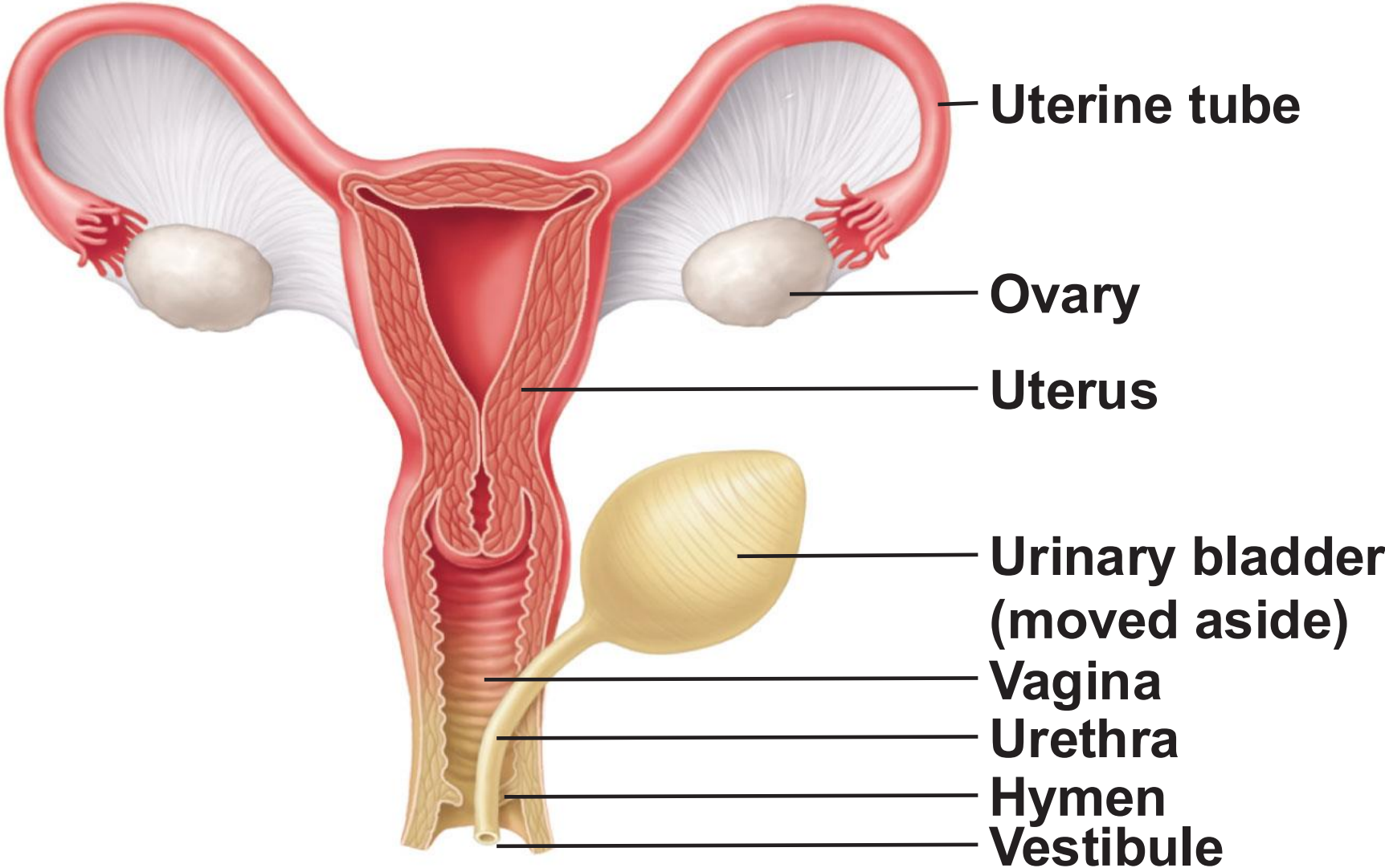


# Female Reproductive Anatomy



# Female Reproductive Anatomy

- **Ovaries: female gonads**
  - Produce female gametes (ova)
  - Secrete female sex hormones, **estrogen** (estradiol, estrone, estriol), and **progesterone**
- **Internal genitalia:** located in pelvic cavity; include **ovaries** and **duct system** (uterine tubes, uterine horns/uterus, and vagina)
- **External genitalia:** external sex organs

The structure of the uterine tubes and uterus are especially variable.

# Reproductive Functions

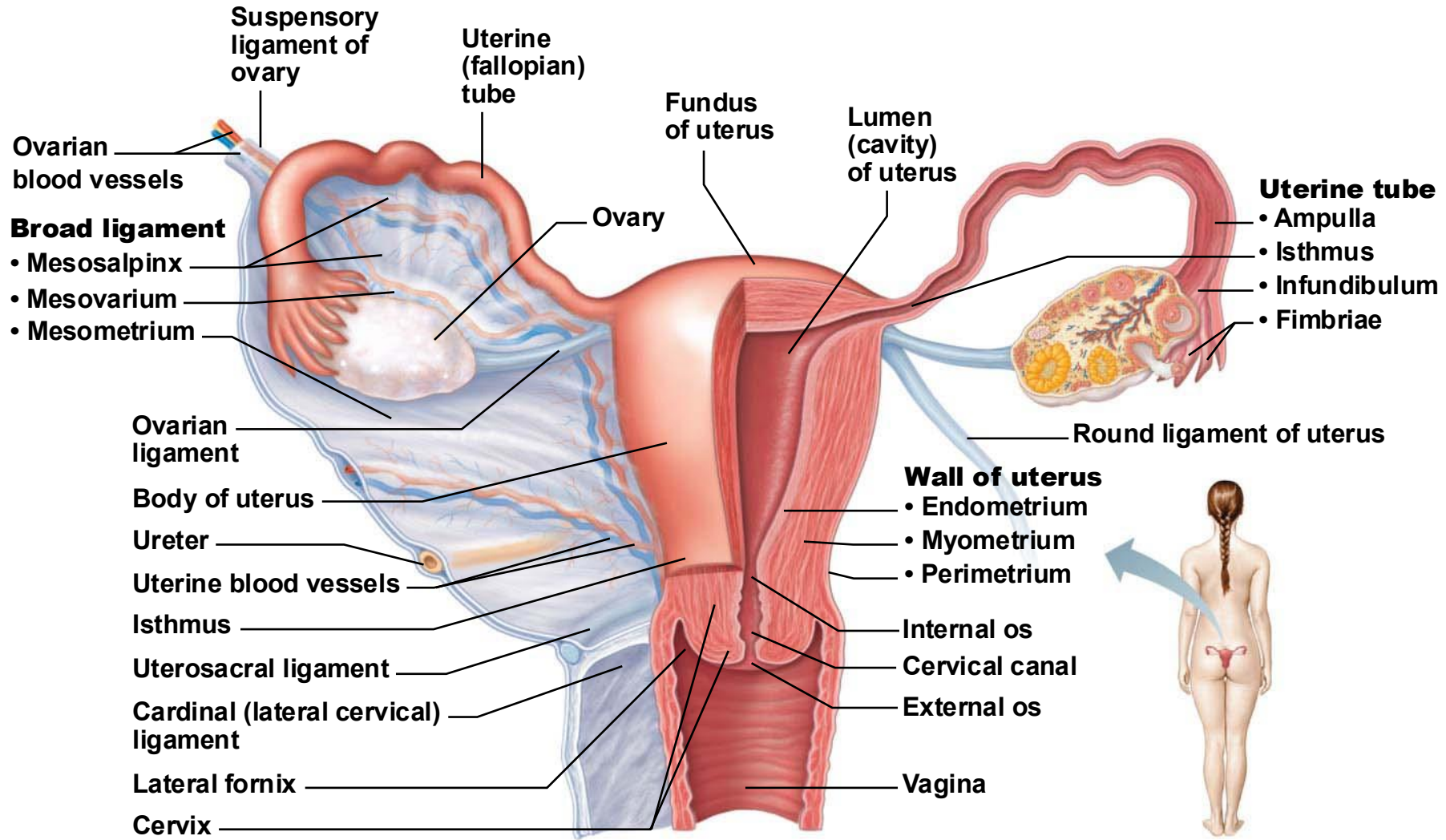
- Production of female gametes
- Gametes transporting
- Fecundation site
- Conceptus site to nourish the fetus until parturition
- Control the reproductive cycle
- Coordinate the ovarian and uterine cycles

# The Ovary: female gonad

## Functions

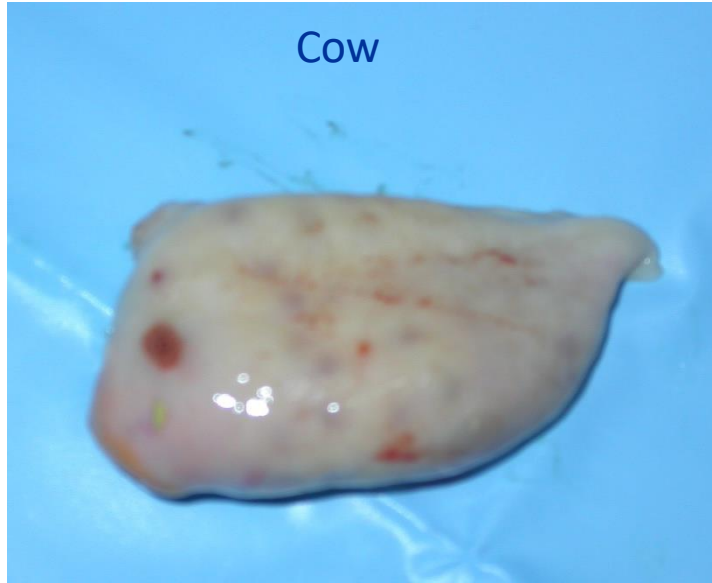
- an exocrine gland, producing oocytes (gametogenesis function)
- an endocrine gland, secreting the female hormones: estrogen and progesterone (endocrine function)

