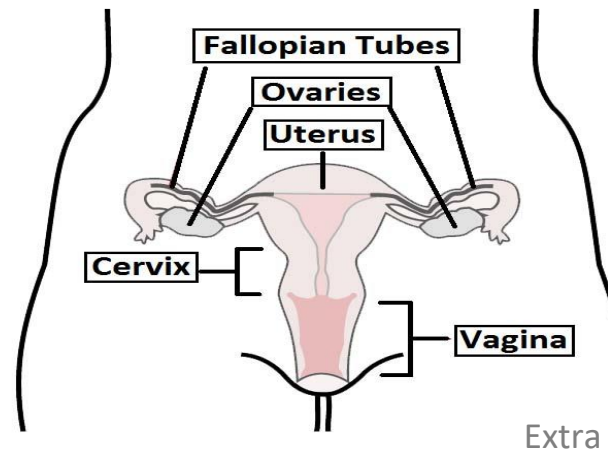
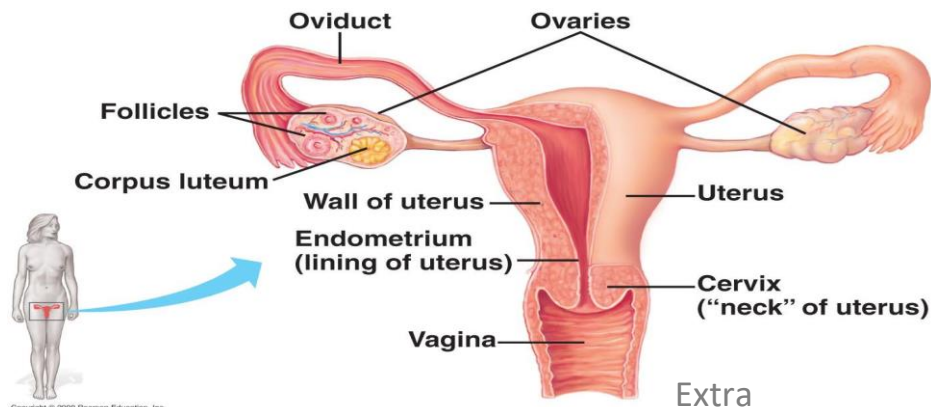


Rectouterine pouch (the green part)

Extra



Uterovesical pouch (the green part)



Pelvic Peritoneum in Female



More pictures in the slide before

Rectouterine (Douglas) pouch

- Reflection of peritoneum from **rectum** to **upper part of posterior surface of vagina**.

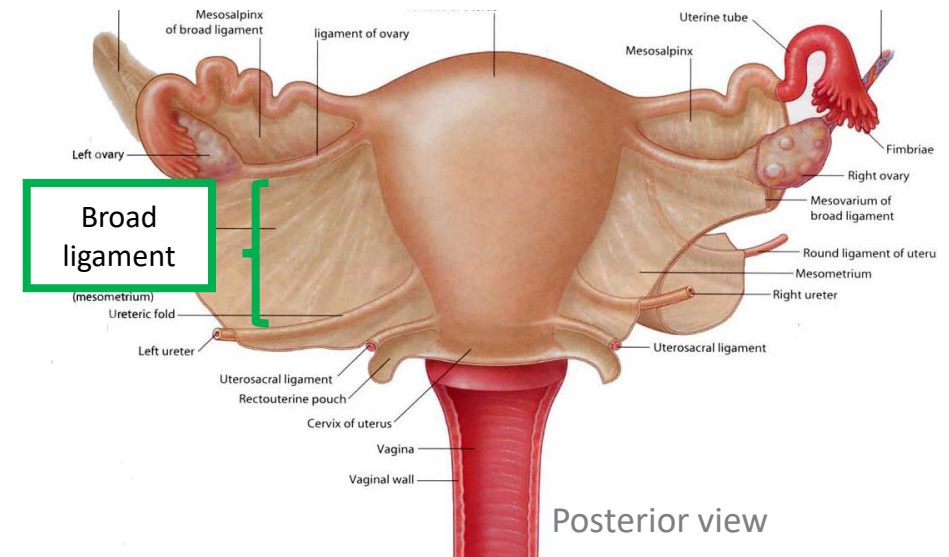
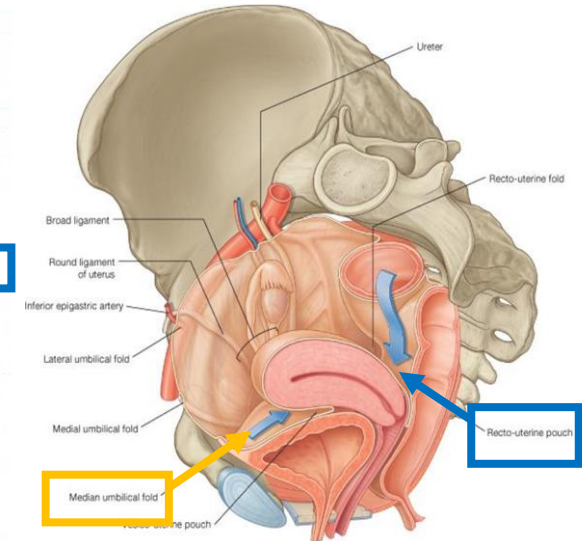
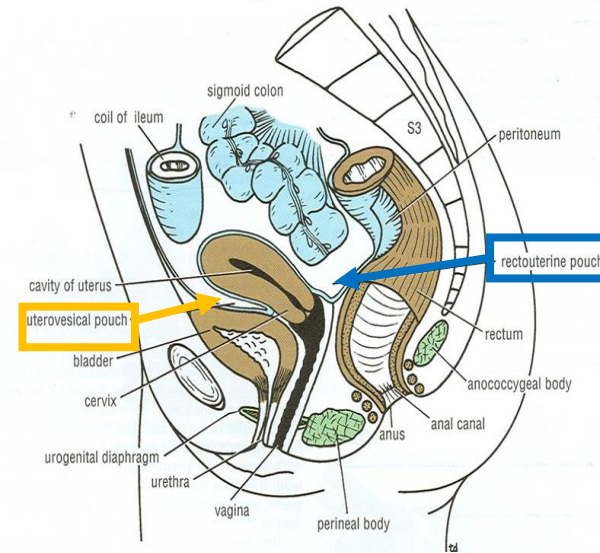
Uterovesical (vesicouterine) pouch

- Reflection of peritoneum from **uterus** to **upper surface of urinary bladder**.

