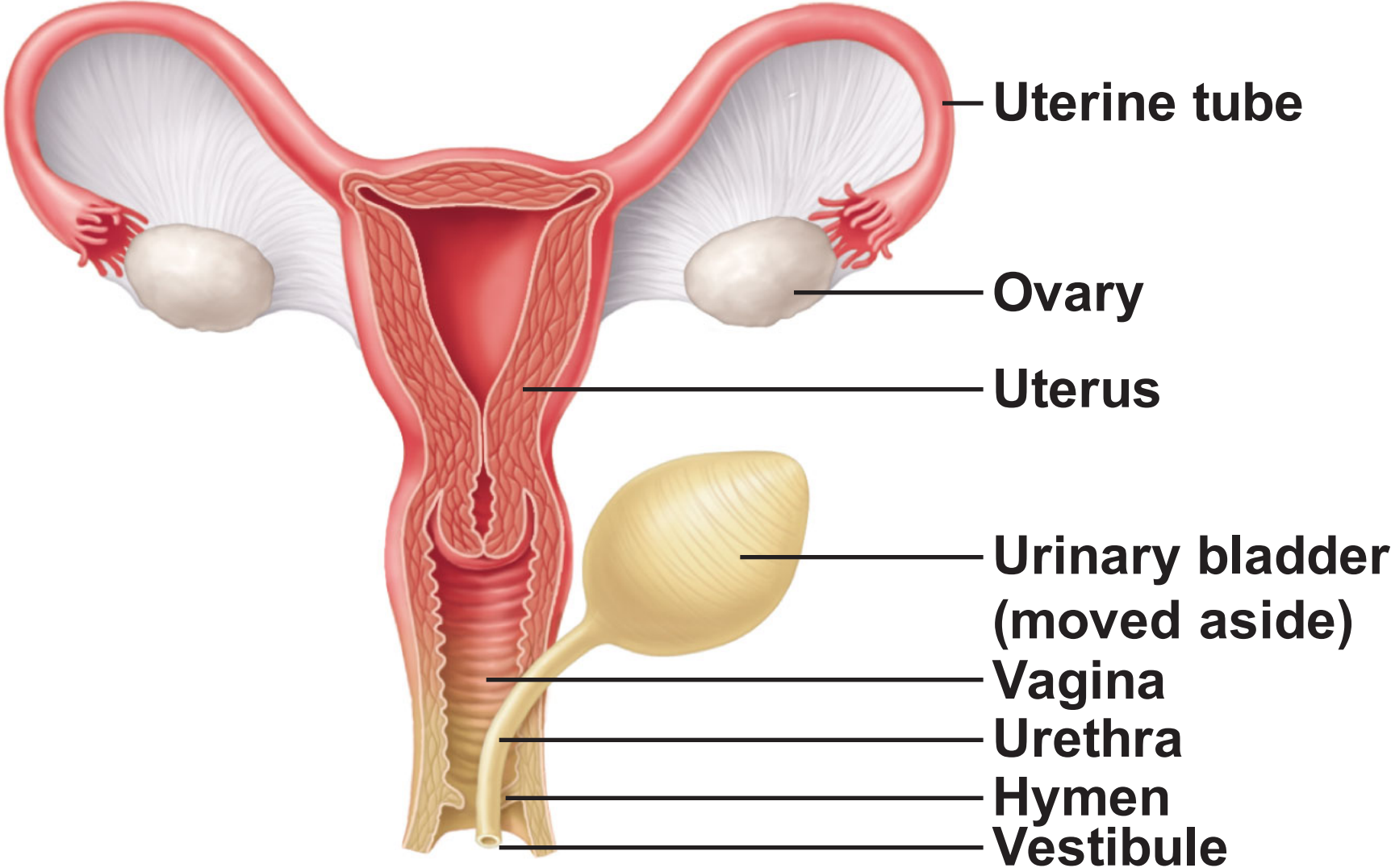


Female Reproductive Anatomy



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

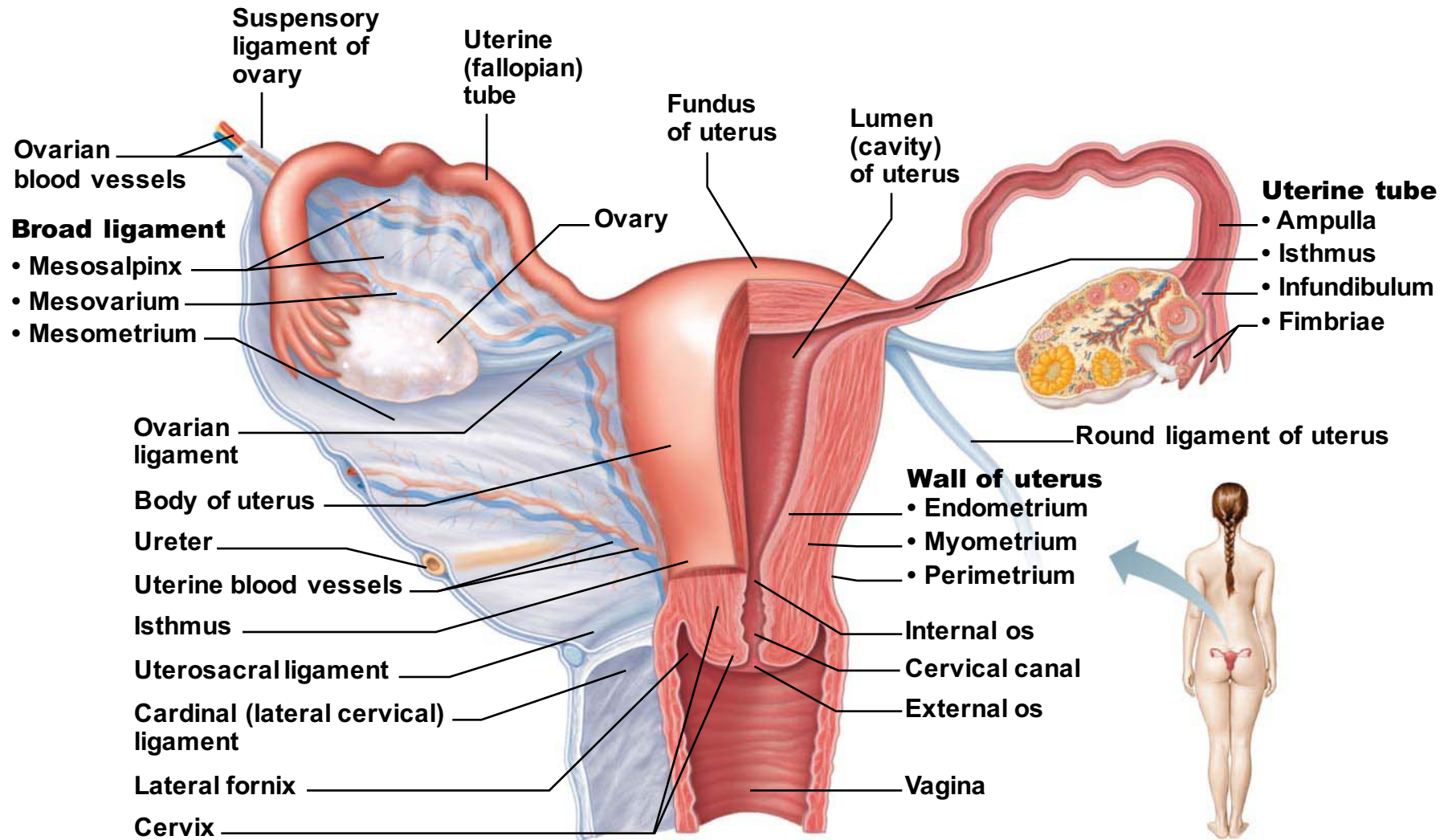
- Production of female gametes
- Gametes transporting
- Fecundation site
- Conceptus site to nourish the fetus until parturition
- Control the reproductive cycle
- Coordinate the ovarian and uterine cycles

The Ovary: female gonad

Functions

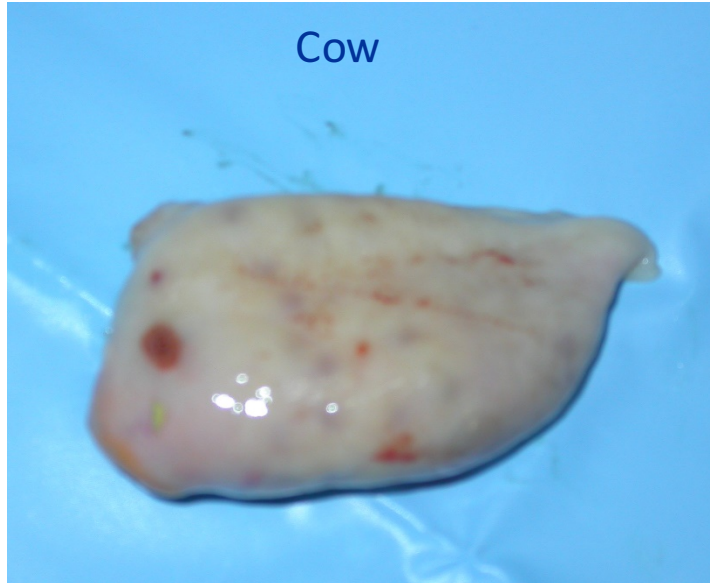
- an exocrine gland, producing oocytes (gametogenesis function)
- an endocrine gland, secreting the female hormones: estrogen and progesterone (endocrine function)