# Ovaries



**(a) Posterior view**

# Ovaries

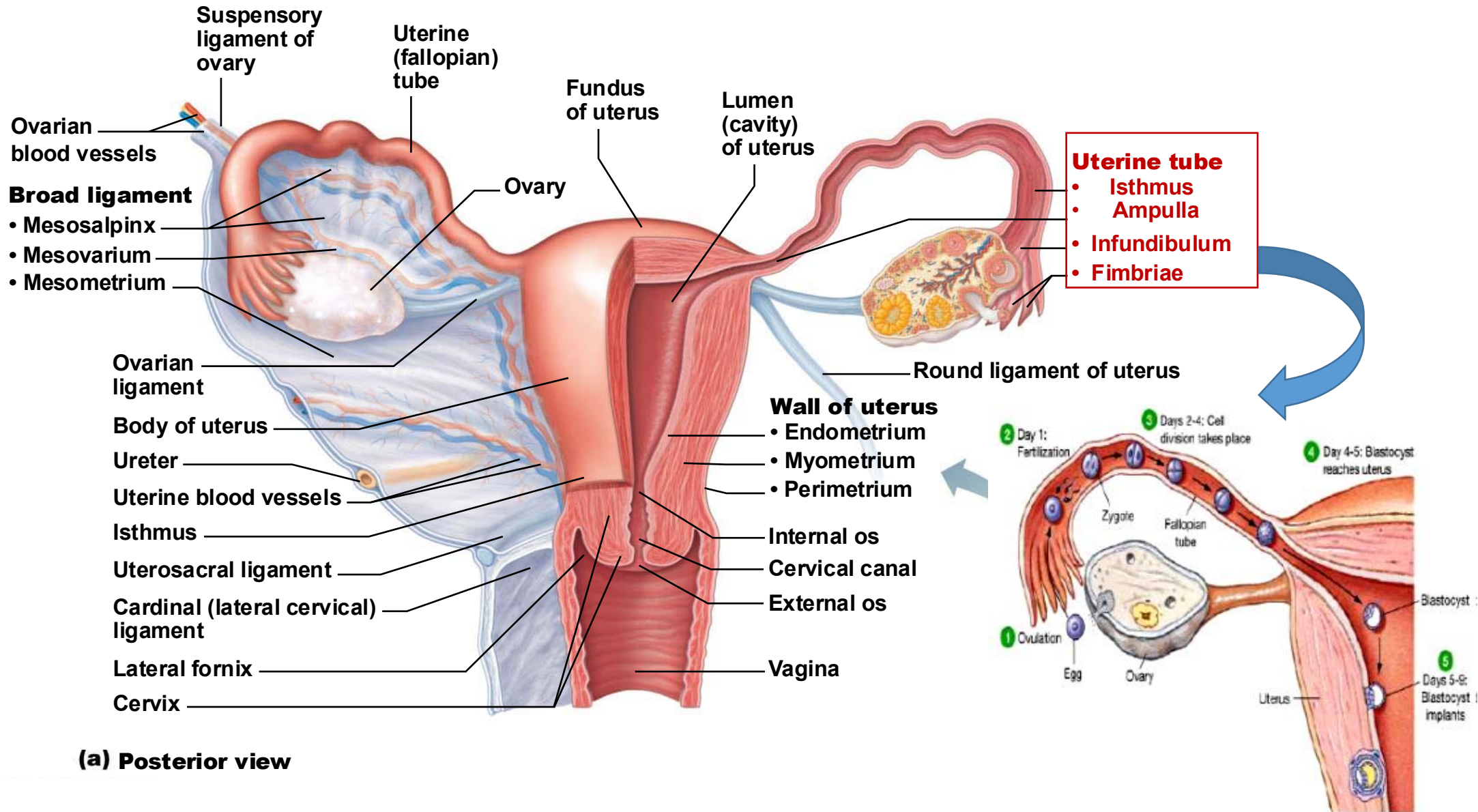


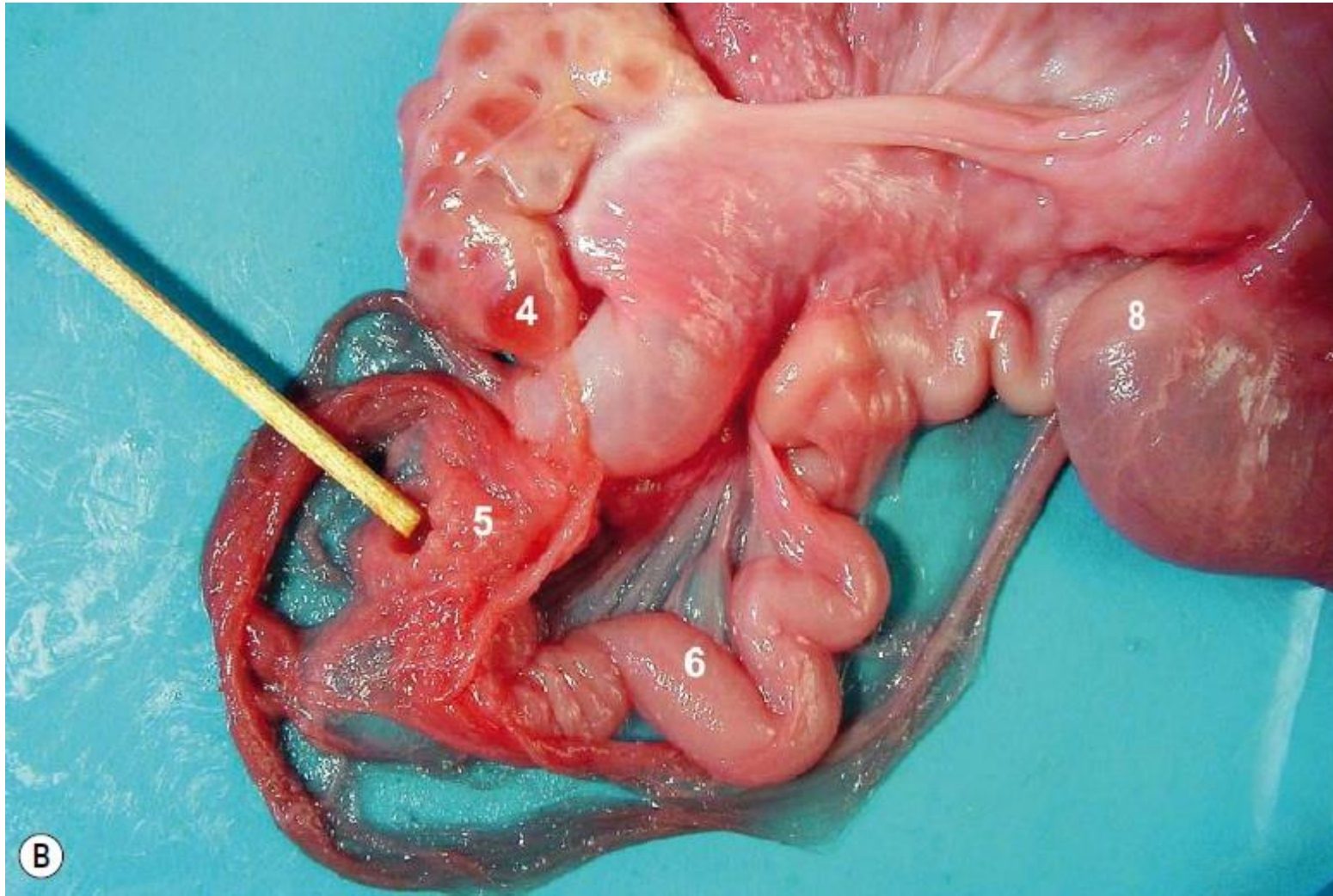
**The Uterine tubes = fallopian tubes = oviducts**

# Function

The uterine tubes (also called Fallopian tubes or oviducts):

1. transport the ovum from the ovary to the site of fertilization
2. help transport spermatozoa, the haploid male gametes, from the site of deposition to the site of fertilization
3. provide an appropriate environment for fertilization
4. transport the fertilized ovum (embryo) to the uterine horns/uterus where implantation and further development may occur.

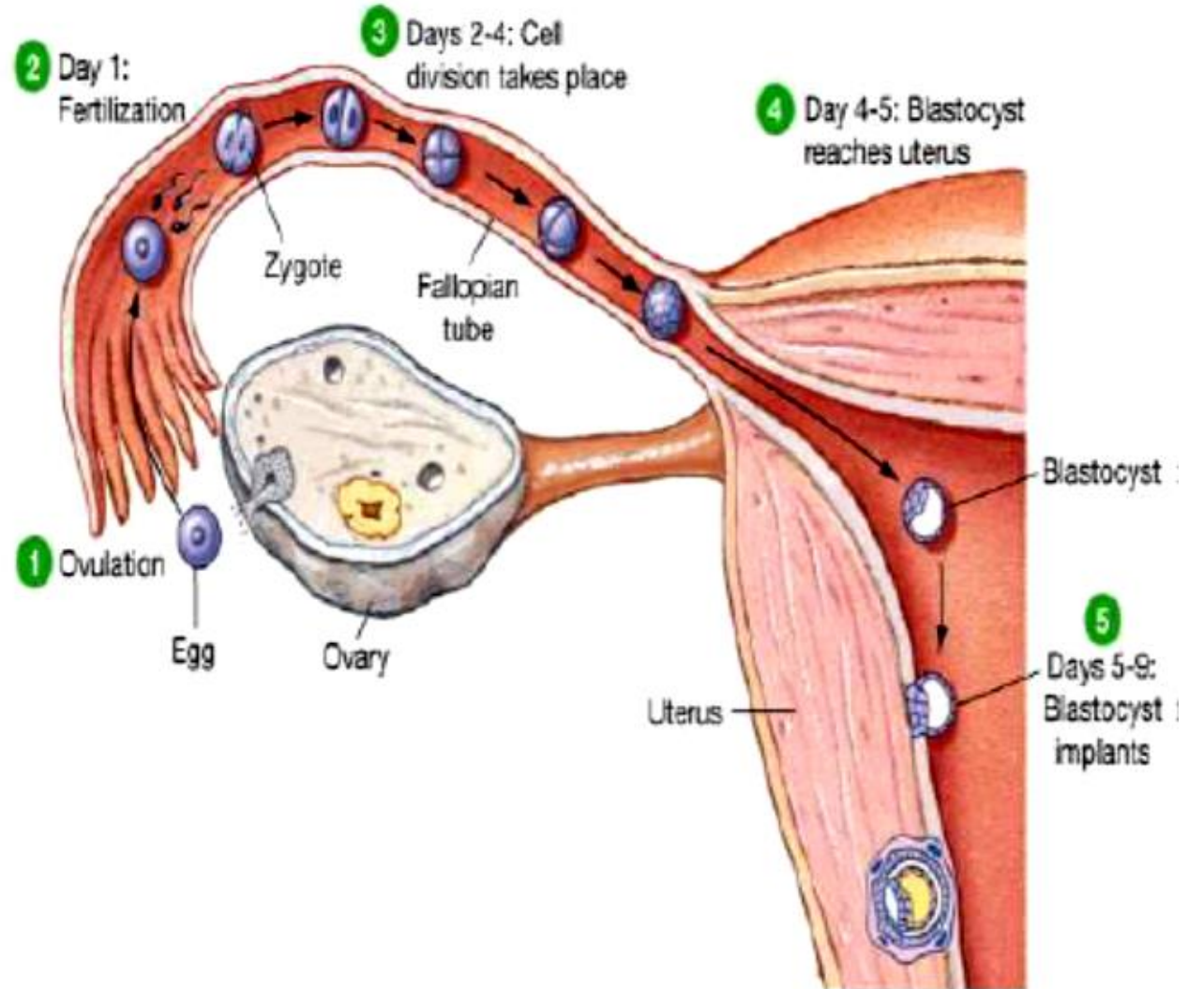
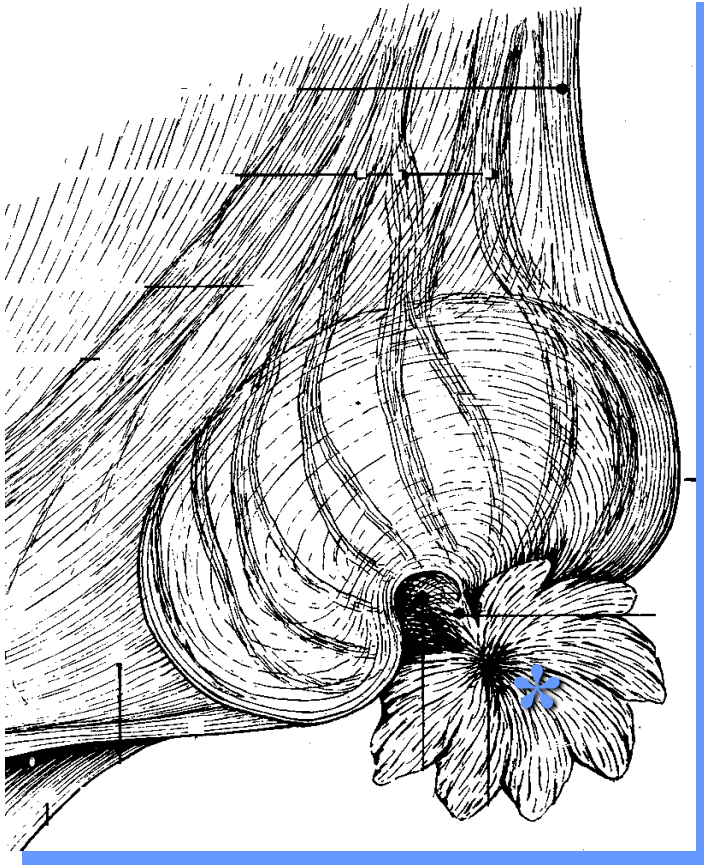