Broad ligament of uterus

- Extension of peritoneum from lateral wall of **uterus** to lateral wall of **pelvis**.
- **encloses the uterine tubes.**

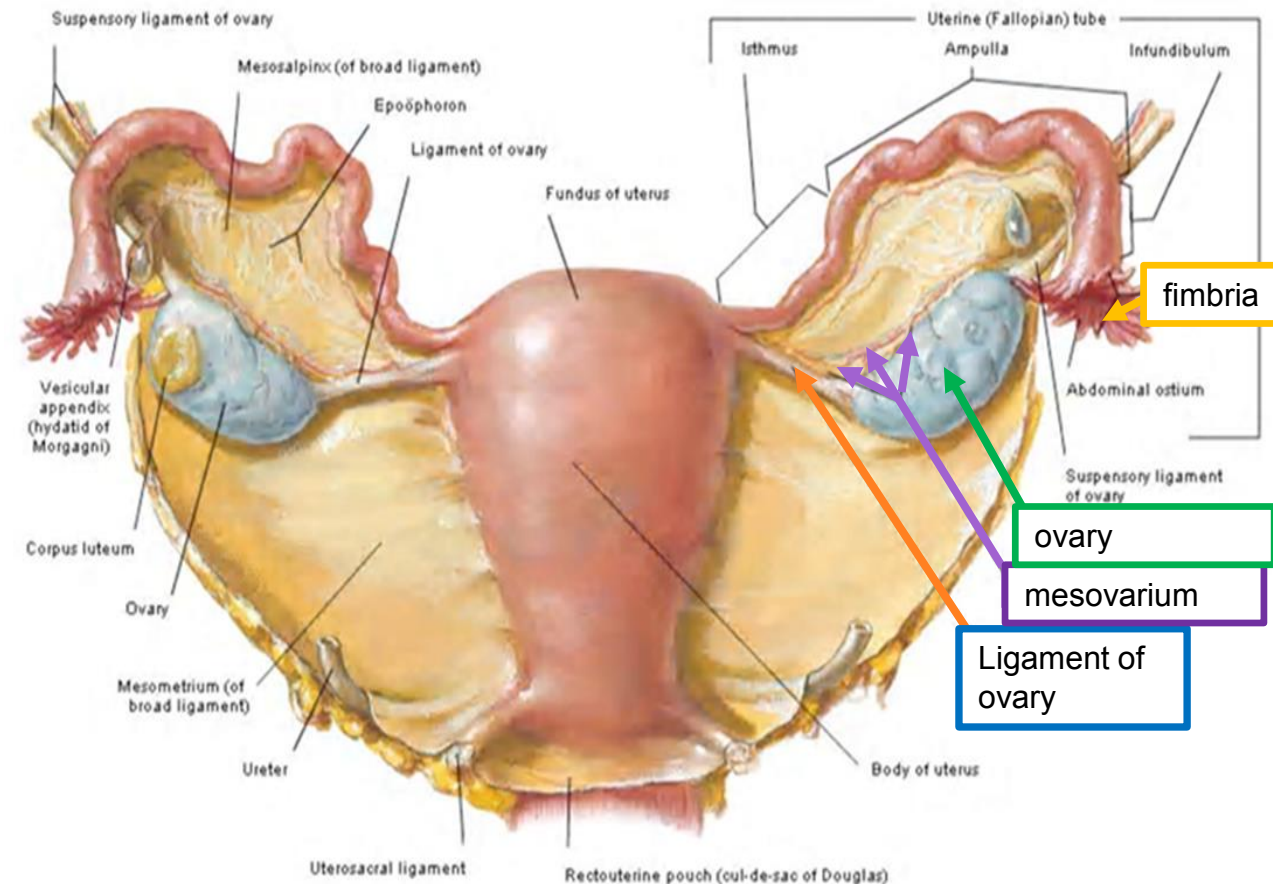
Extra: pus can accumulate in the rectouterine pouch



Posterior view

1. Ovaries

Shape:	almond-shaped organ.
It is attached to the back of the broad ligament by a peritoneal fold (<u>mesovarium</u>).	
Medial end:	attached to uterus by <u>ligament of ovary*</u> .
Lateral end:	related to the <u>fimbriae</u> of the uterine tube.
Function:	Primary sex organs in female. <ul style="list-style-type: none"> • Production of female germ cells • Secretion of female sex hormones



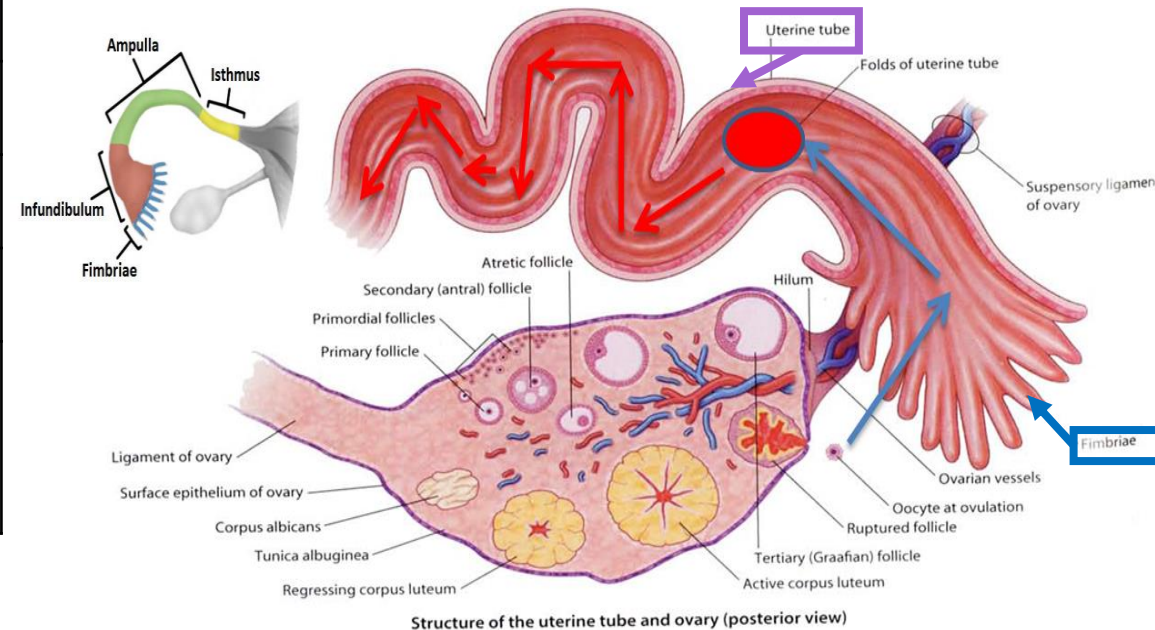
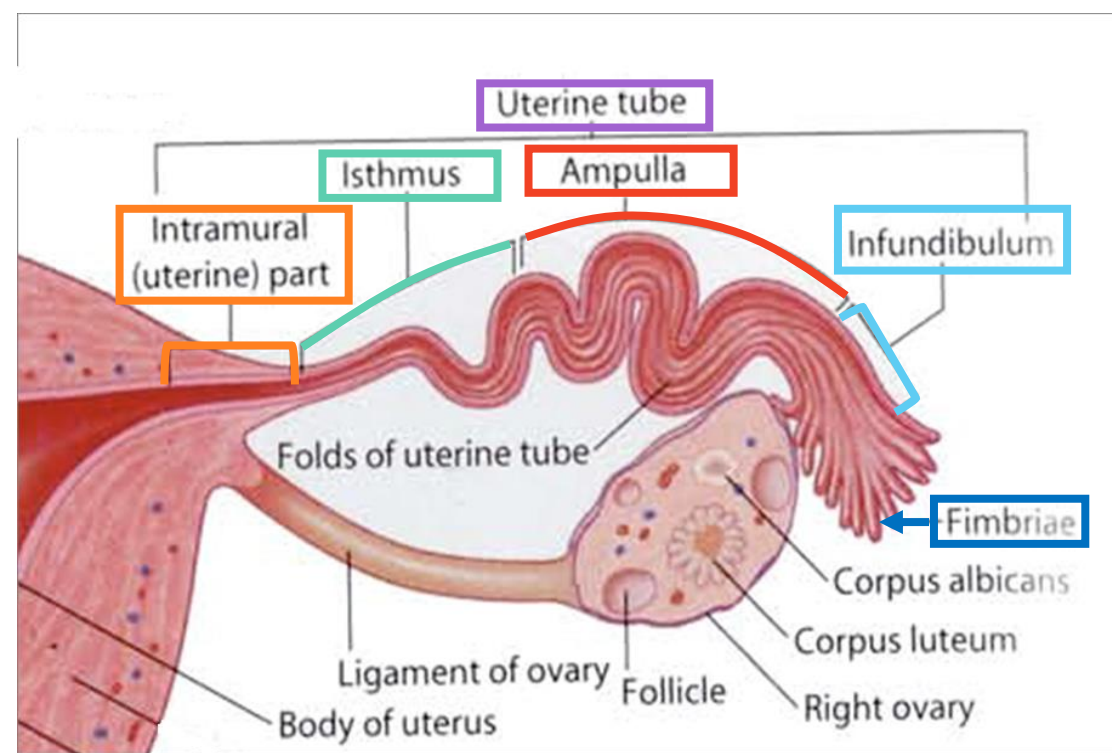
Extra:

- The fimbriae catch the oocyte.
- *other names: ovarian ligament, round ligament of the ovary
- Suspensory ligament of the ovary: a fold of peritoneum that contains the ovarian vessels, nerves and lymphatics.

2. Uterine (fallopian) Tube

- It is 10 cm long.
- It is enclosed in the broad ligament of uterus.
- Function:
 - Site of fertilization.
 - Transport of fertilized ovum into the uterus.

Parts	
Intramural part:	opening into the uterine wall.
Isthmus:	narrowest part.
Ampulla:	widest part (it is the site of fertilization)
Infundibulum:	<ul style="list-style-type: none"> • funnel-shaped end. • has finger-like processes (<u>fimbriae</u>) • related to ovary



Structure of the uterine tube and ovary (posterior view)

3. Uterus



03:57

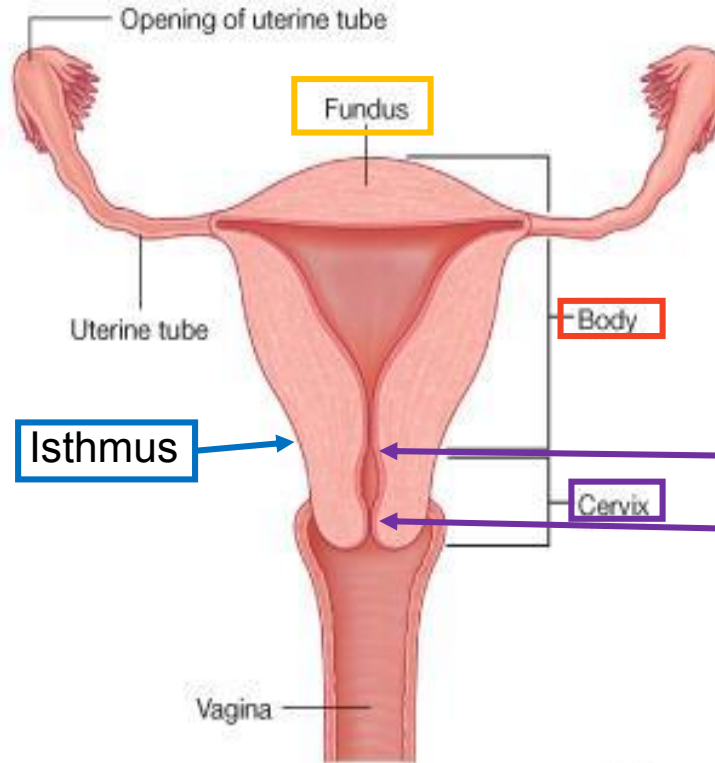
The uterus is a hollow (أجوف), pear shaped muscular organ divided into:

1- Fundus

- no cavity
- The part of uterus above the level of uterine tubes

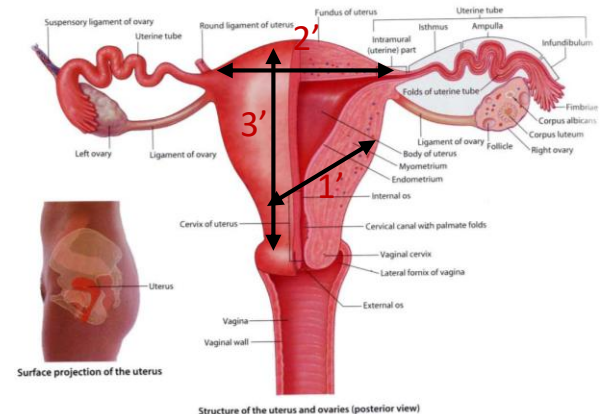
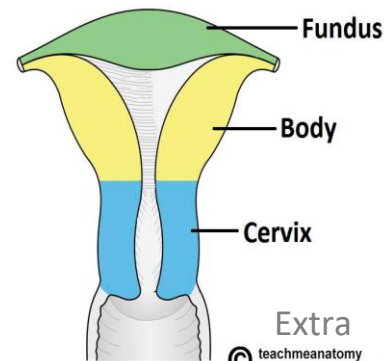
2- Body

- cavity is triangular
- The part of uterus from the level of uterine tube to the level of the isthmus of uterus



3- Cervix

- cavity is fusiform
- The part of the uterus below the level of the isthmus of the uterus
- divided into:
 1. Supravaginal part
 2. Vaginal part



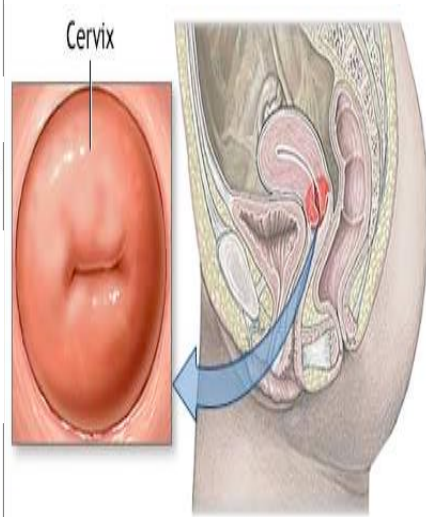
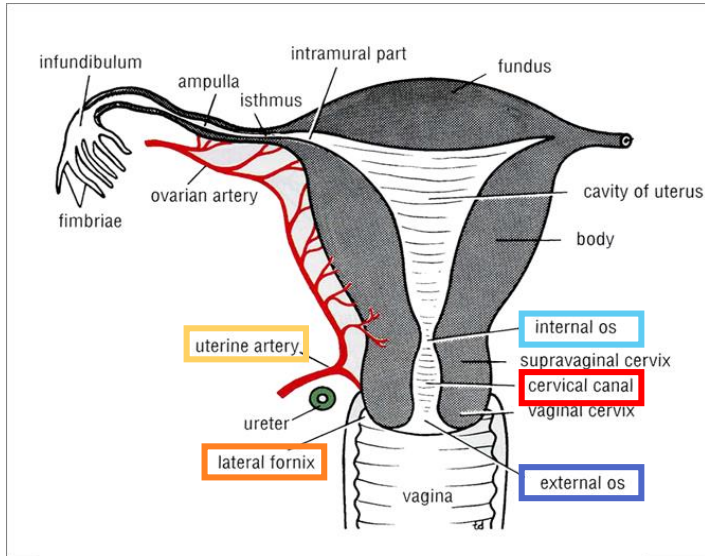
These measurements are in a women who never got pregnant “nulligravida”