Ovaries

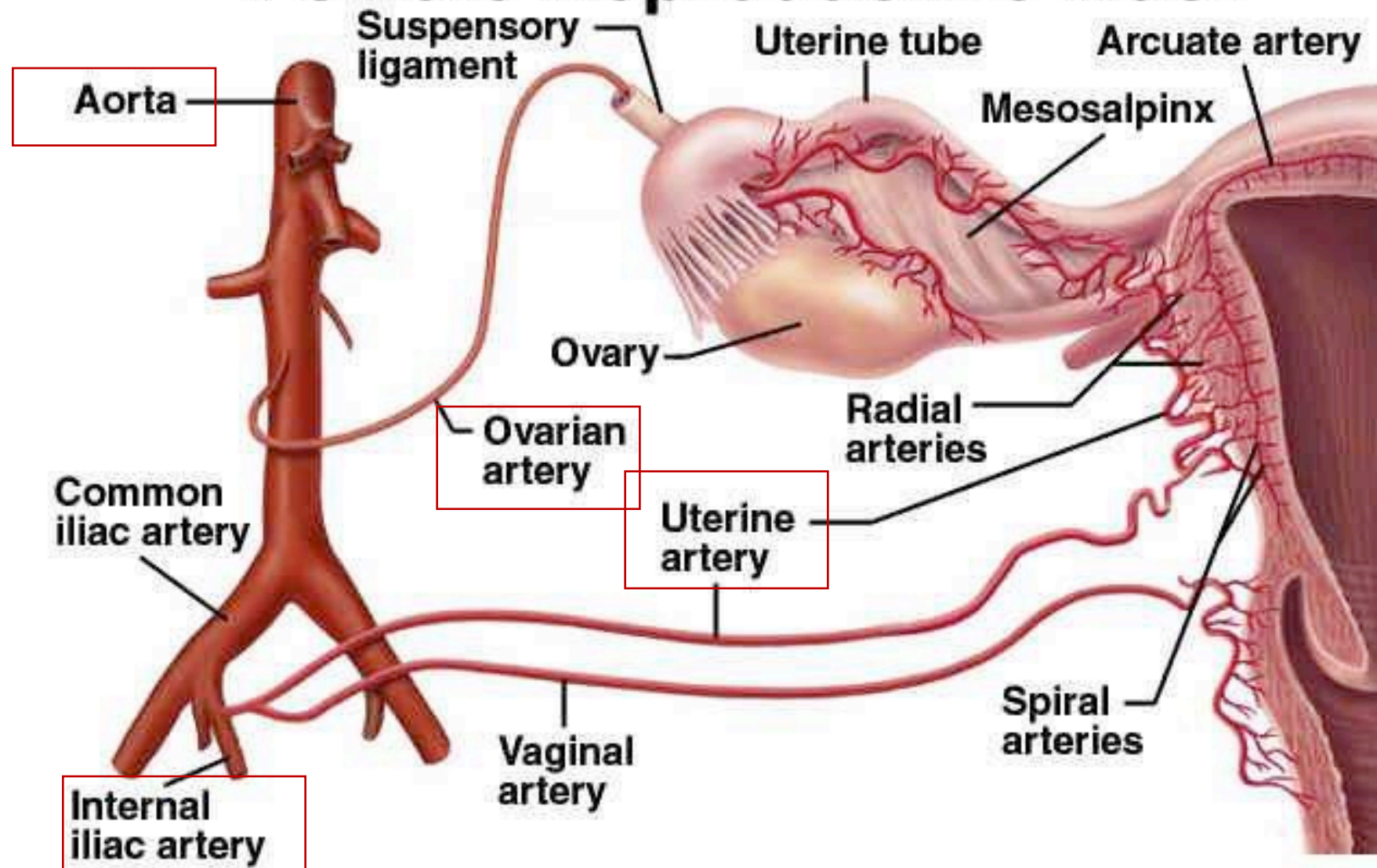


(a) Posterior view

Ovaries



Blood Supply to Female Reproductive Tract

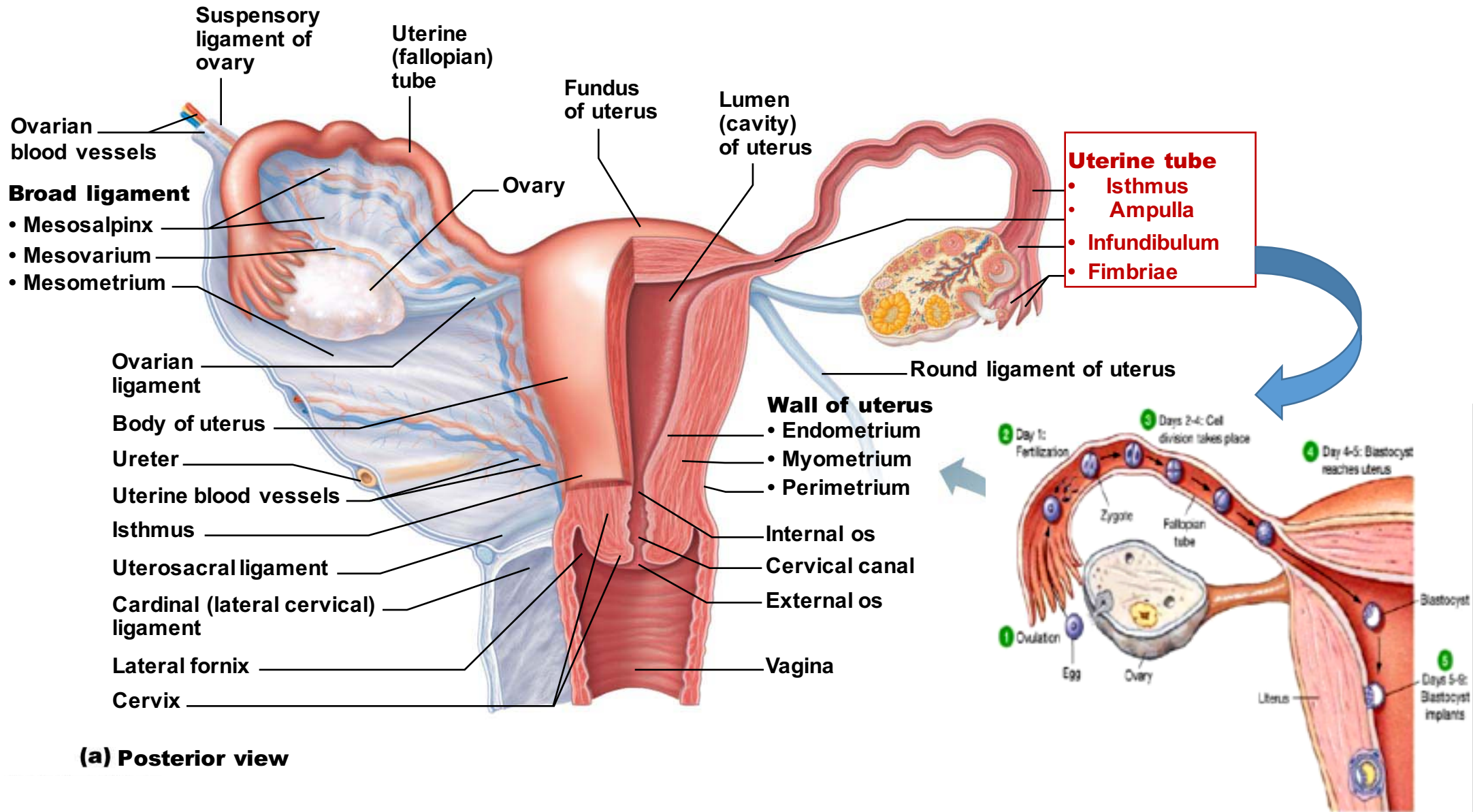


The Uterine tubes= fallopian tubes = oviducts

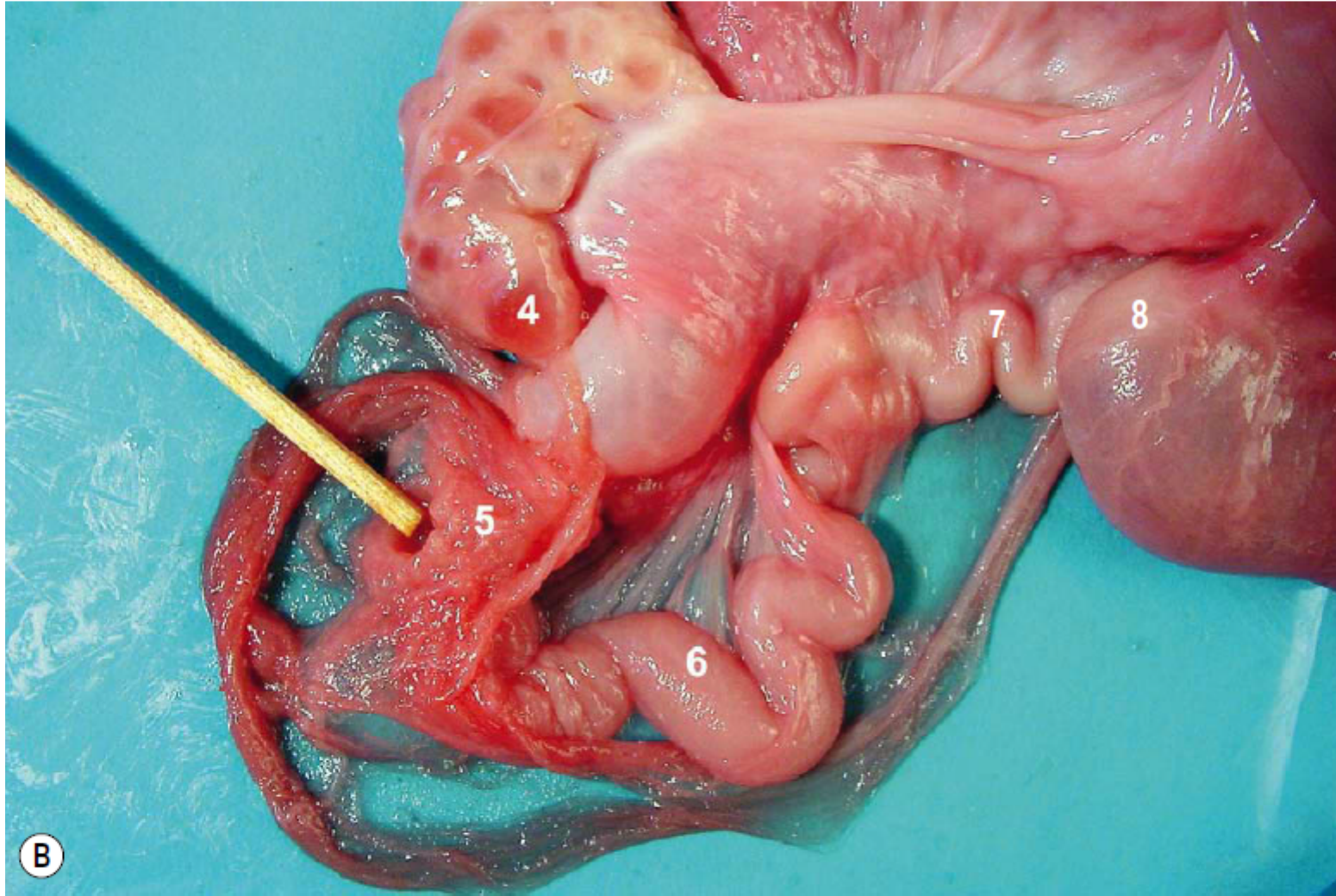
Function