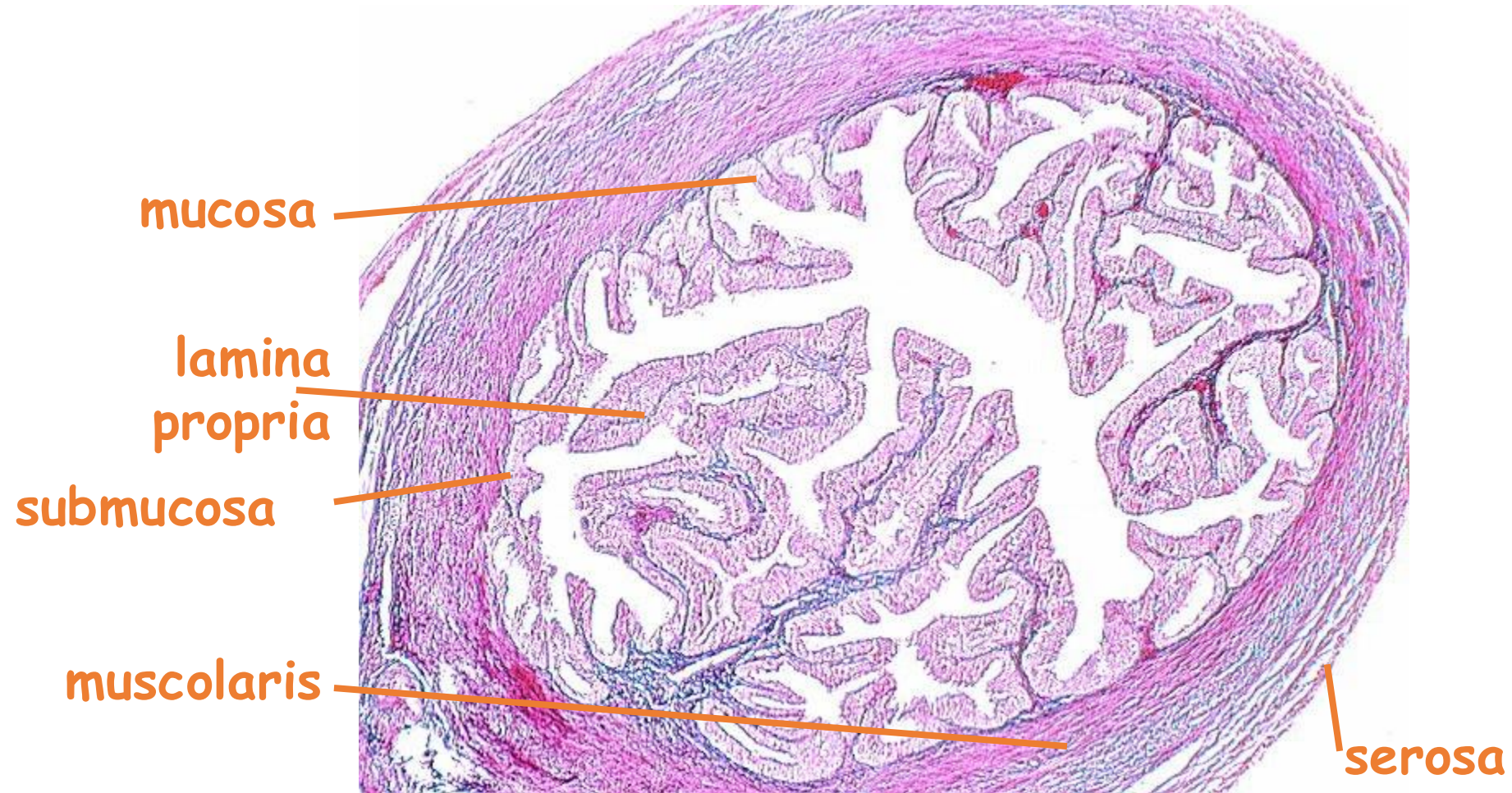
- 5: Infundibulum;
- 6: Ampulla;
- 7: Isthmus;
- 8: Tip of uterine horn.

The wooden stick points to the abdominal opening of the oviduct.