3. Uterus

Cervical Canal



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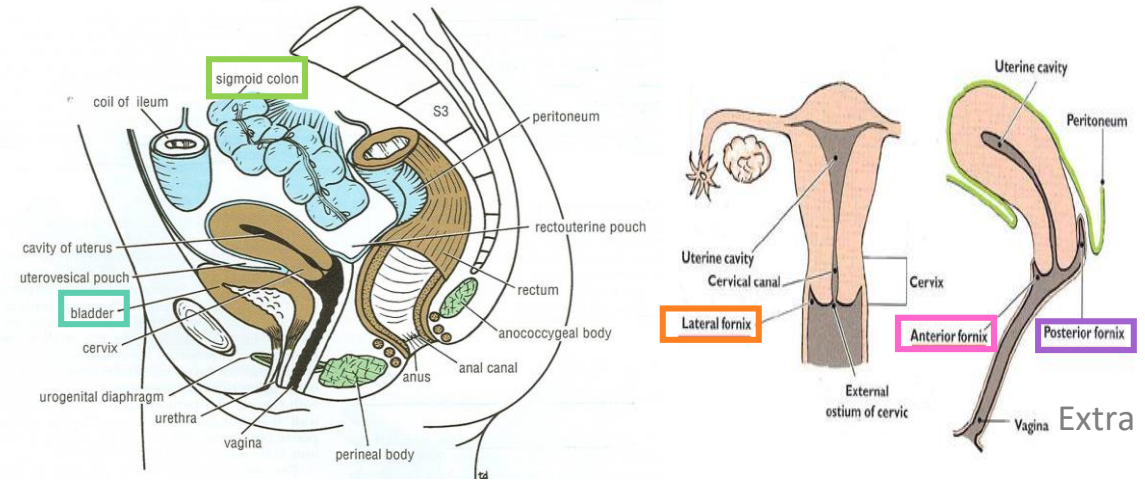
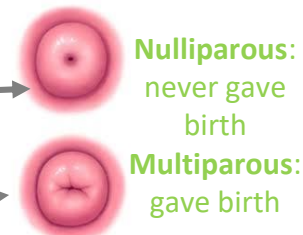


INTERNAL OS: opening between cavity of body of uterus & cavity of cervix (cervical canal)

EXTERNAL OS: opening between cervical canal & cavity of vagina

- In a **nulliparous** woman: external os appears **circular**
- In a **multiparous** woman: external os appears as a **transverse slit with an anterior & a posterior lip.**

From inside to outside:
 Uterus (body)
 Internal os
 Cervical canal
 External os
 Vagina



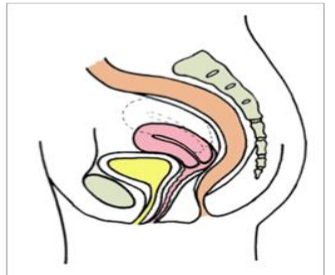
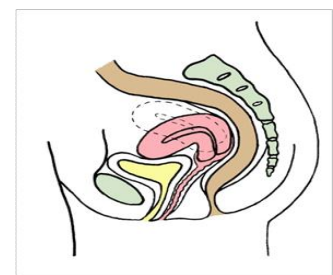
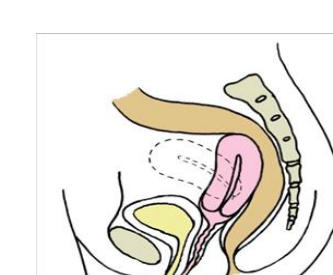
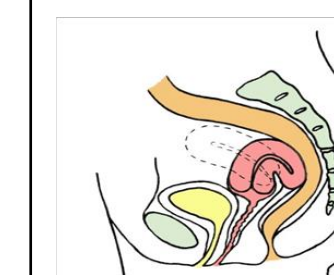


Relations of Uterus: Important!

Fundus + Body + Supravaginal Part of Cervix:	
Anterior	Superior surface of urinary bladder
Posterior	Sigmoid colon
Lateral	Uterine artery
Vaginal part of Cervix (surrounded by vaginal fornices)	
Anterior	Anterior fornix of vagina
Posterior	Posterior fornix of vagina
Lateral	Lateral fornices of vagina

3. Uterus

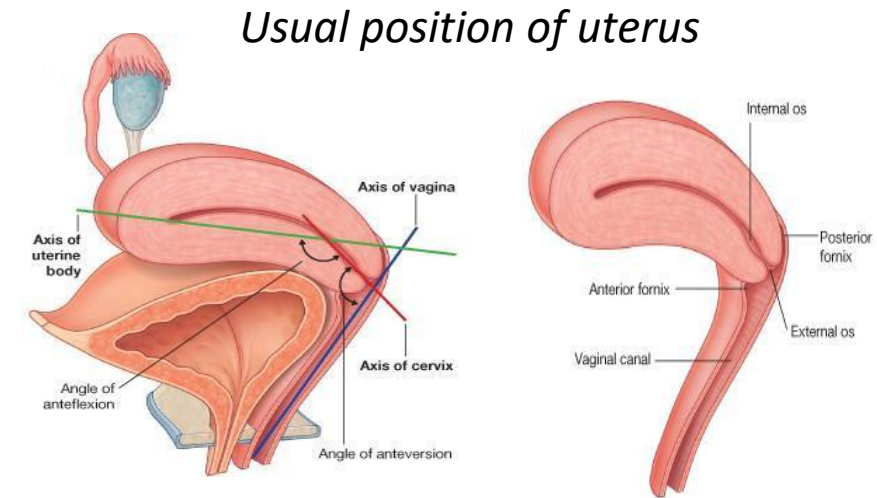
Positions of the Uterus

We have 2 normal positions for the uterus. The more common one is anteverted-anteflexed.