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.



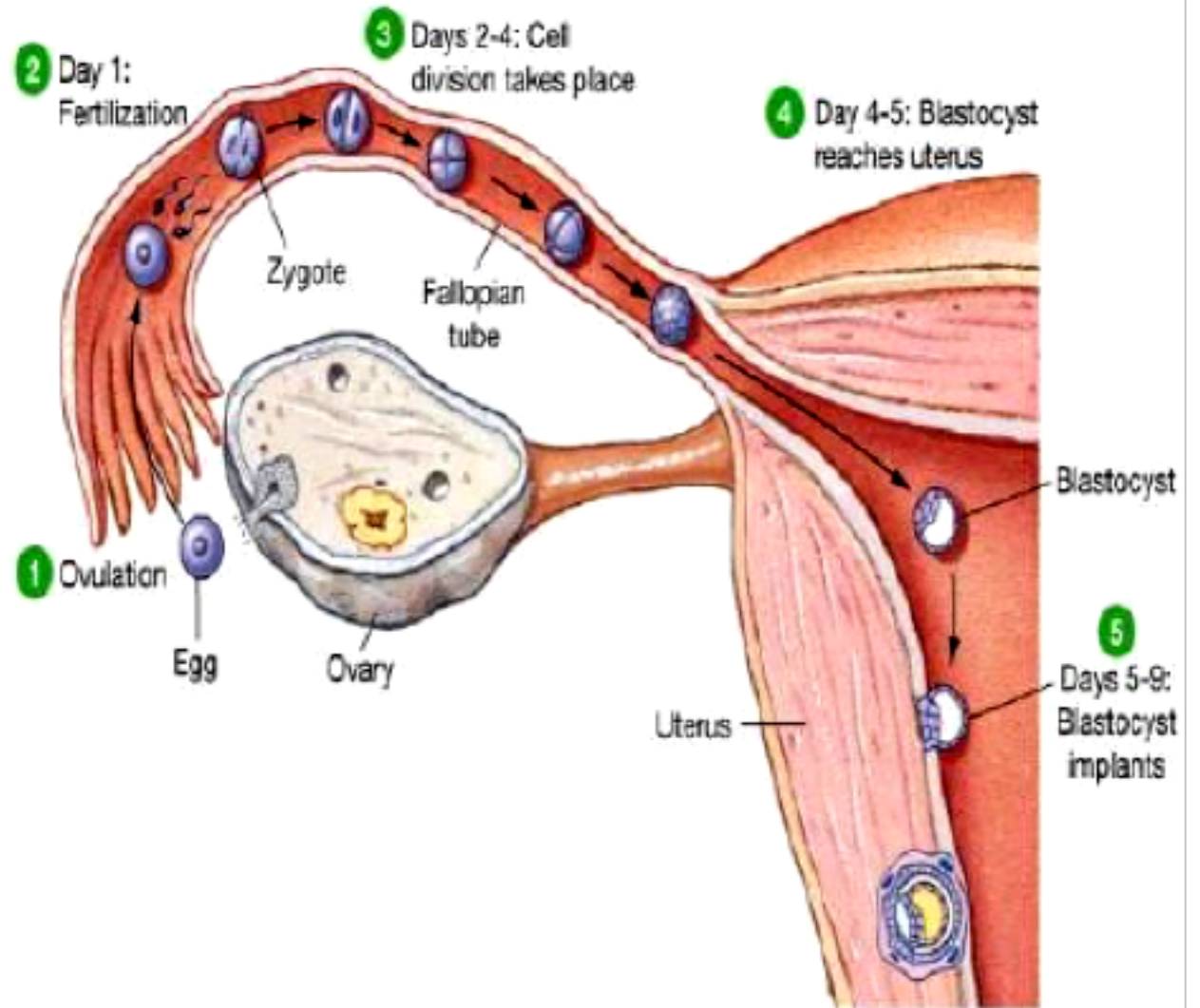
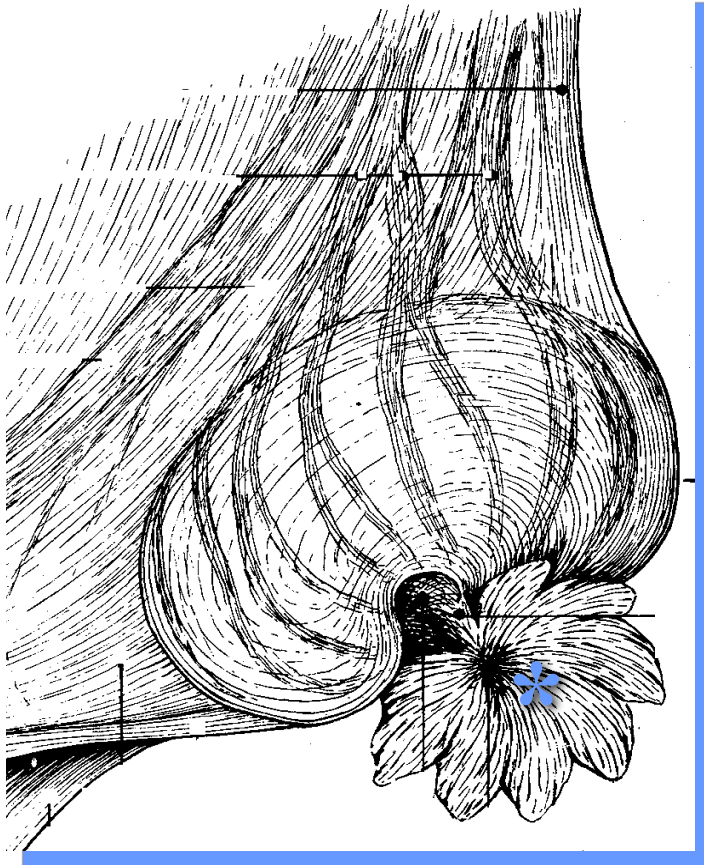
(a) Posterior view



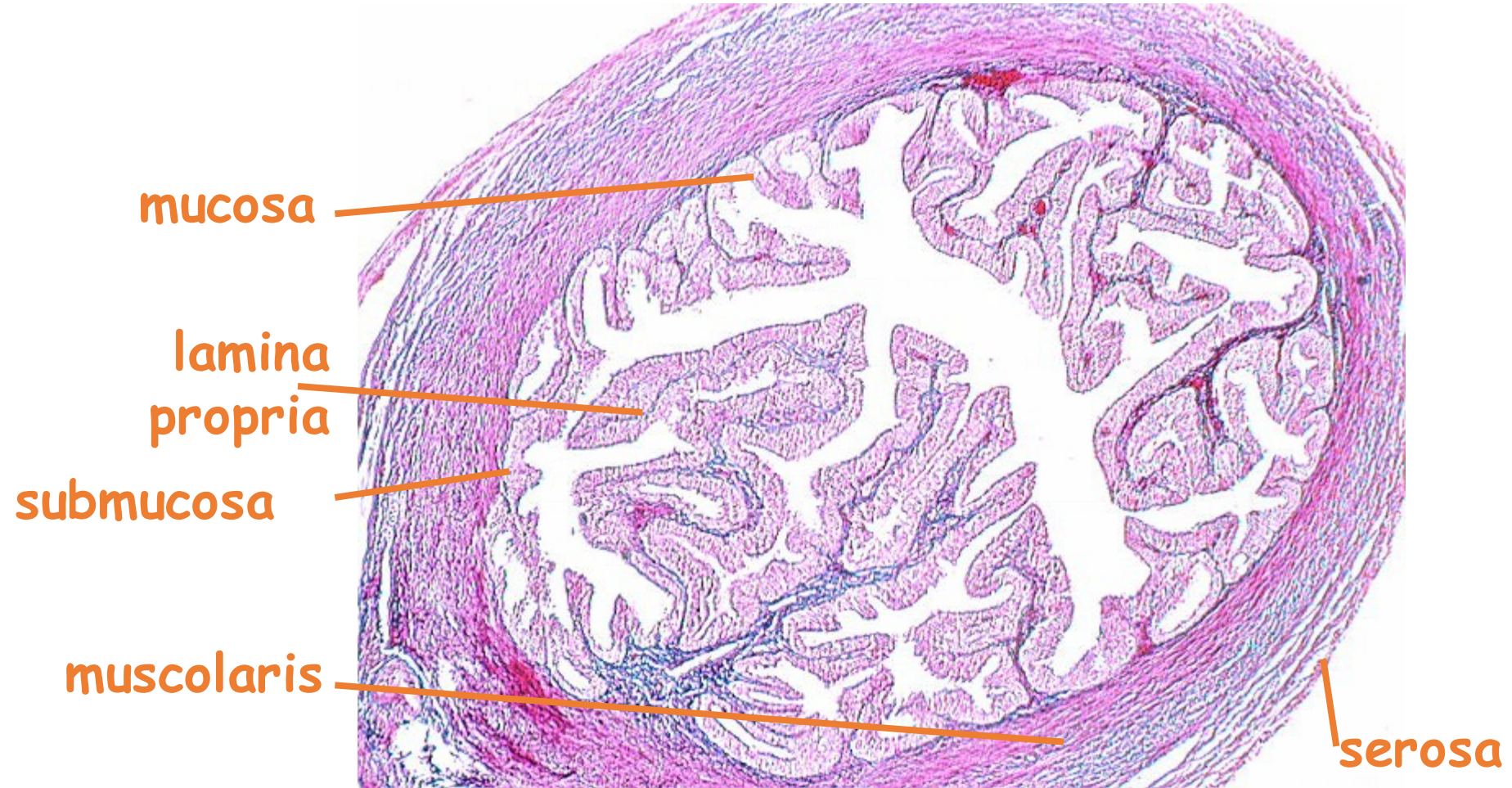
- 5: Infundibulum;
- 6: Ampulla;
- 7: Isthmus;
- 8: Tip of uterine horn.