# Infundibulum



# UTERINE TUBES: MICROSCOPIC STRUCTURE

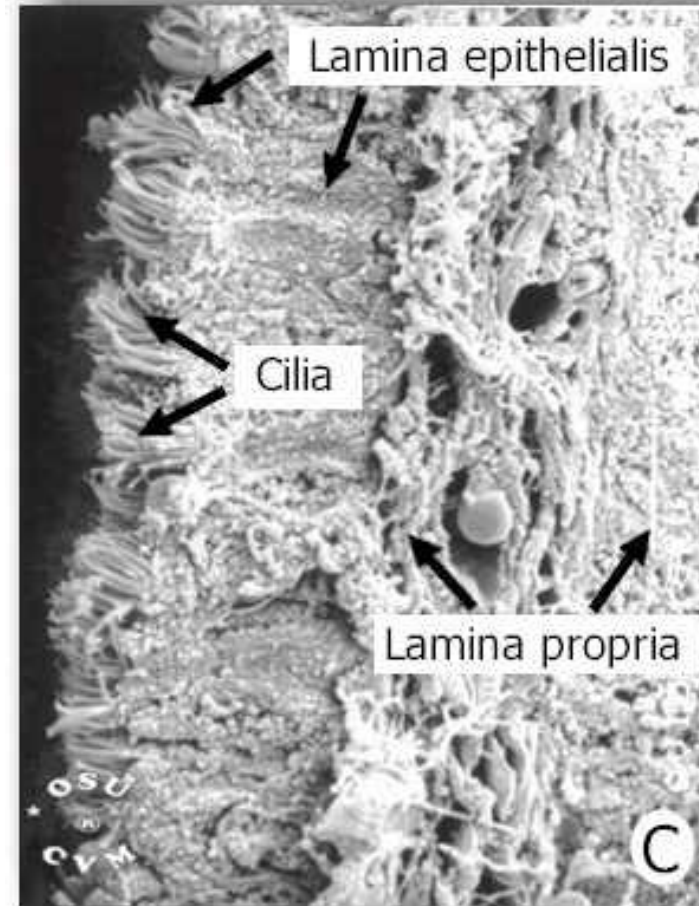


# TUNICA MUCOSA

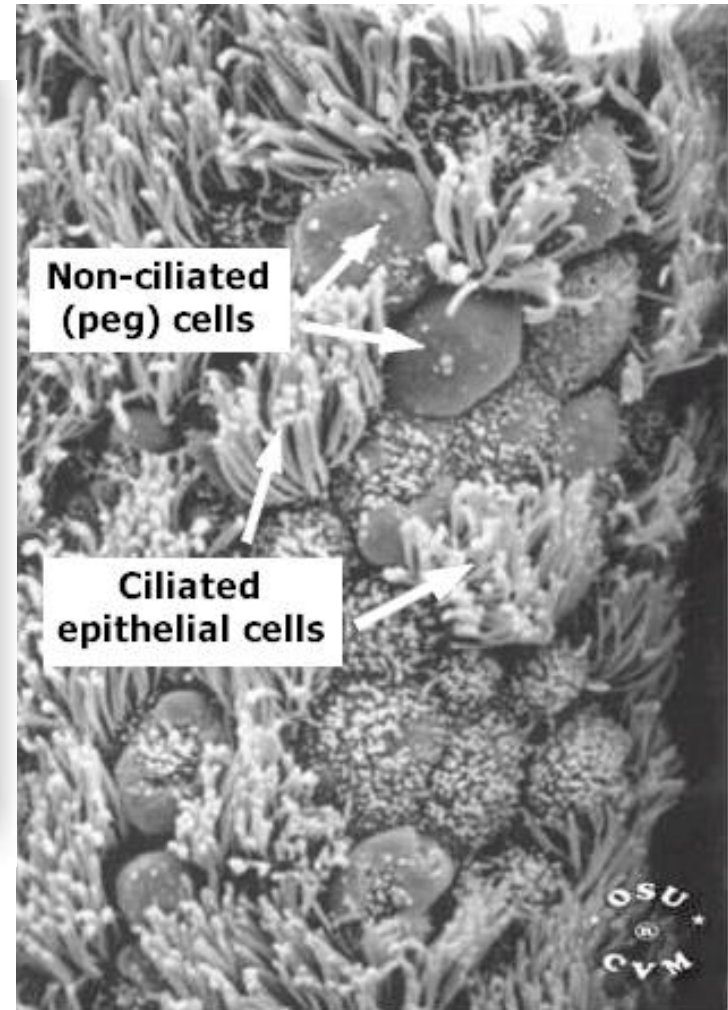
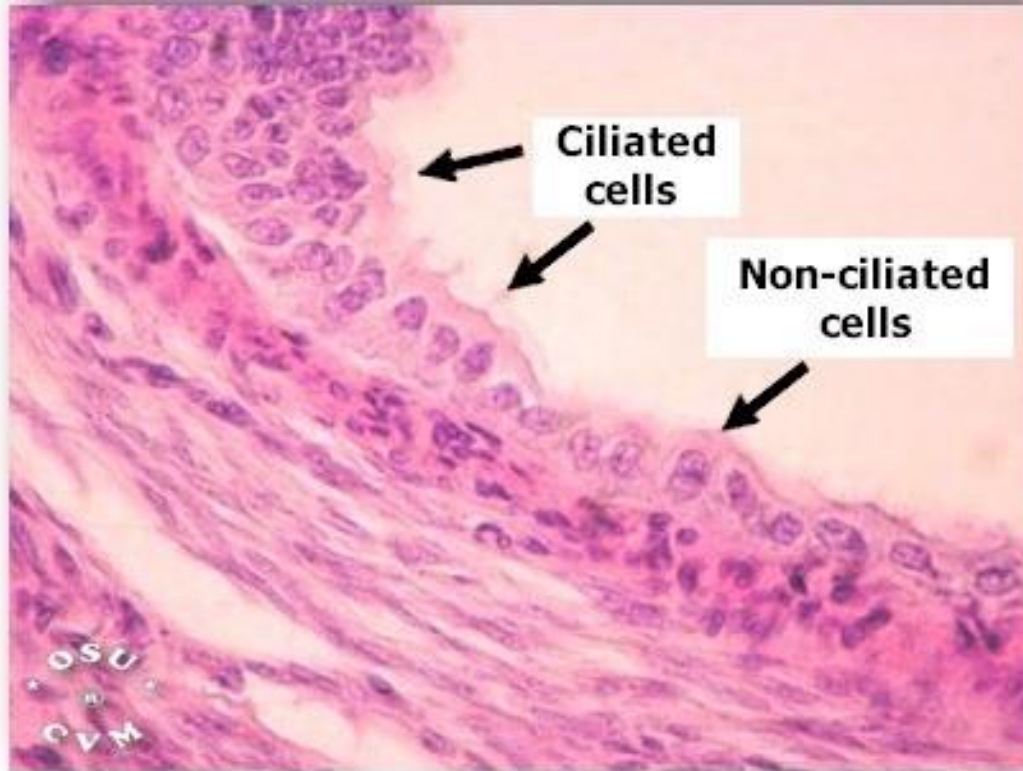
The epithelium of the tunica mucosa is **simple columnar** and contains two types of cells:

**(1) ciliated**; ciliary beating causes caudal fluid flow, to move the oocyte toward the uterus;

**(2) non-ciliated secretory cells**



# TUNICA MUCOSA

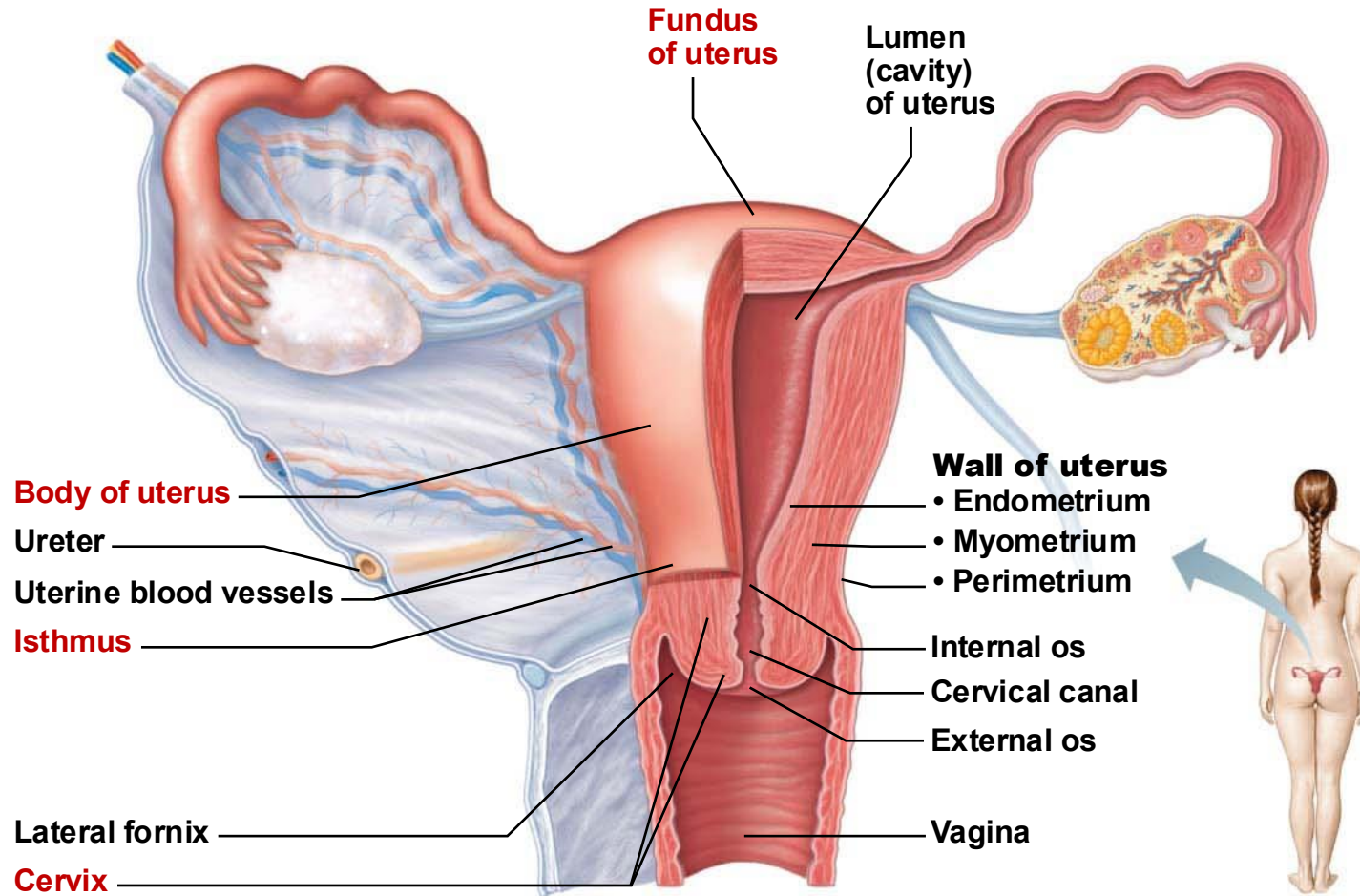


# The uterus (womb)

# Functions

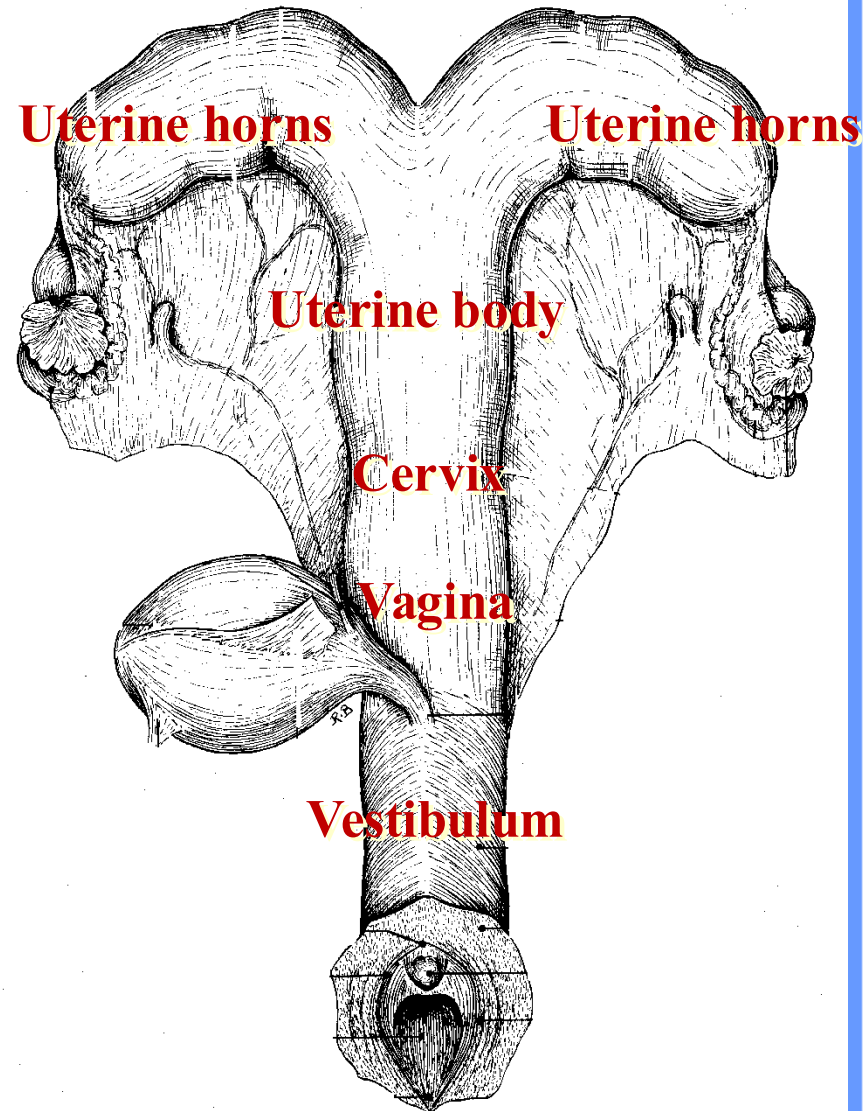
1. serves to receive the sperm
2. transports sperm from site of deposition to uterine tubes for fertilization
3. provides suitable environment for:
  - a. implantation of the embryo
  - b. nourishment of the embryo & fetus during pregnancy
4. provides mechanical protection of the fetus
5. expels the mature fetus at the end of pregnancy