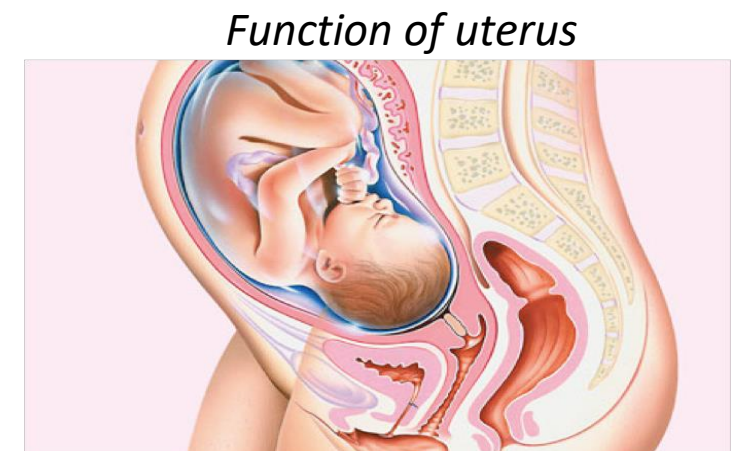
1. Anteverted-anteflexed		2. Retroverted-retroflexed	
			
			
ANTEVERTED UTERUS	ANTEFLEXED UTERUS	RETROVERTED UTERUS	RETROFLEXED UTERUS
Long axis of <i>whole</i> uterus is bent forward on long axis of <u>vagina</u>	Long axis of <i>body</i> of uterus is bent forward on long axis of <u>cervix</u>	<i>Fundus & body</i> of uterus are bent backward on the <u>vagina</u> and lie in rectouterine pouch	Long axis of <i>body</i> of uterus is bent backward on long axis of <u>cervix</u>

Verted ---> Vagina

Flexed ---> Cervix



Usual position of uterus



Function of uterus

3. Uterus

Ligaments of the Uterus (keep the uterus in its correct position)



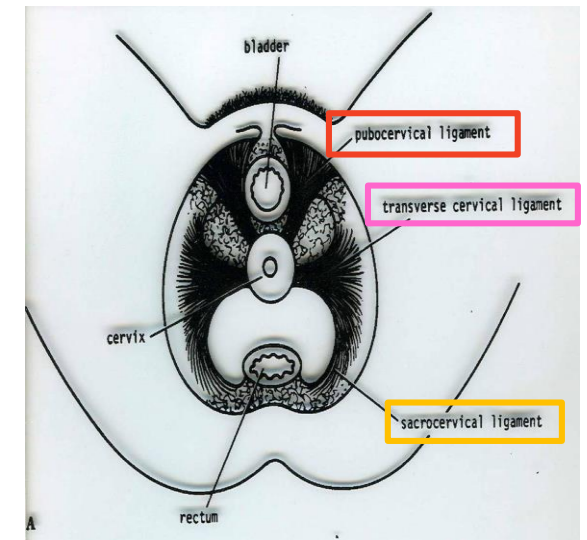
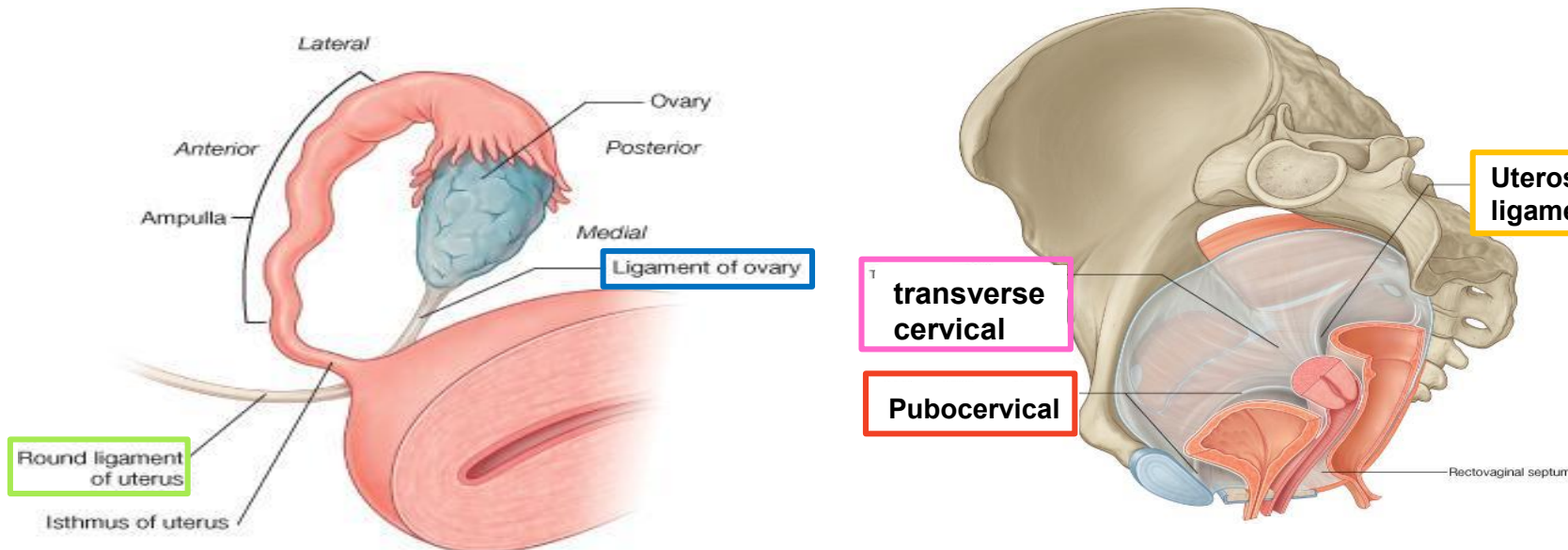
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I. Ligaments at junction between fundus & body of uterus (At the level of uterine tube) :