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

Infundibulum



UTERINE TUBES: MICROSCOPIC STRUCTURE

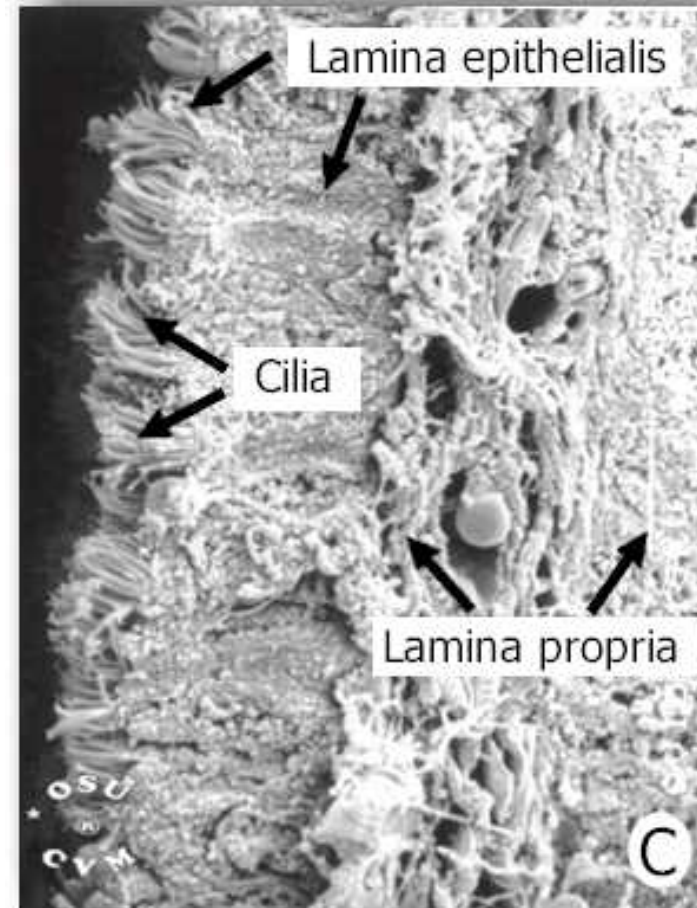


TUNICA MUCOSA

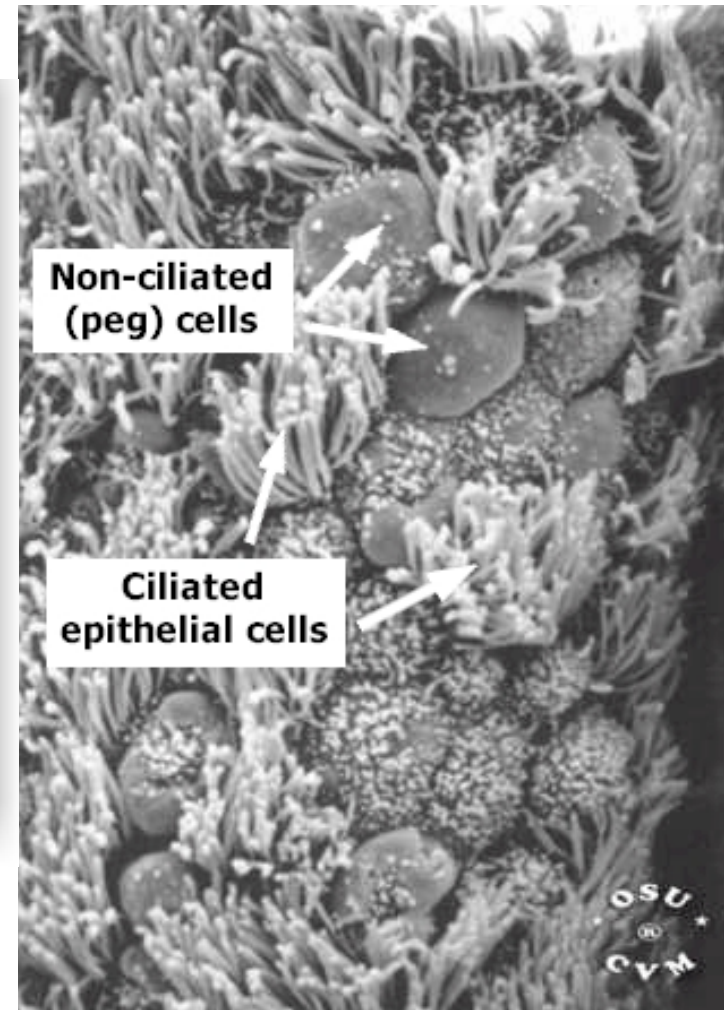
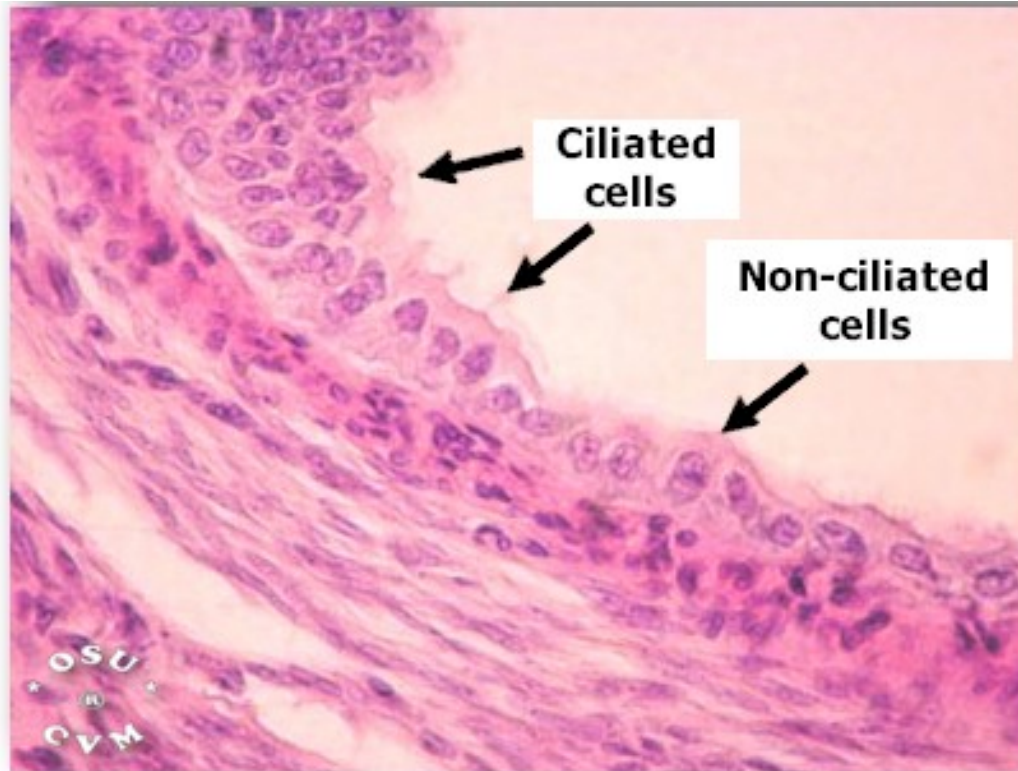
The epithelium of the tunica mucosa is **simple columnar** and contains two types of cells:

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

(2) non-ciliated secretory cells



TUNICA MUCOSA

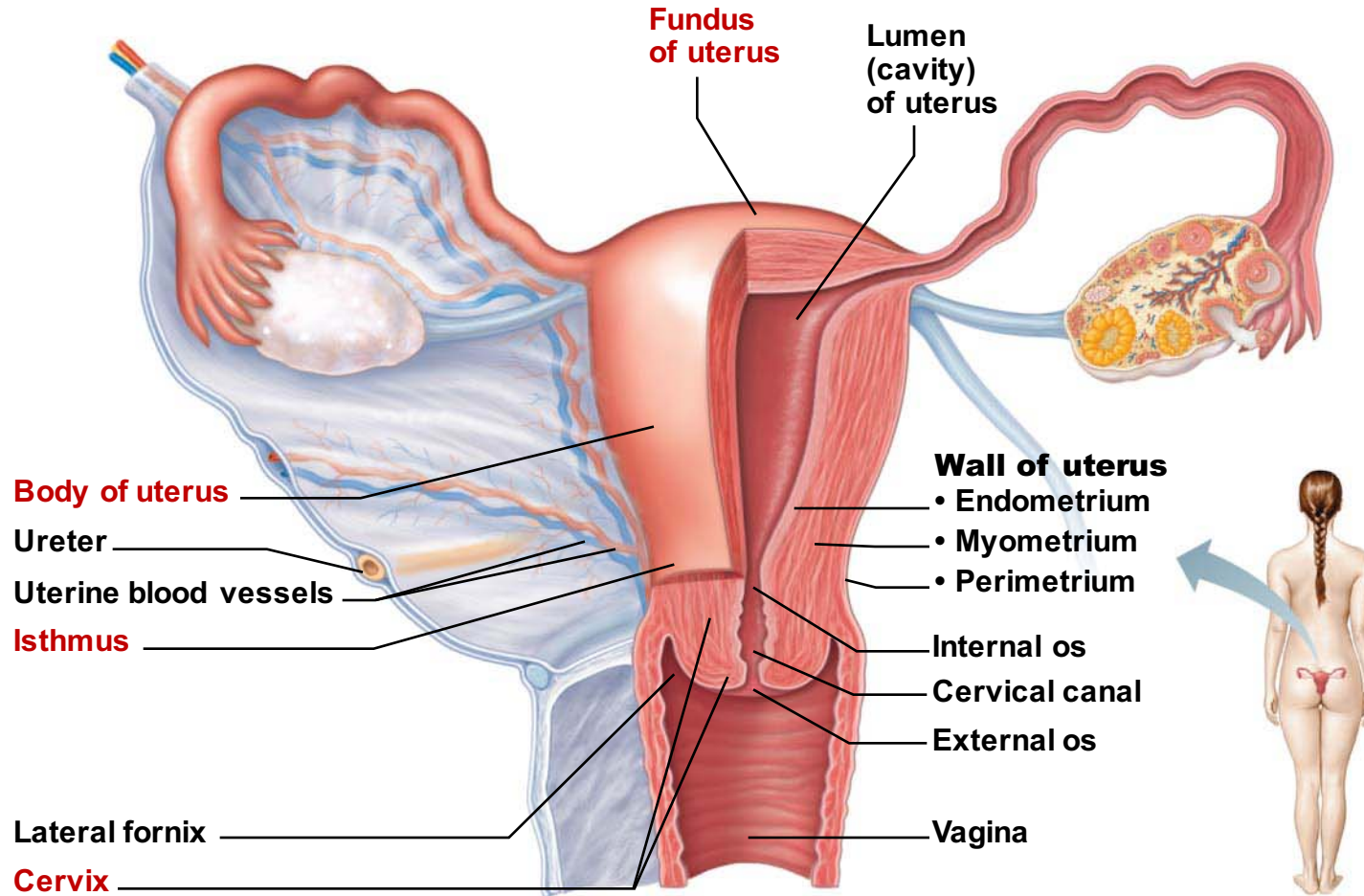


The uterus (womb)

Functions

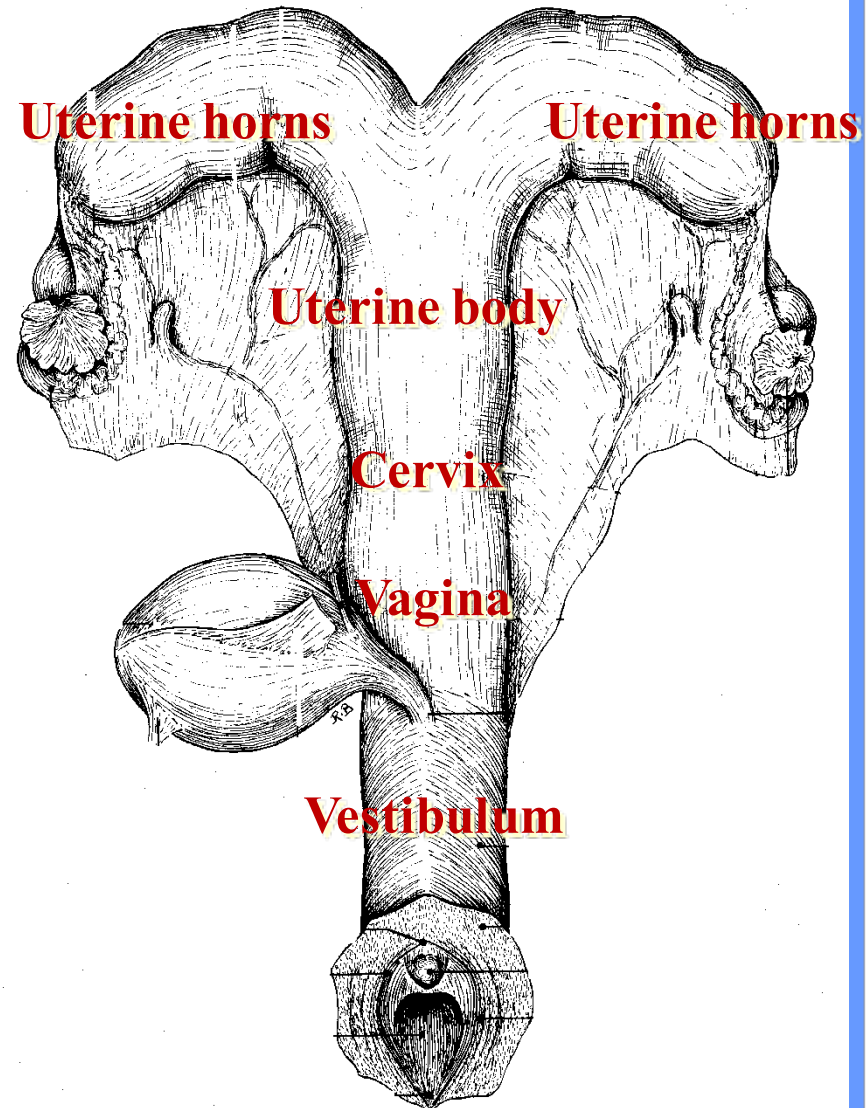
1. serves to receive the sperm
2. transports sperm from site of deposition to uterine tubes for fertilization
3. provides suitable environment for:
 - a. implantation of the embryo
 - b. nourishment of the embryo & fetus during pregnancy
4. provides mechanical protection of the fetus
5. expels the mature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

The uterus: woman



(a) Posterior view

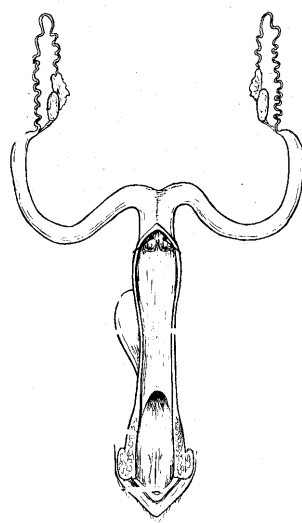
The uterus: domestic animals



Uterus configuration

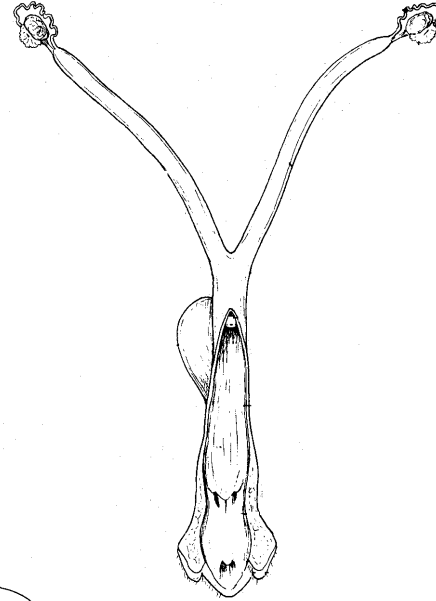
duplex:

rat, rabbit, guinea pig



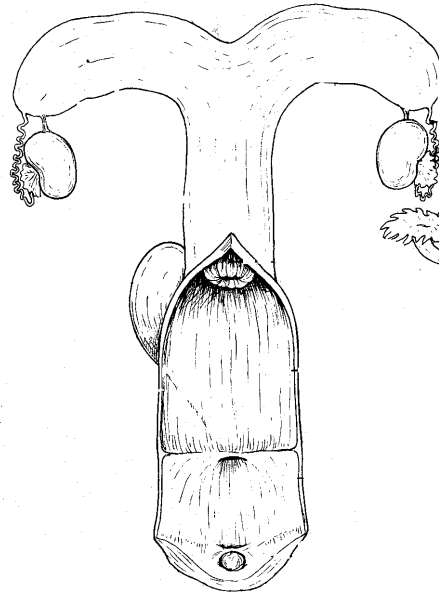
bicornuate:

bitch, sow, cow, ewe



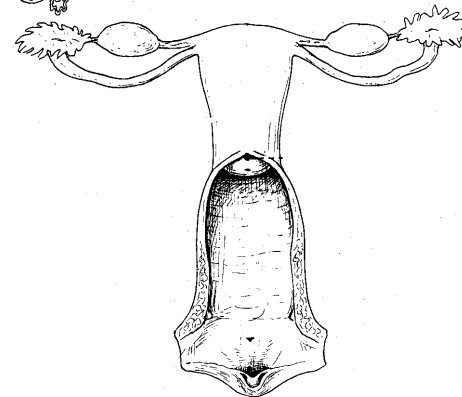
bipartite:

mare

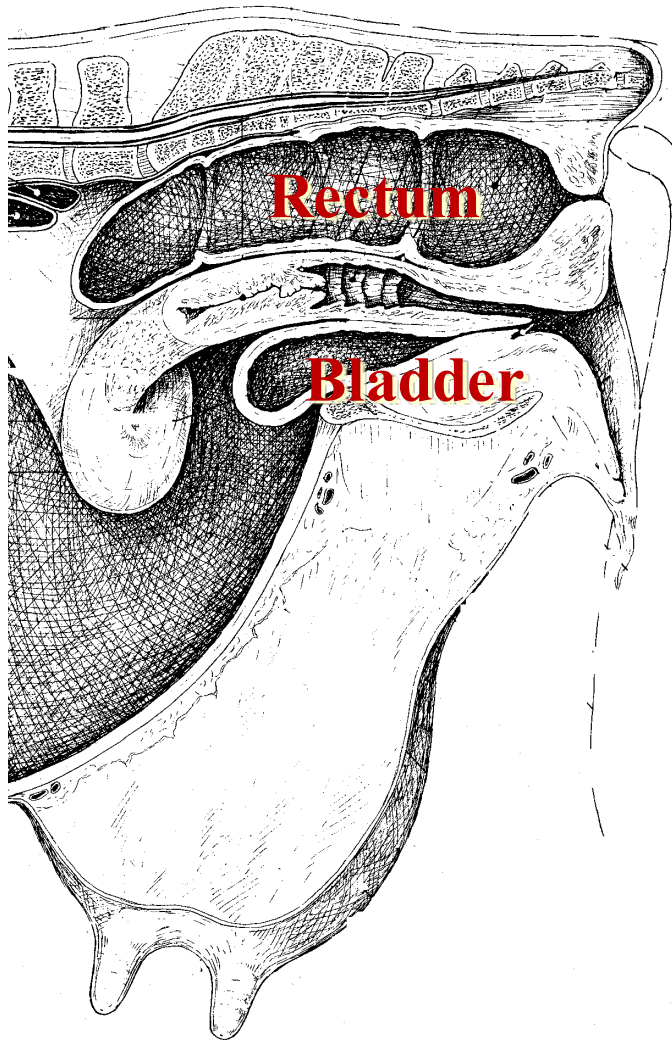


simplex:

primate, human



The uterus: topography



Peritoneum

Perimetrium

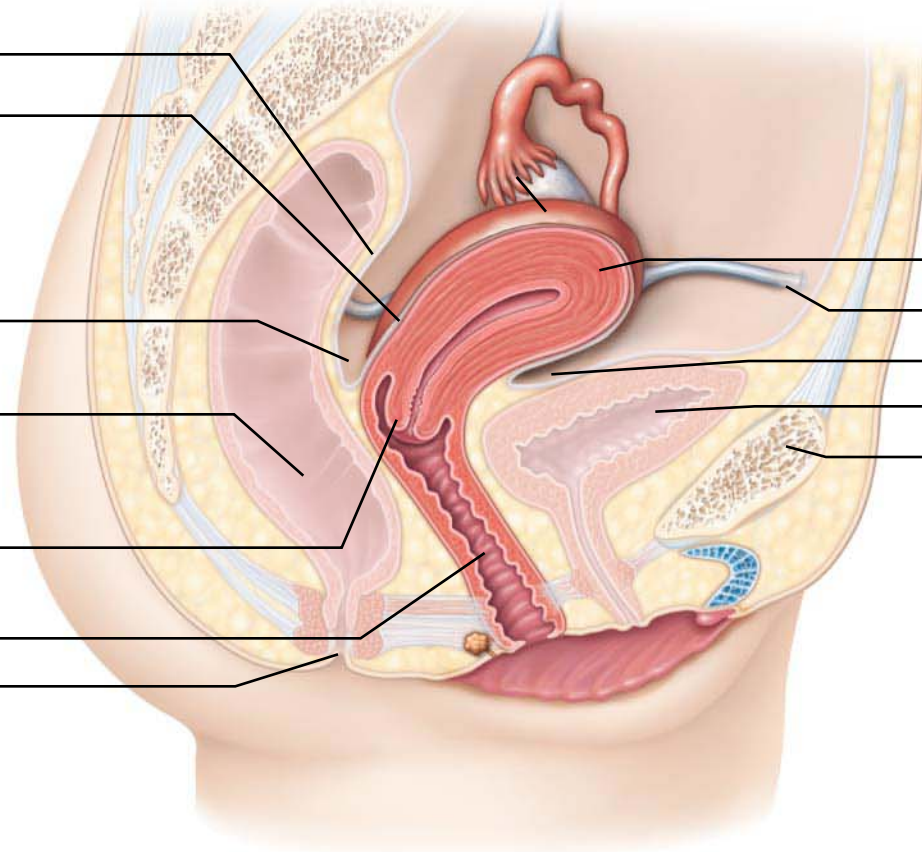
Rectouterine
pouch

Rectum

Cervix

Vagina

Anus



Uterus

Round ligament

Vesicouterine pouch

Urinary bladder

Pubic symphysis

Cervix

Cervix: narrow neck, or outlet; projects into vagina

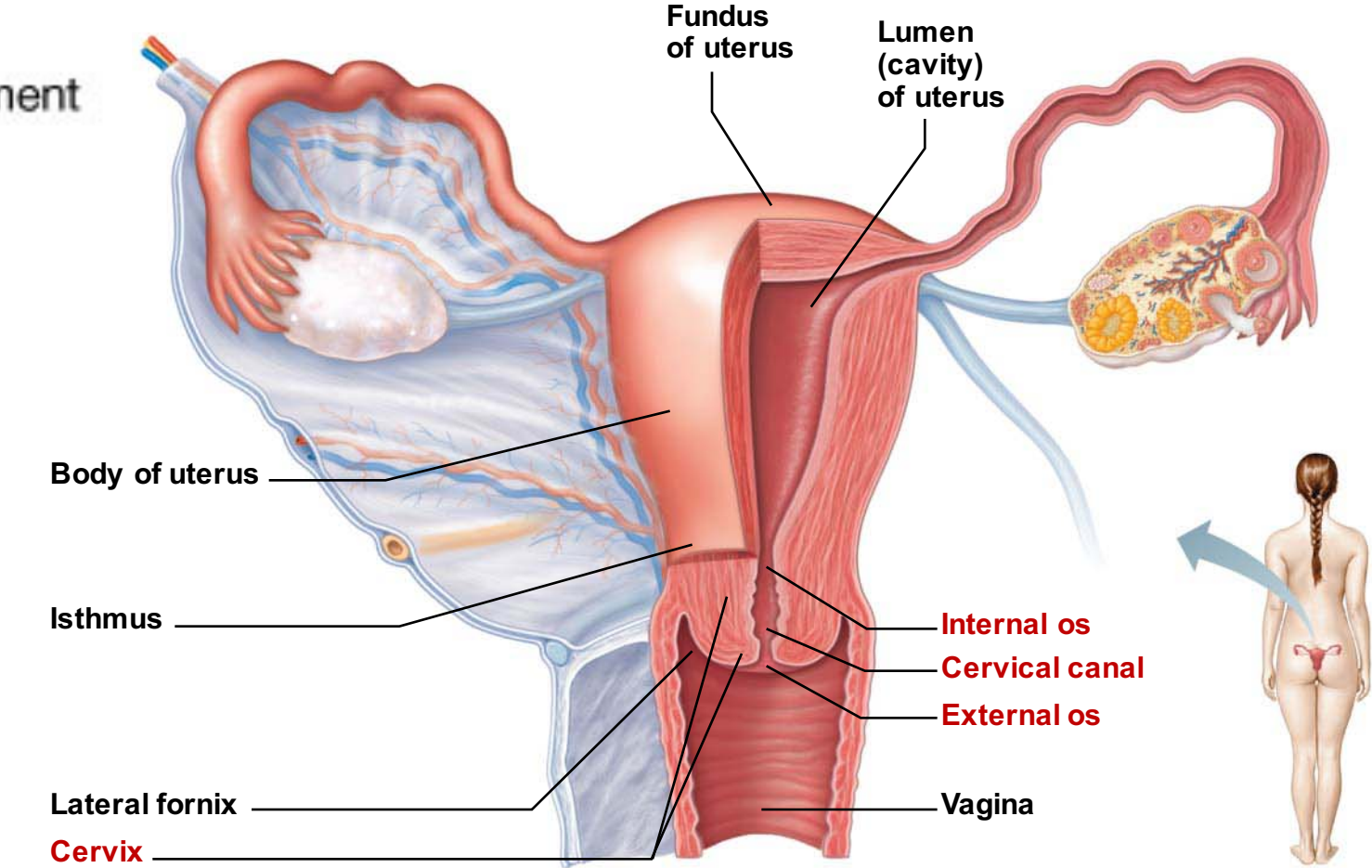
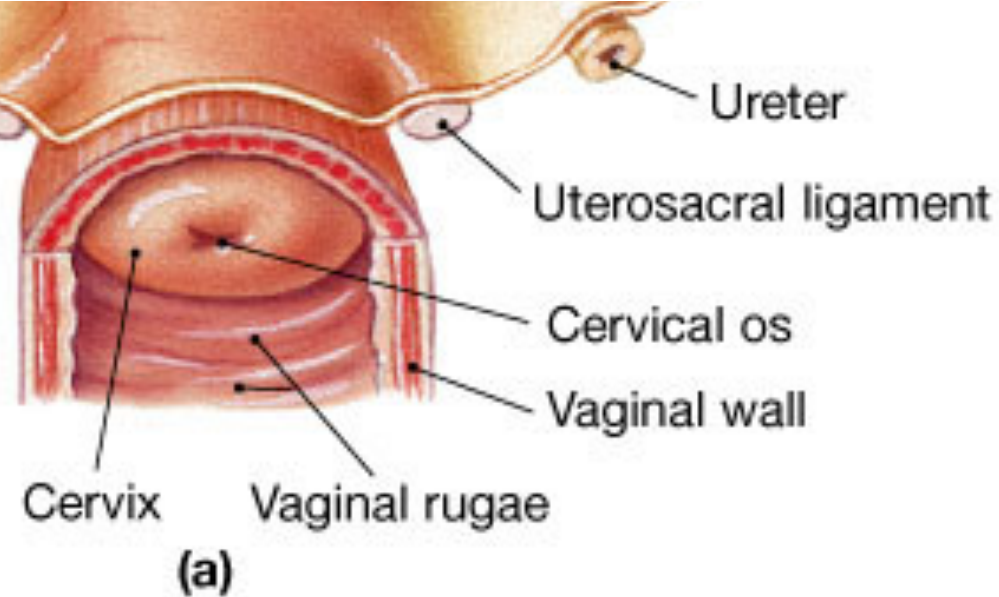
Cervical canal communicates with:

Vagina via *external os*

Uterine body via *internal os*

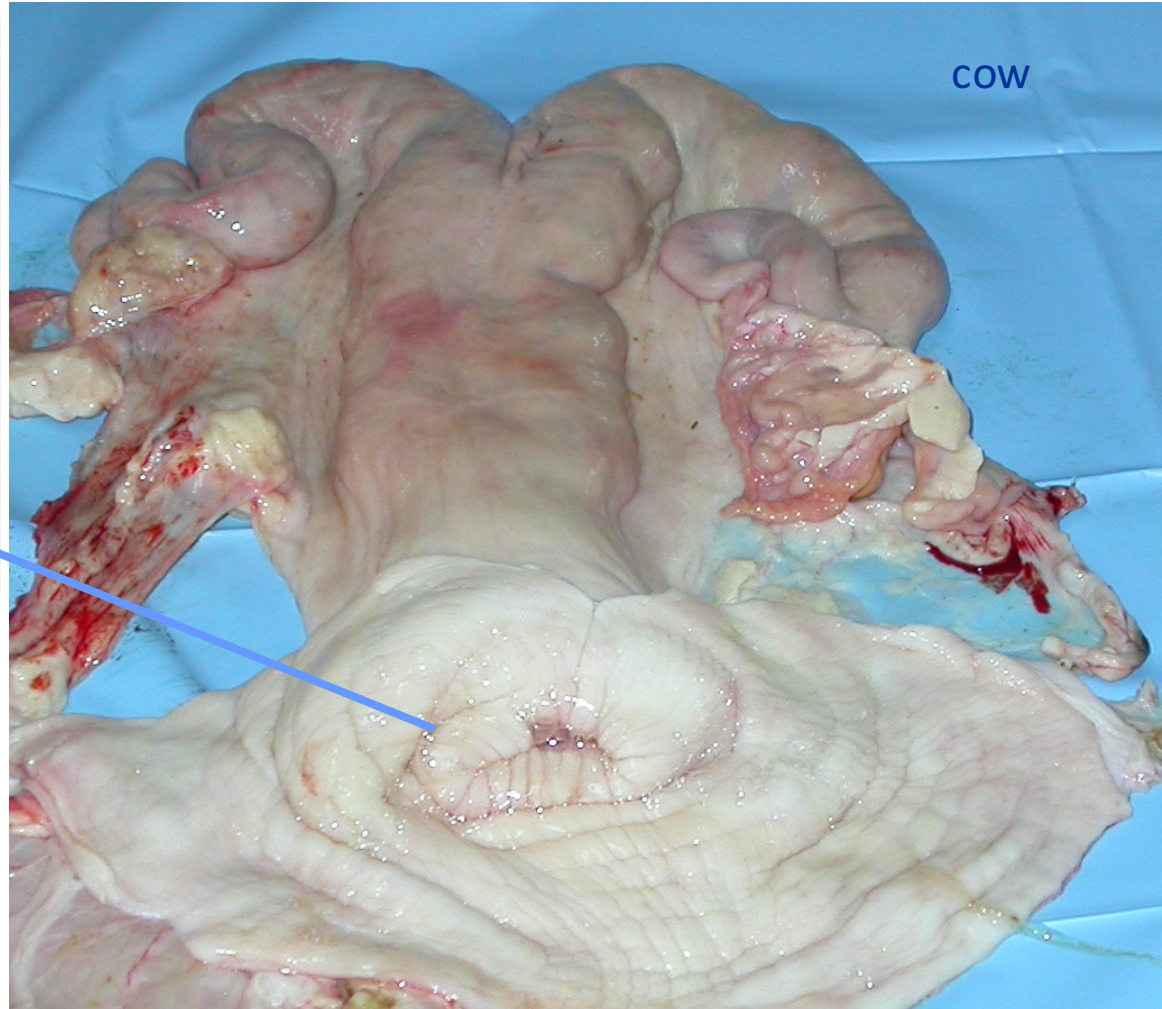
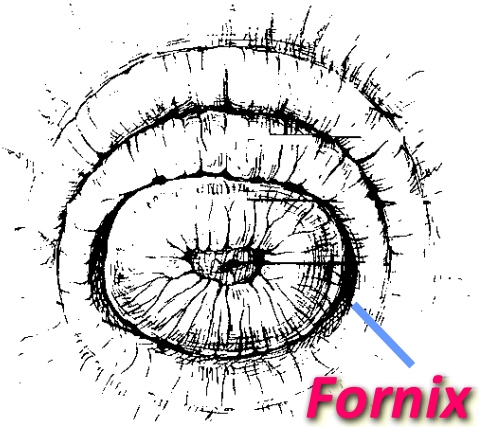
Cervical glands secrete mucus that blocks sperm entry except during estrus

Cervix

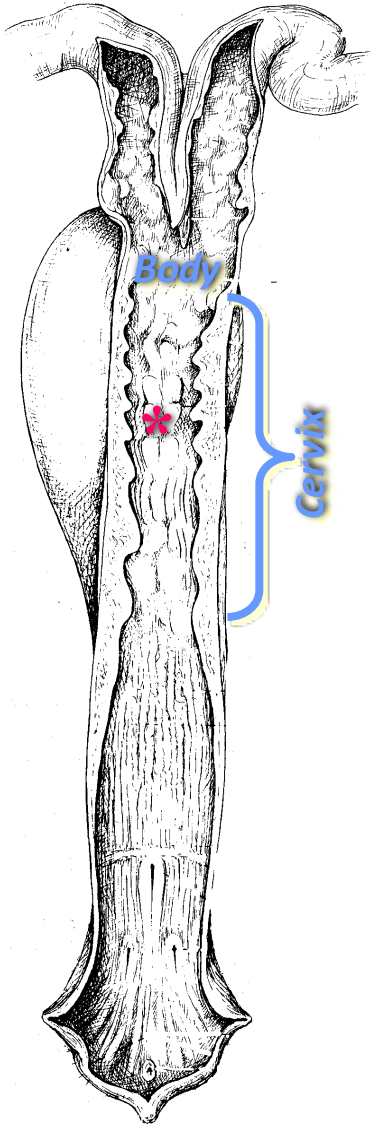


(a) Posterior view

Cervix: cow



Cervix: sow



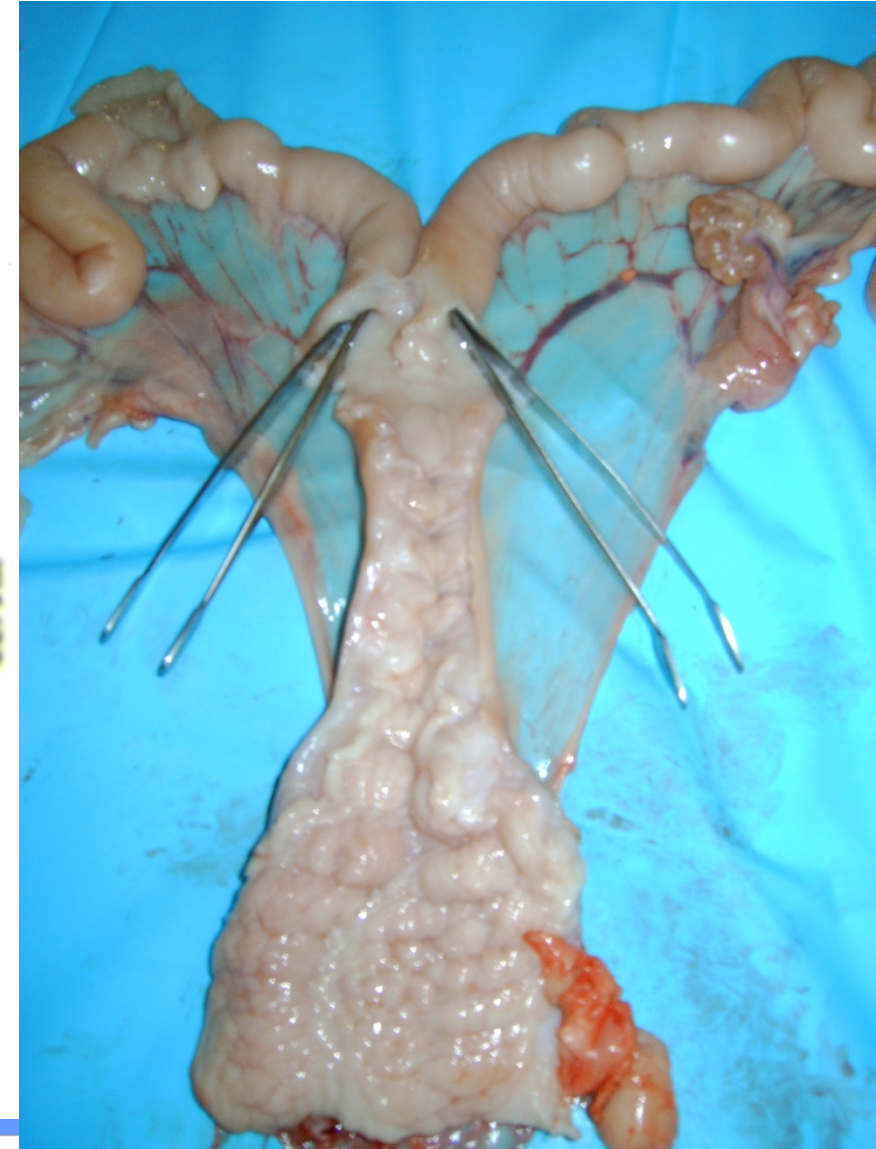
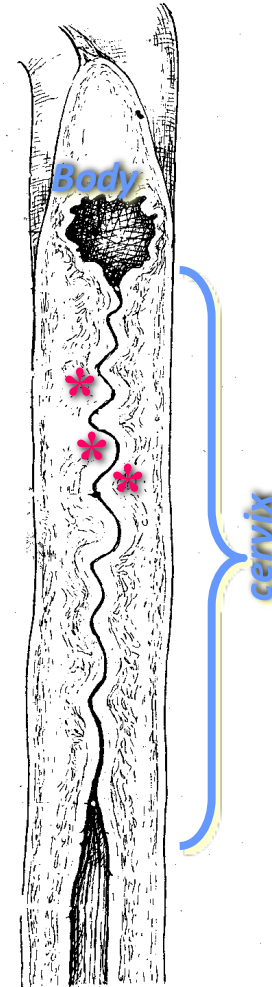
The **body** is very small (few cm).