# The uterus: woman



**(a) Posterior view**

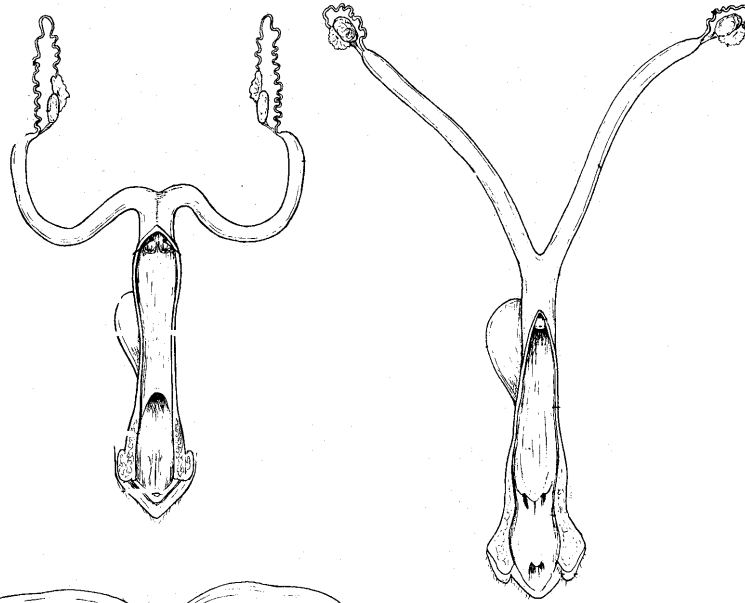
# The uterus: domestic animals



# Uterus configuration

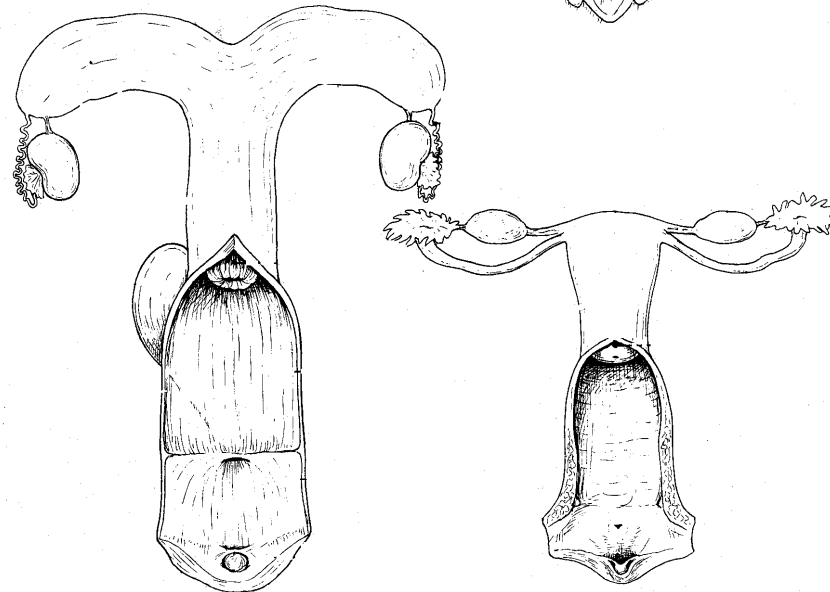
## duplex:

rat, rabbit, guinea pig



## bicornuate:

bitch, sow, cow, ewe



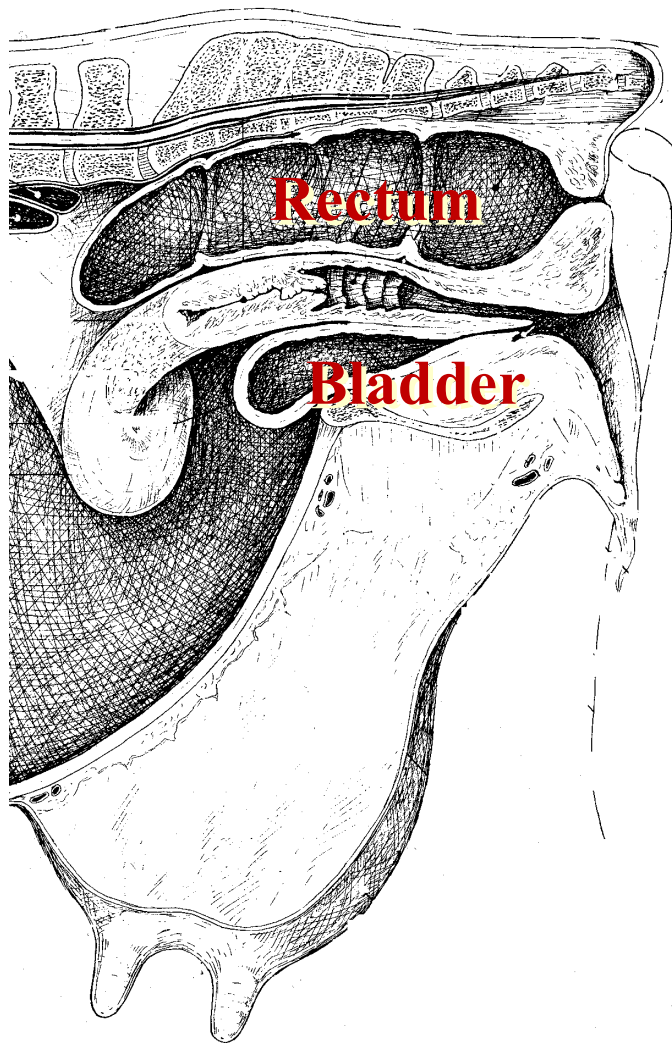
## bipartite:

mare

## simplex:

primate, human

# The uterus: topography



Peritoneum

Perimetrium

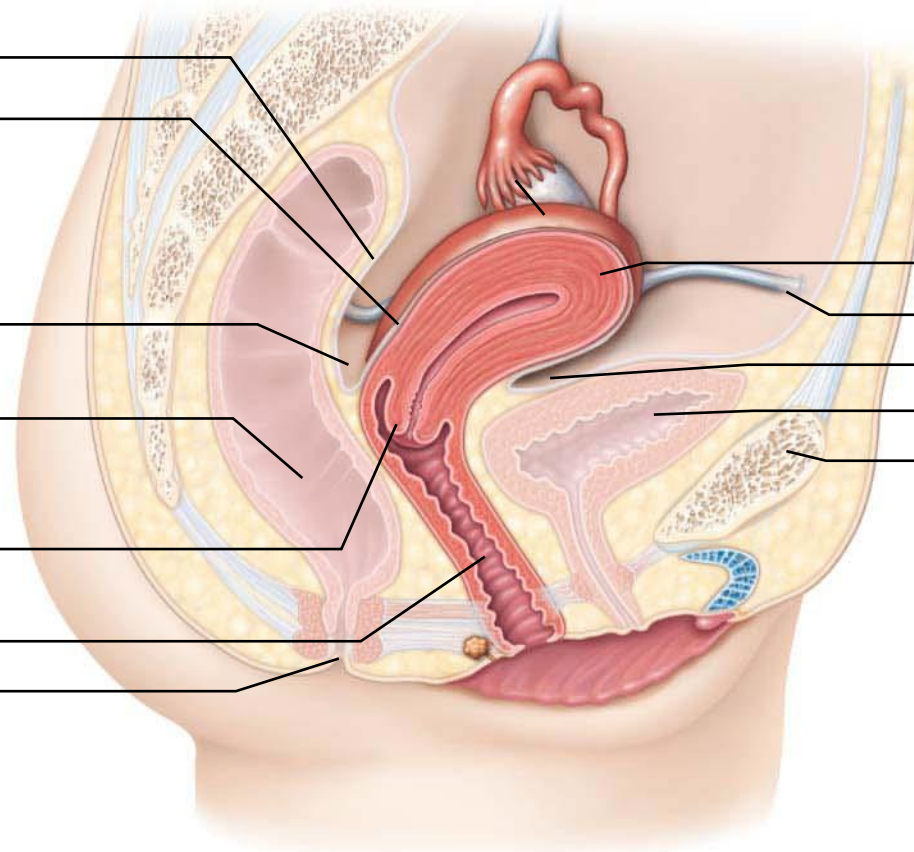
Rectouterine pouch

Rectum

Cervix

Vagina

Anus



Uterus

Round ligament

Vesicouterine pouch

Urinary bladder

Pubic symphysis

## Cervix

**Cervix:** narrow neck, or outlet; projects into vagina

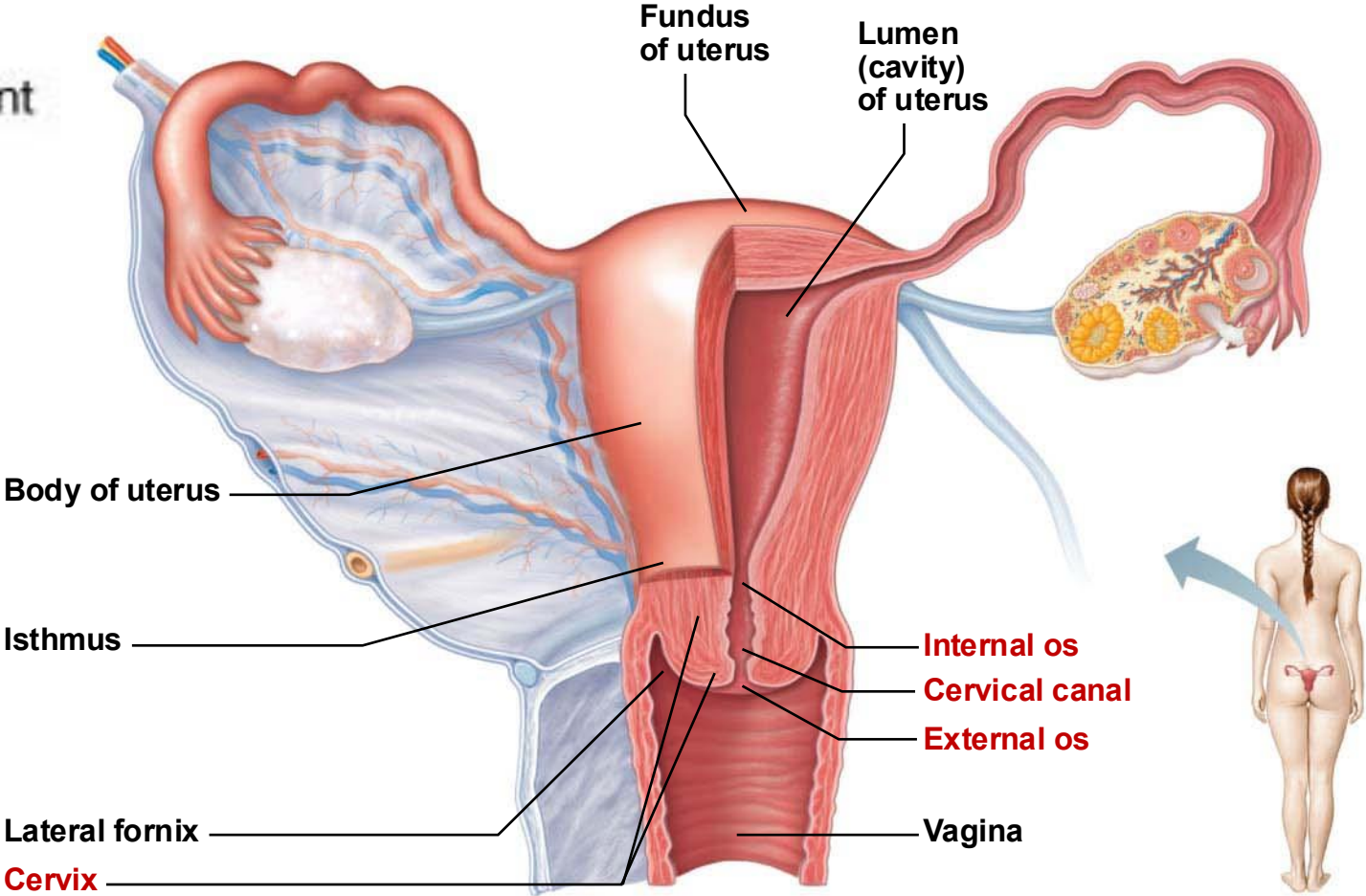
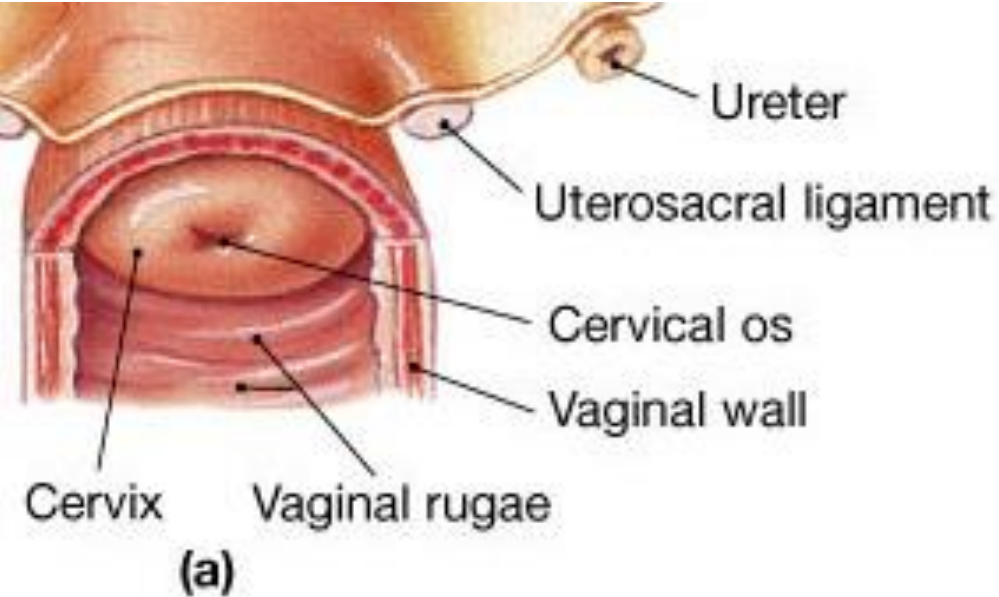
**Cervical canal** communicates with:

Vagina via *external os*

Uterine body via *internal os*

*Cervical glands* secrete mucus that blocks sperm entry except during estrus

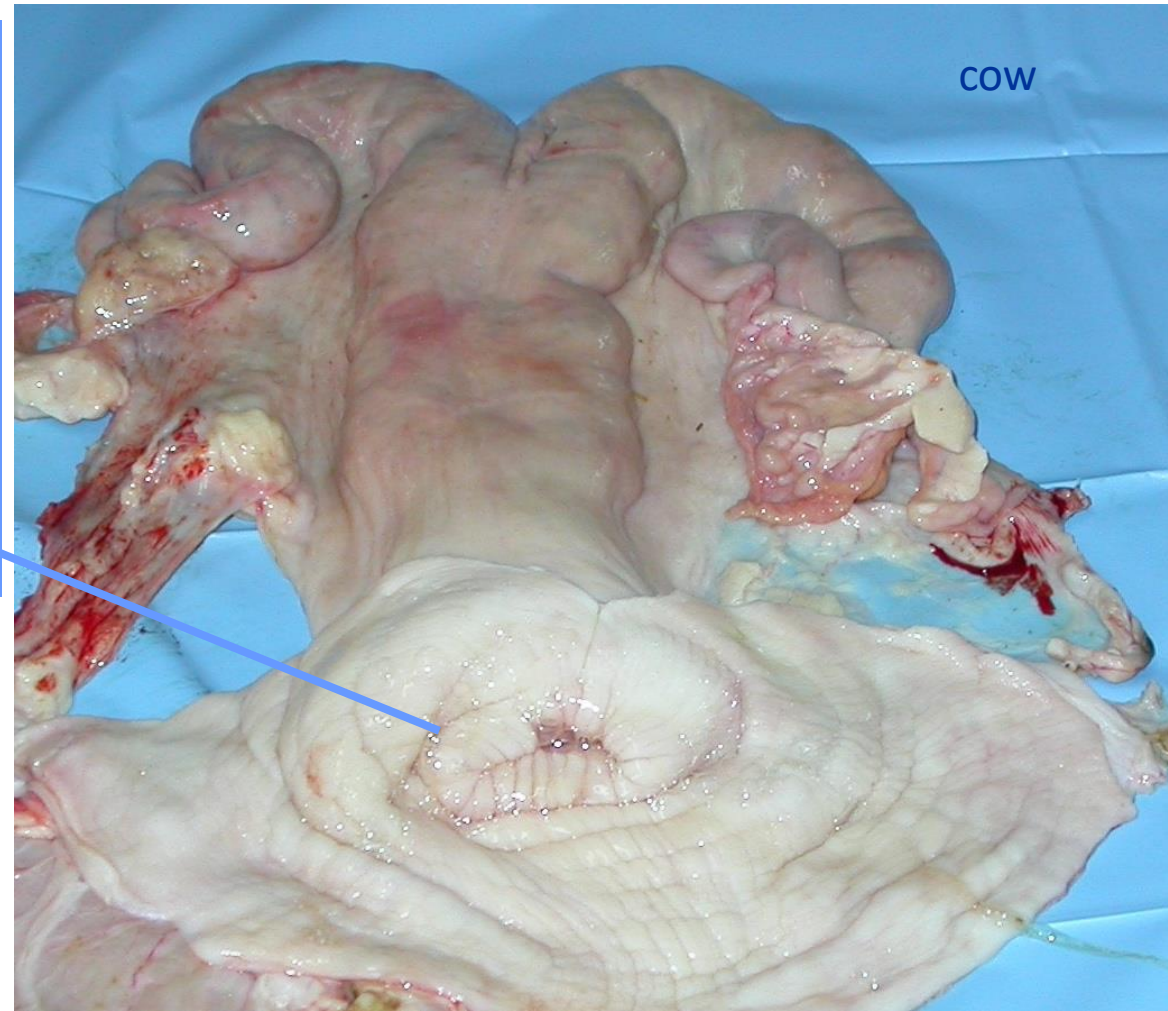
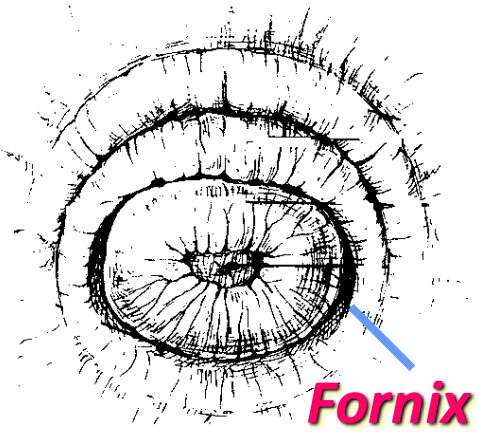
# Cervix