1. Round ligament of uterus (Extends through inguinal canal to labium majus)
2. Ligament of ovary

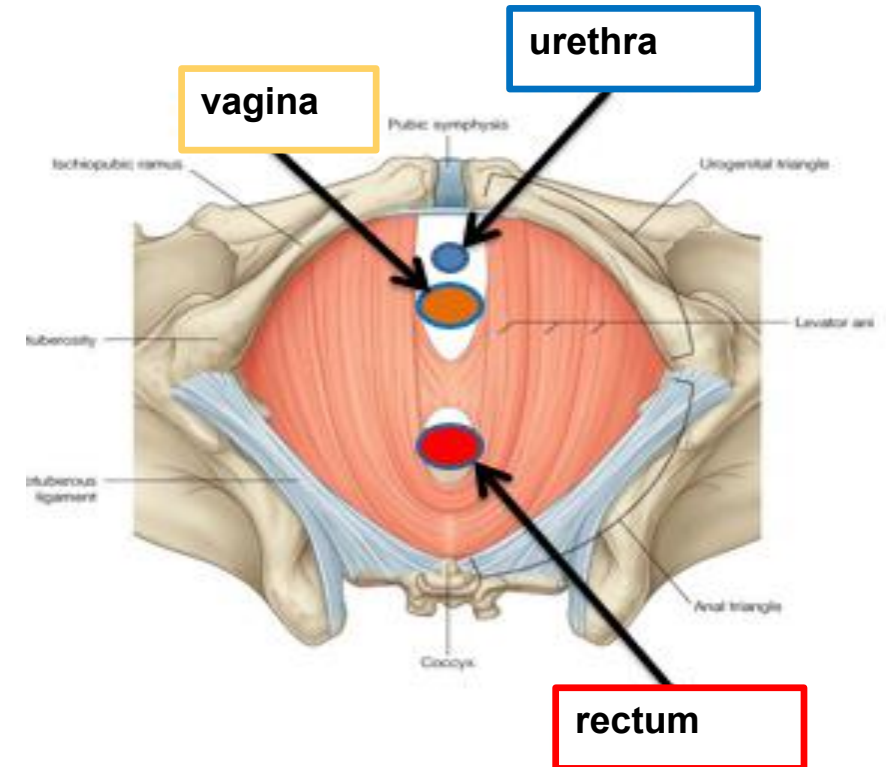
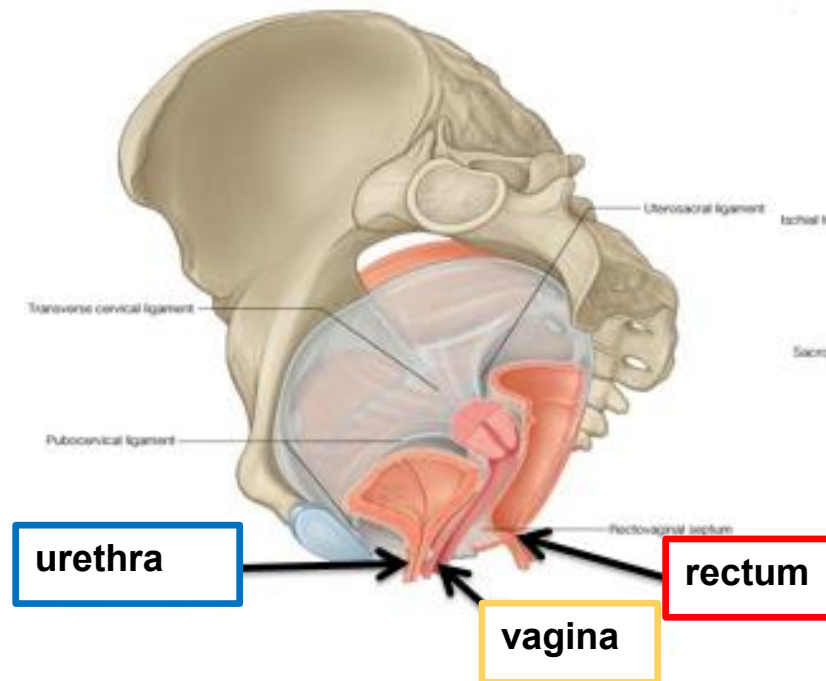
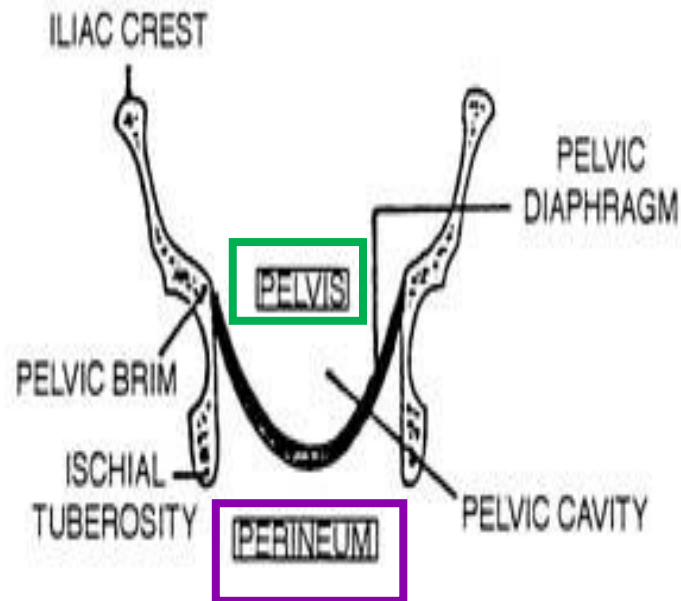
II. Ligaments of cervix: Extend from cervix to :

1. Anterior pelvic wall (pubocervical)
2. Lateral pelvic wall (transverse cervical or **cardinal**)
3. Posterior pelvic wall (uterosacral or **sacro**cervical).



Levator Ani Muscles

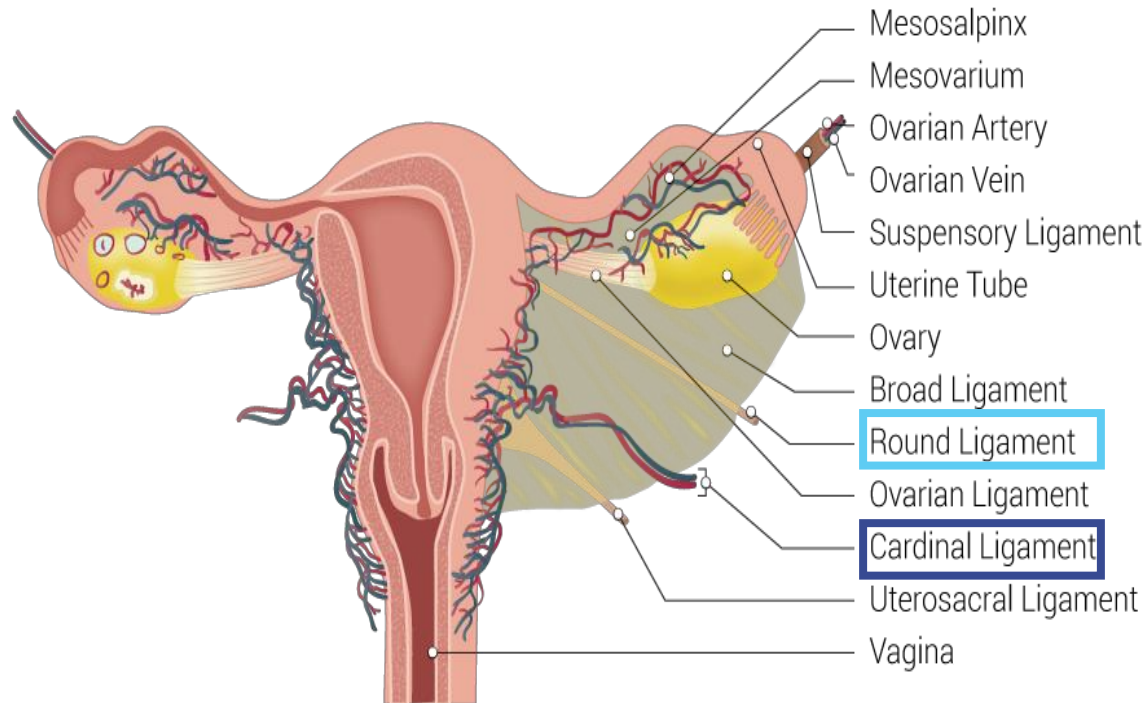
- Form the pelvic floor: separate pelvis from perineum
- Form pelvic diaphragm: traversed by urethra, vagina & rectum (they pass through it)
- Support pelvic organs