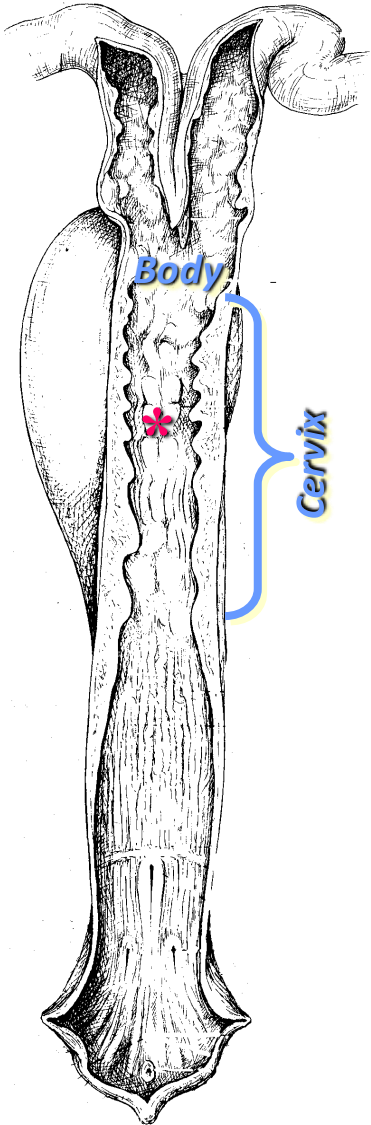
**(a) Posterior view**



## Cervix: cow



## Cervix: sow



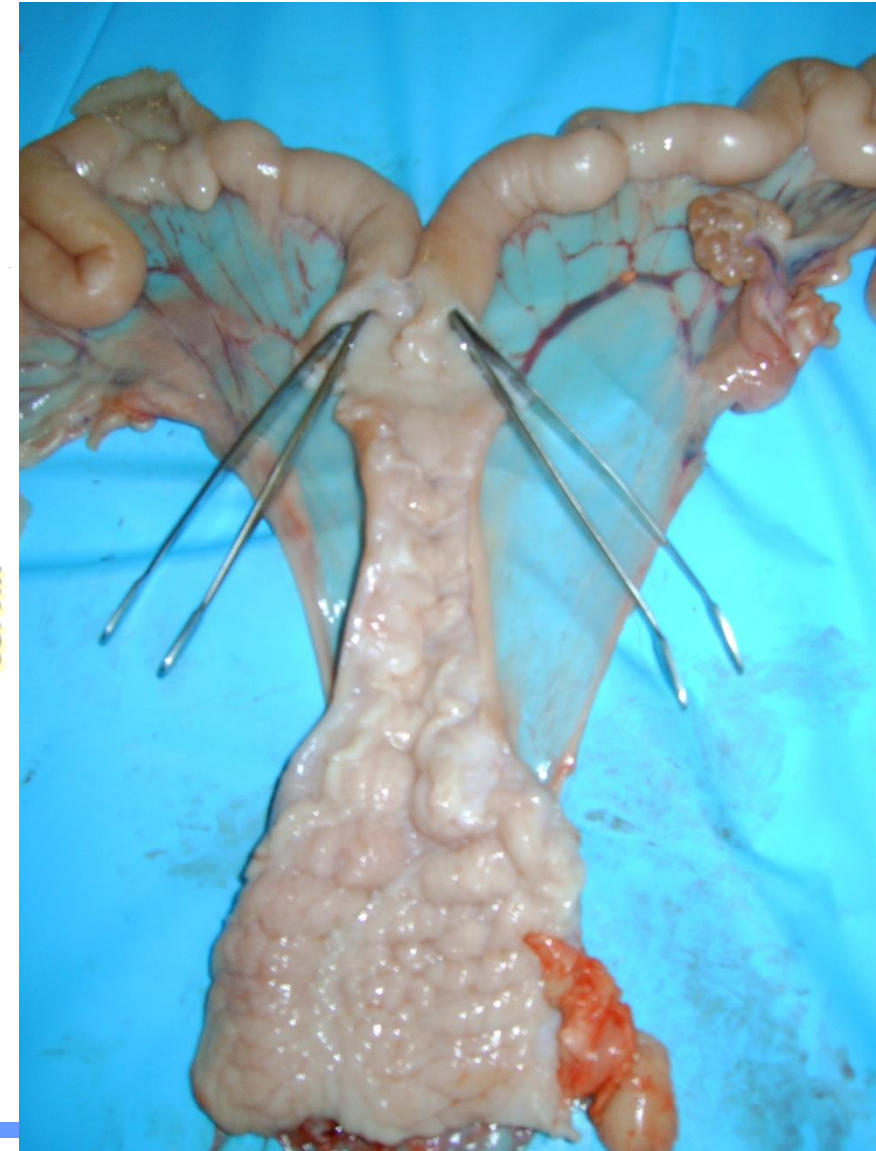
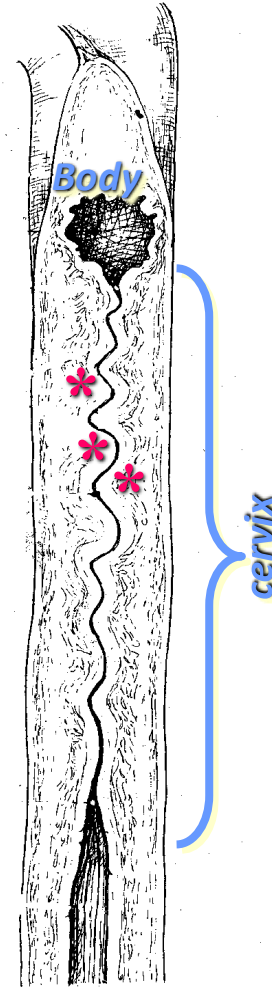
The **body** is very small (few cm).

The **cervix** is very long (10 cm)  
And directly continuous into  
the vagina without forming  
the fornix.

Cervical folds form rings

**cervical rings\***

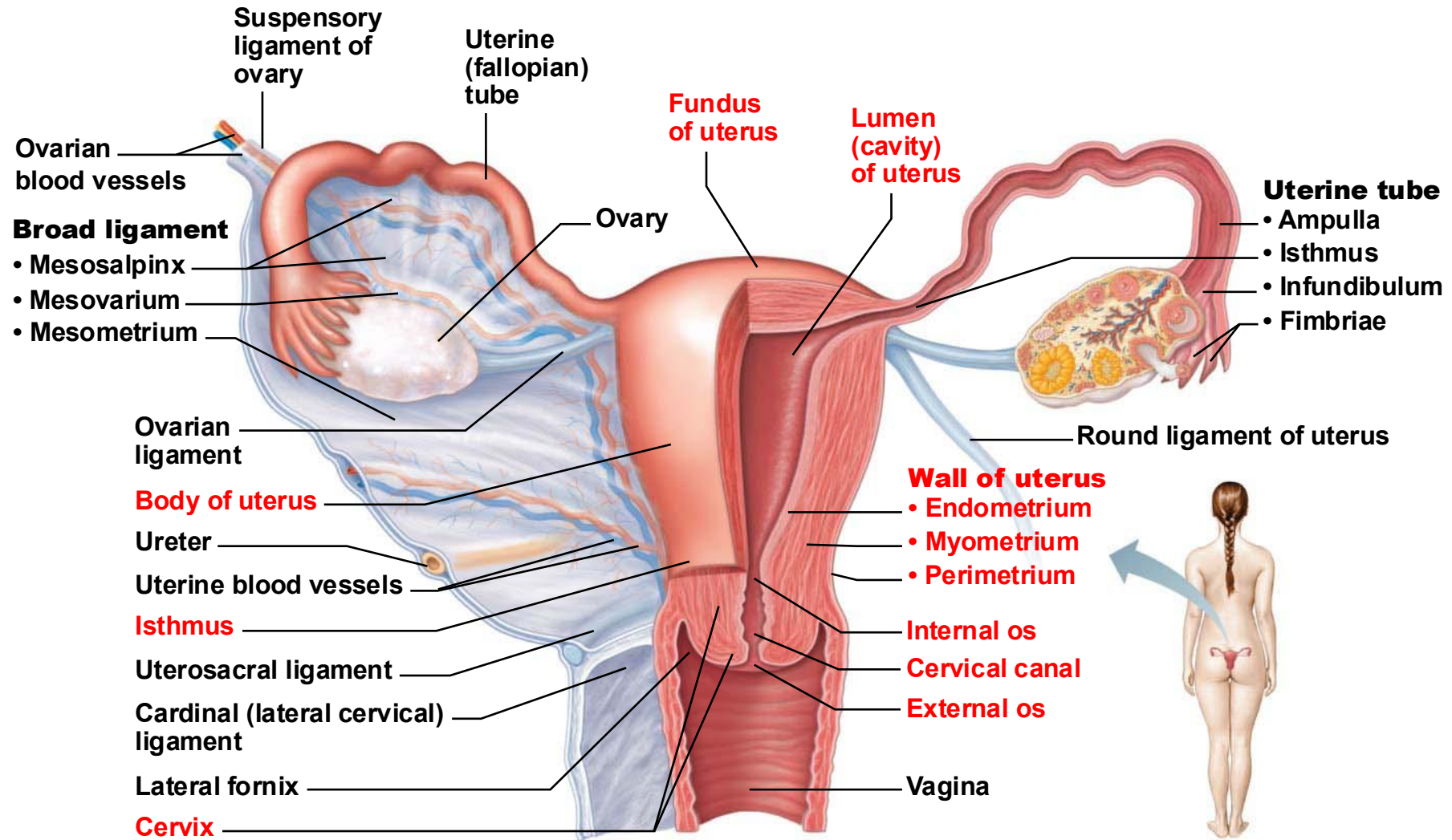
that interdigitate with each other  
to close the cervical canal.



In the fundus and body of the uterus, the wall is divided into the:

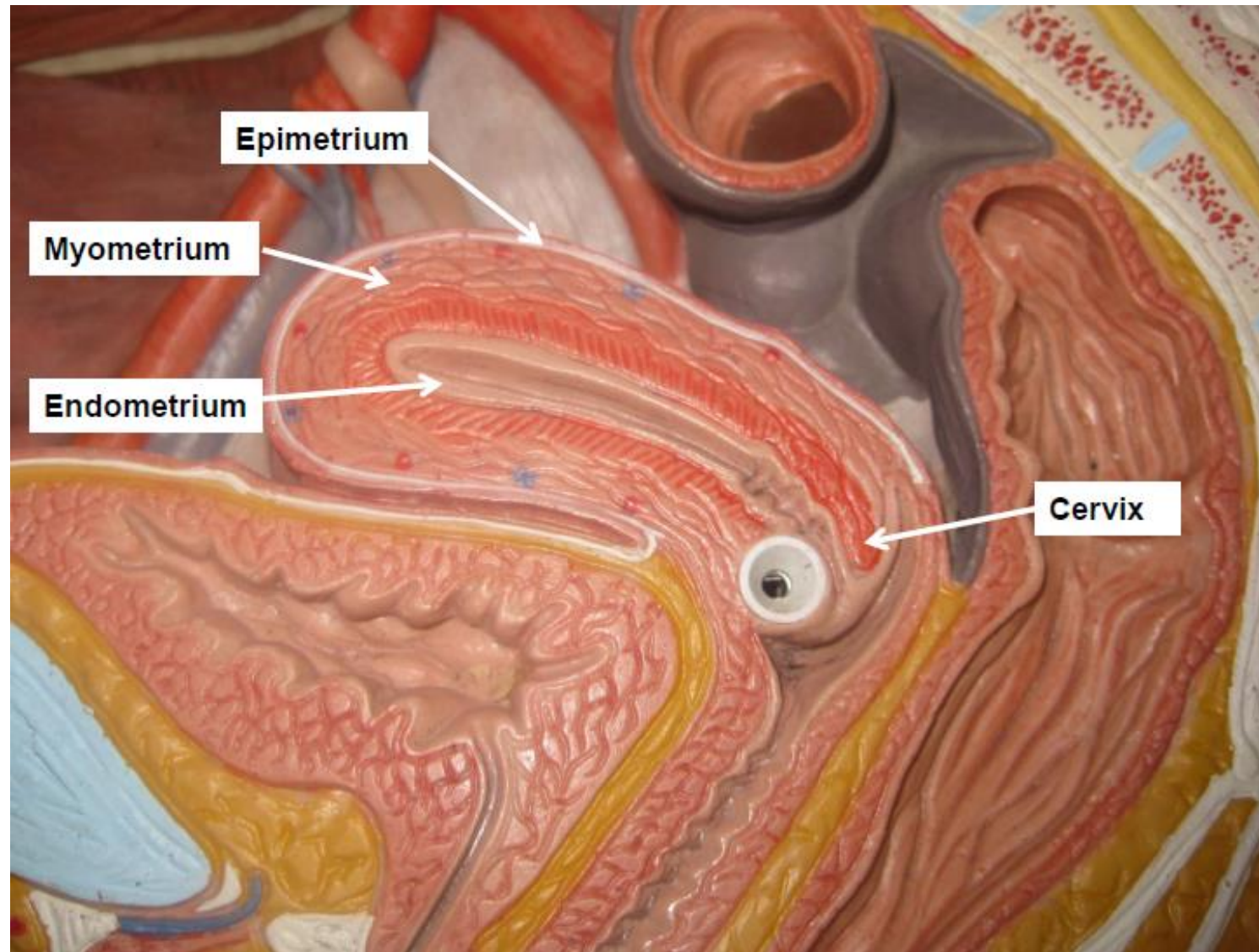
- Three layers of **Uterine wall**
  - **Perimetrium**: tunica serosa
  - **Myometrium**: tunica muscularis
  - **Endometrium**: tunica mucosa and tunica submucosa

# The Uterus

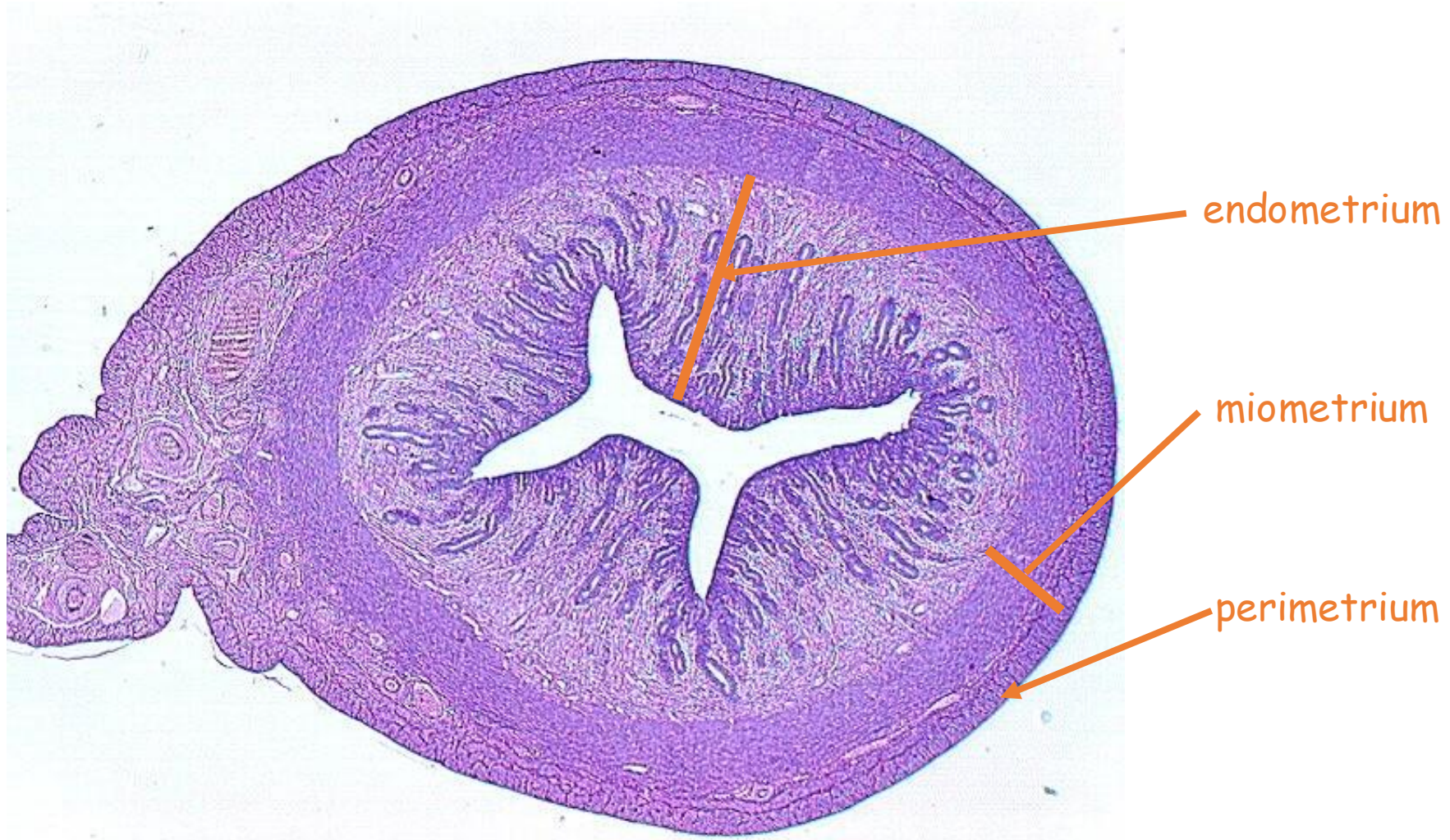


**(a) Posterior view**

# The Uterine wall

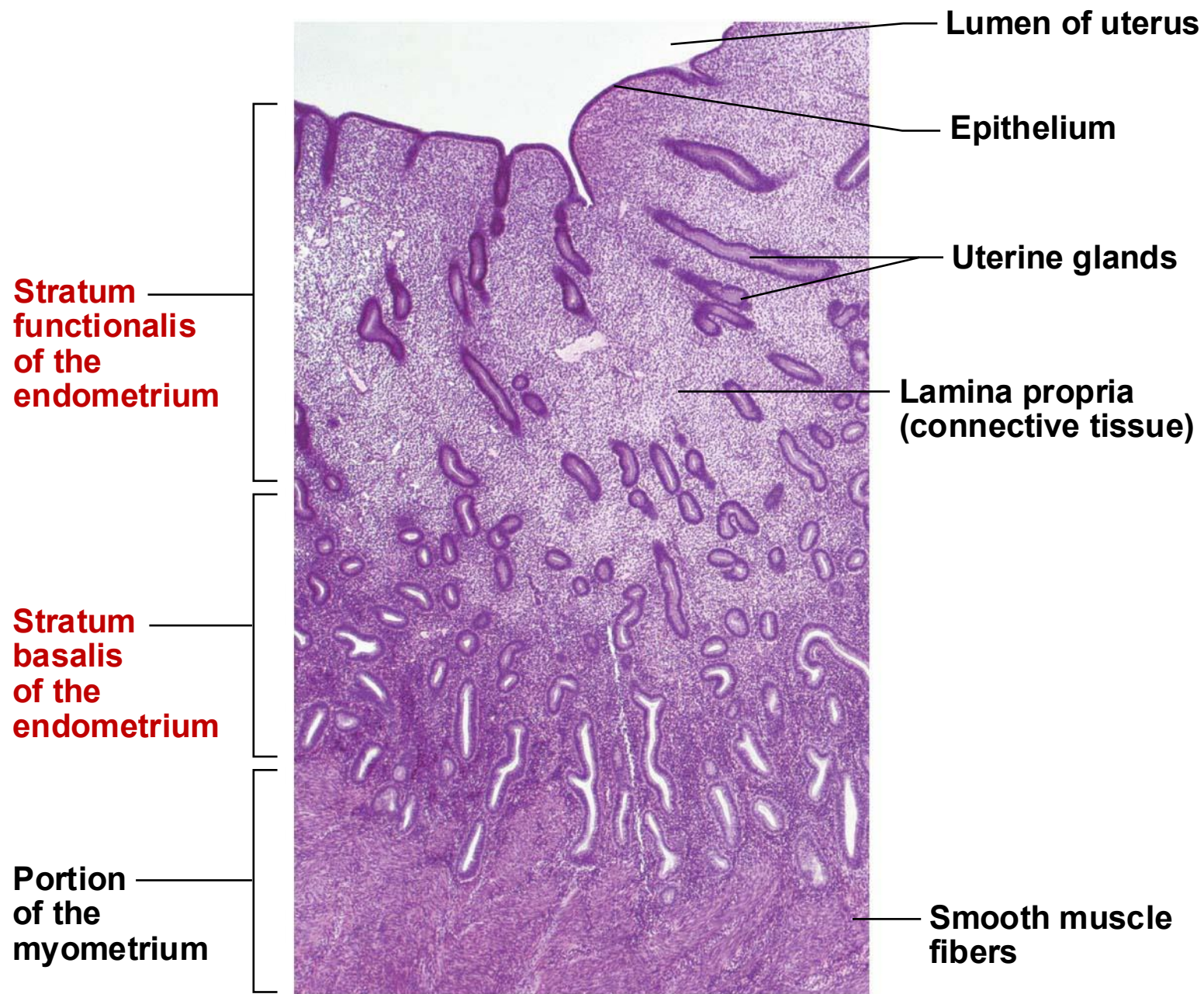


# UTERUS: STRUCTURE



# The Endometrium

- Endometrium has two chief layers (*strata*)
  - **Stratum functionalis (functional layer)**
    - Changes in response to ovarian hormone cycles
    - Shed during menstruation
  - **Stratum basalis (basal layer)**
    - Forms new stratum functionalis after menstruation
    - Unresponsive to ovarian hormones



**(a)**

## Some useful links

<https://www.youtube.com/watch?v=a8fgm-zEYjQ>

<https://www.youtube.com/watch?v=CNRDxjMlEoQ>