3. Uterus

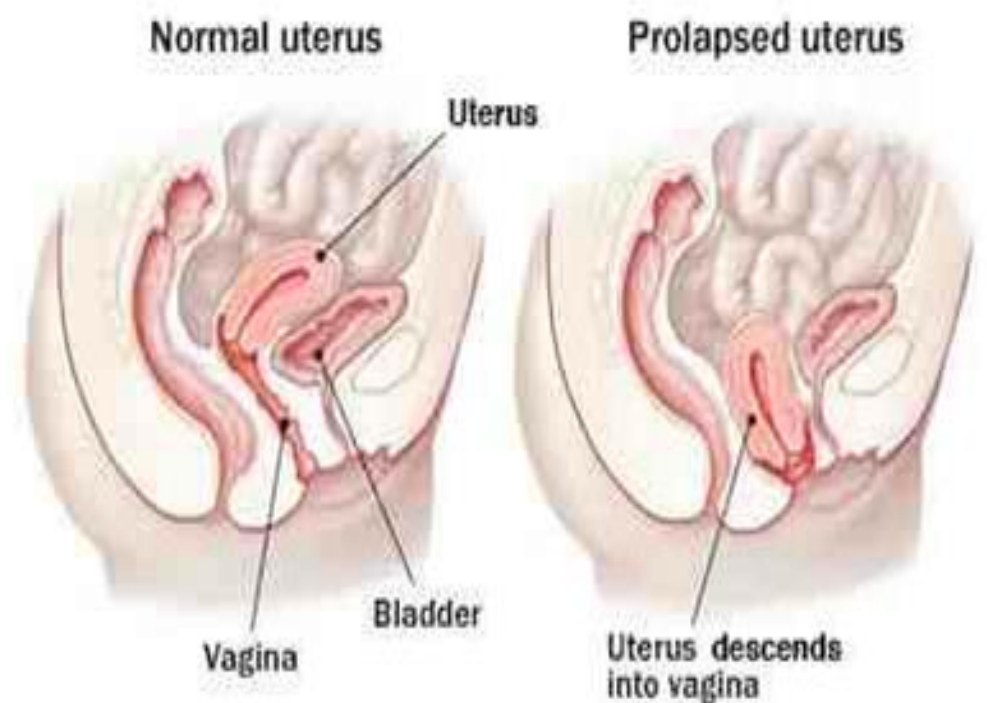
Support of Uterus:

1. Round ligament of uterus (maintains anteverted anteflexed position)
2. Ligaments of cervix (especially transverse cervical)
3. Levator ani muscles

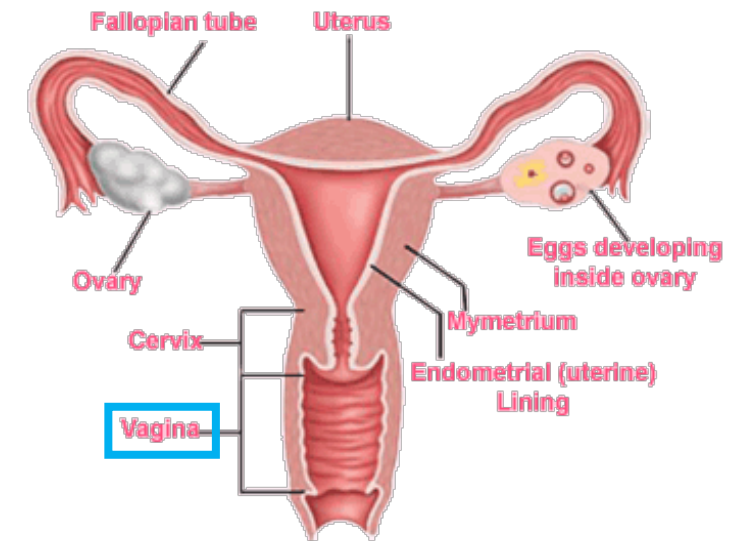
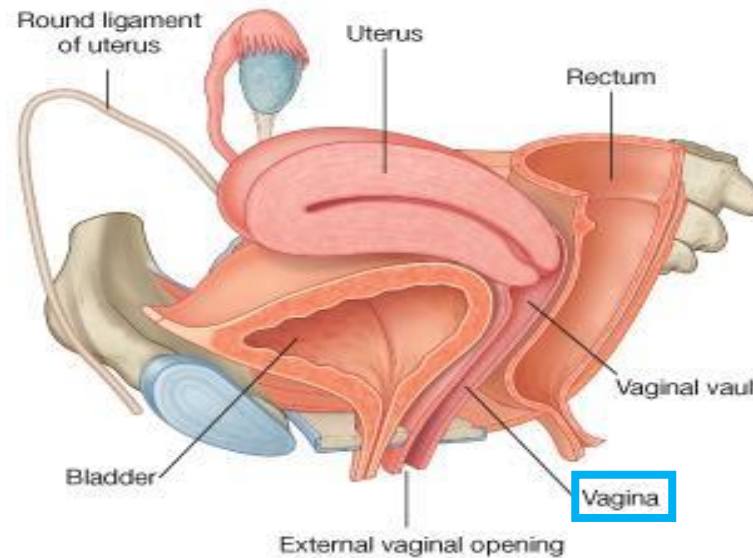
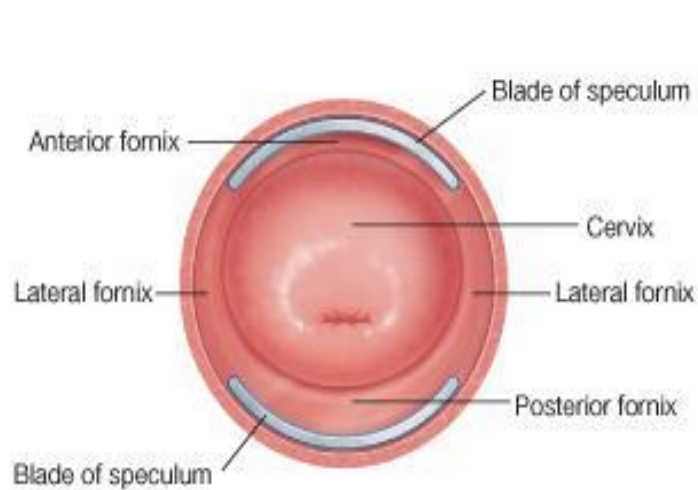


Uterine prolapse

- Downward displacement of uterus due to **damage** of:
1. Ligaments of uterus
 2. Levator ani muscles



4. Vagina

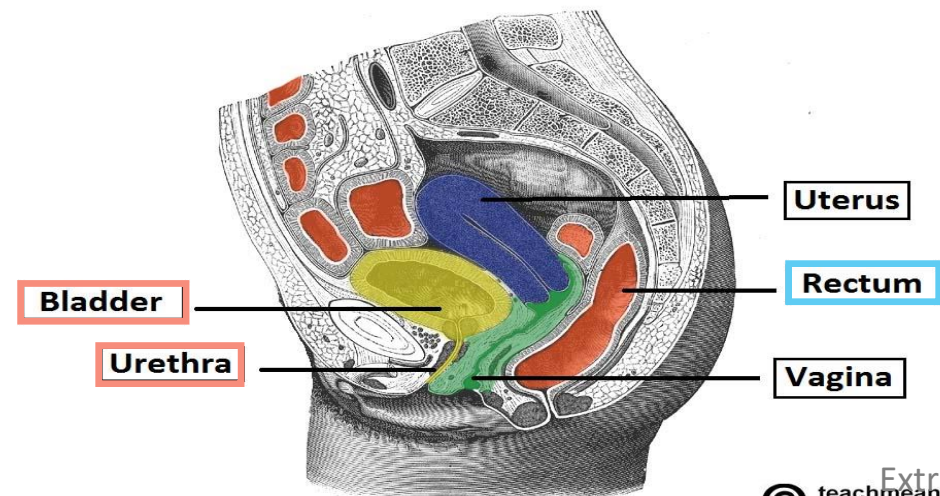
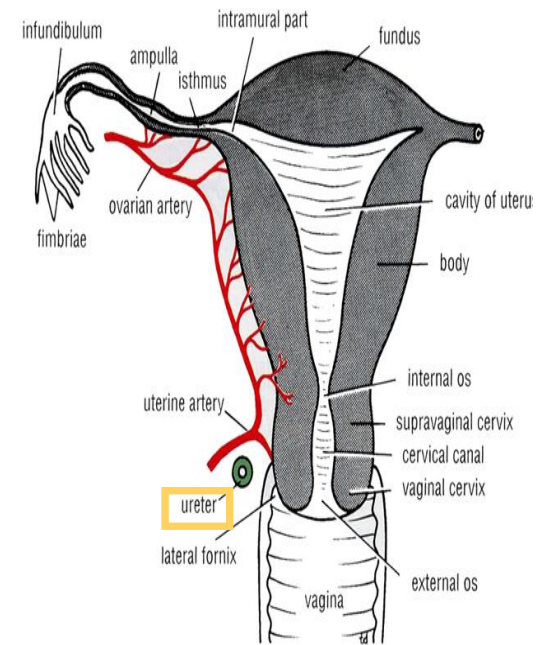
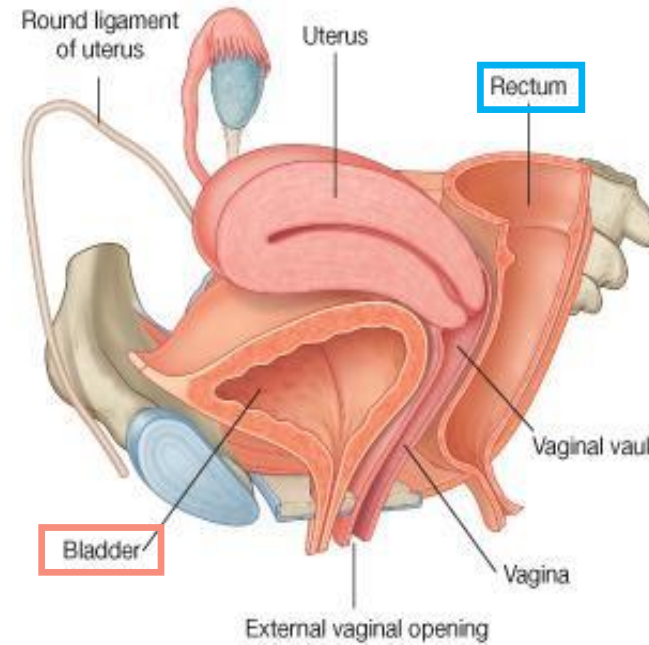


<i>Structure</i>	fibro-muscular tube
<i>Extent</i>	from external os, along pelvis & perineum, to open in the vulva (female external genitalia), behind urethral opening
<i>Length</i>	its anterior wall (7.5 cm) is shorter than its posterior wall (9 cm)
<i>Function</i>	<ol style="list-style-type: none"> 1. copulatory organ (organ involved in sexual reproduction) 2. birth canal

4. Vagina

Relations of Vagina

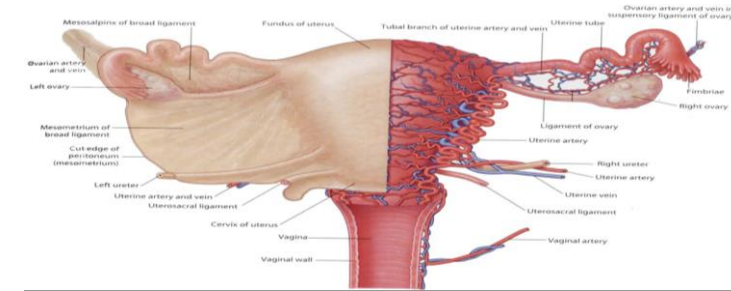
Relations of Vagina: <i><u>Important</u></i>		
	In Pelvis	In Perineum
Anterior	urinary bladder	urethra
Posterior	rectum	anal canal
Lateral	ureters	-



Supply

The arterial supply of the female reproductive system is from:

1. Abdominal aorta → ovarian artery
2. Internal iliac artery (artery of pelvis) → vaginal & uterine artery



	Organ	Arteries	Veins	Lymphatics	Nerves (autonomic)
<i>abdomen</i>	1. Ovaries	Ovarian (from the abdominal aorta)	Ovarian (drain in the inferior vena cava and left renal vein)	To paraaortic lymph nodes (in abdomen)	Ovarian plexus (in abdomen)
<i>both</i>	2. Uterine tubes	- Ovarian - Uterine	- Ovarian - Uterine	- Paraaortic - internal iliac	- Ovarian - Inferior hypogastric
	3. Uterus	Uterine (from internal iliac artery in pelvis)	Uterine plexus (to internal iliac vein)	To internal iliac lymph nodes (in pelvis)	Inferior hypogastric plexus (in pelvis)
<i>pelvis</i>	4. Vagina	Vaginal (from internal iliac artery in pelvis)	Vaginal plexus (to internal iliac vein)	To internal iliac lymph nodes (in pelvis)	Inferior hypogastric plexus (in pelvis)

Summary

Organ	Function	Parts	Relations		
			Anterior	Posterior	Lateral
1. Ovaries	Primary sex organs in female.	Medial end → uterus by ligament of ovary. Lateral → fimbriae of the uterine tube.	-	-	-
2. Uterine tubes	Site of fertilization (ampulla)	1. Intramural 2. Isthmus 3. Ampulla 4. Infundibulum	-	-	-
3. Uterus	Pregnancy (maintenance of fetus)	1. Fundus 2. Body 3. Cervix (between internal and external os)	Superior surface of urinary bladder	Sigmoid colon	Uterine artery
			Anterior fornix of vagina	Posterior fornix of vagina	Lateral fornices of vagina
4. Vagina	copulatory organ and birth canal	-	Urinary bladder (in <u>pelvis</u>) & urethra (in <u>perineum</u>)	Rectum (in <u>pelvis</u>) & anal canal (in <u>perineum</u>)	ureters (in <u>pelvis</u>)

Fundus + Body + Supravaginal Part of Cervix

Vaginal Part of Cervix

MCQs

Q1) A reflection of the peritoneum from the uterus to upper part of urinary bladder:

- a) Broad ligament of the uterus
- b) Rectouterine pouch
- c) Douglas pouch
- d) Uterovesical pouch

Q2) In which part of the uterine tube does fertilization take place?

- a) Isthmus
- b) Ampulla
- c) Intramural
- d) Infundibulum

Q3) Which one of the following consider as posterior relation of vagina in perineum ?

- a) ureter
- b) rectum
- c) uterus
- d) anal canal

Q4) Which one of the following is the origin of uterine artery ?

- a) aorta
- b) abdominal aorta
- c) internal iliac
- d) external iliac

Q5) What muscle that separate pelvis from perineum?

- a) Levator ani
- b) Obturator internus
- c) Psoas major
- d) Piriformes

Q6) Which of the following ligaments support the uterus and prevent prolapse?

- a) Round ligament
- b) Ovarian ligament
- c) Cardinal ligament
- d) Broad ligament

Answers: 1. D, 2. B, 3. D, 4. C, 5. A, 6. A



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Feedback



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- 3- TeachMeAnatomy.com