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

Cervical folds form rings

cervical rings*

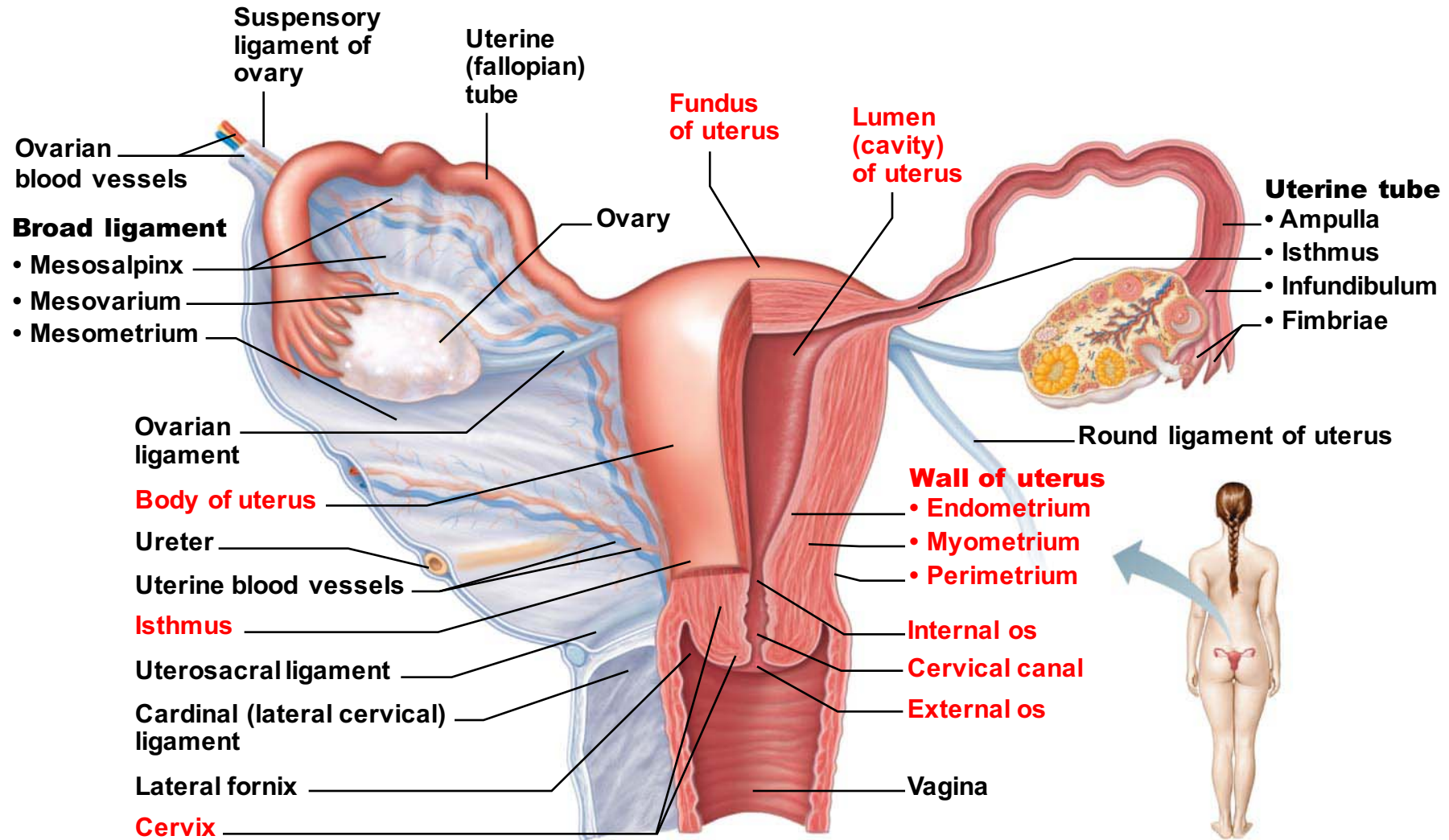
that interdigitate with each other
to close the cervical canal.



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

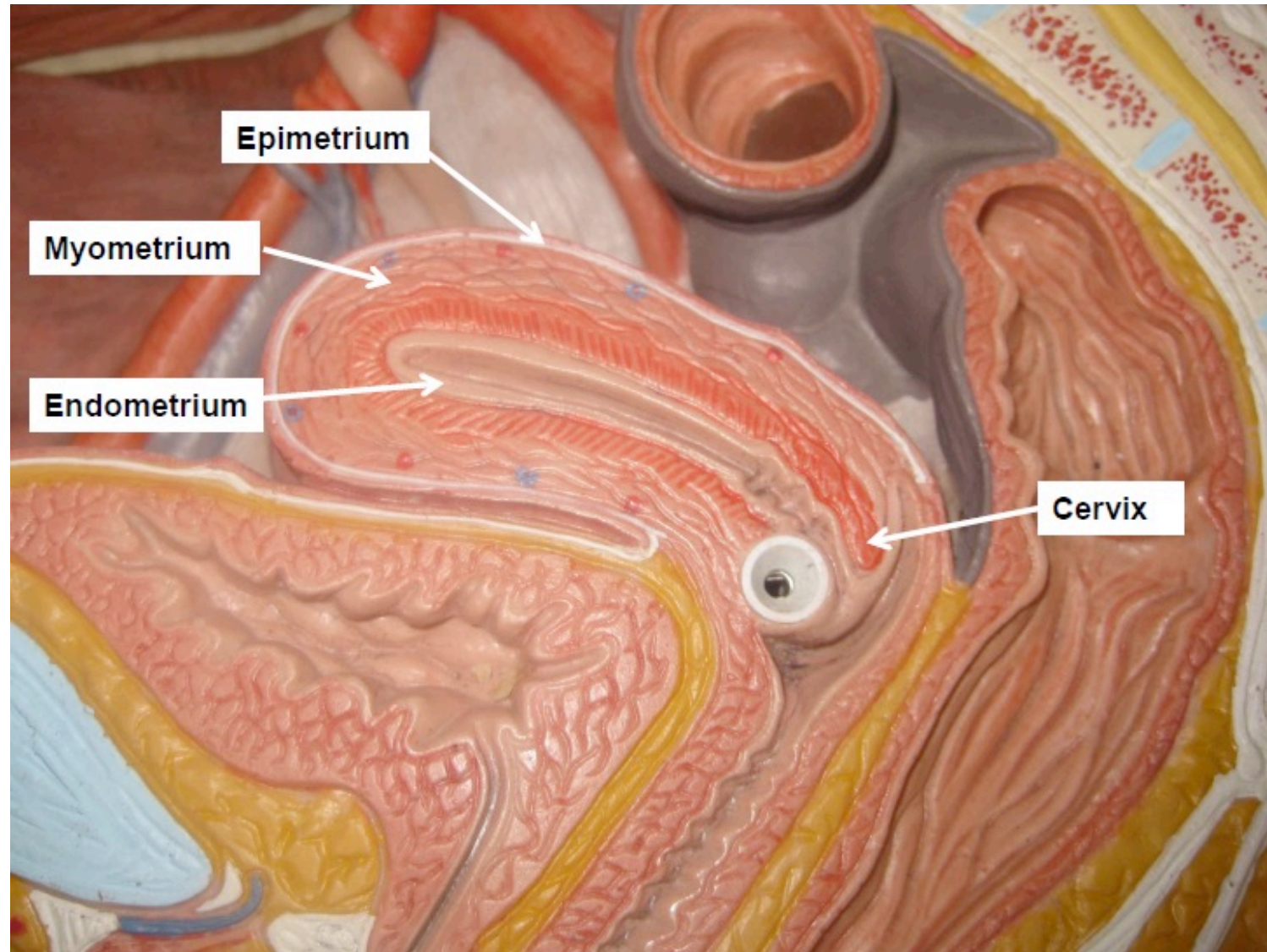
- Three layers of **Uterine wall**
 - **Perimetrium**: tunica serosa
 - **Myometrium**: tunica muscularis
 - **Endometrium**: tunica mucosa and tunica submucosa

The Uterus

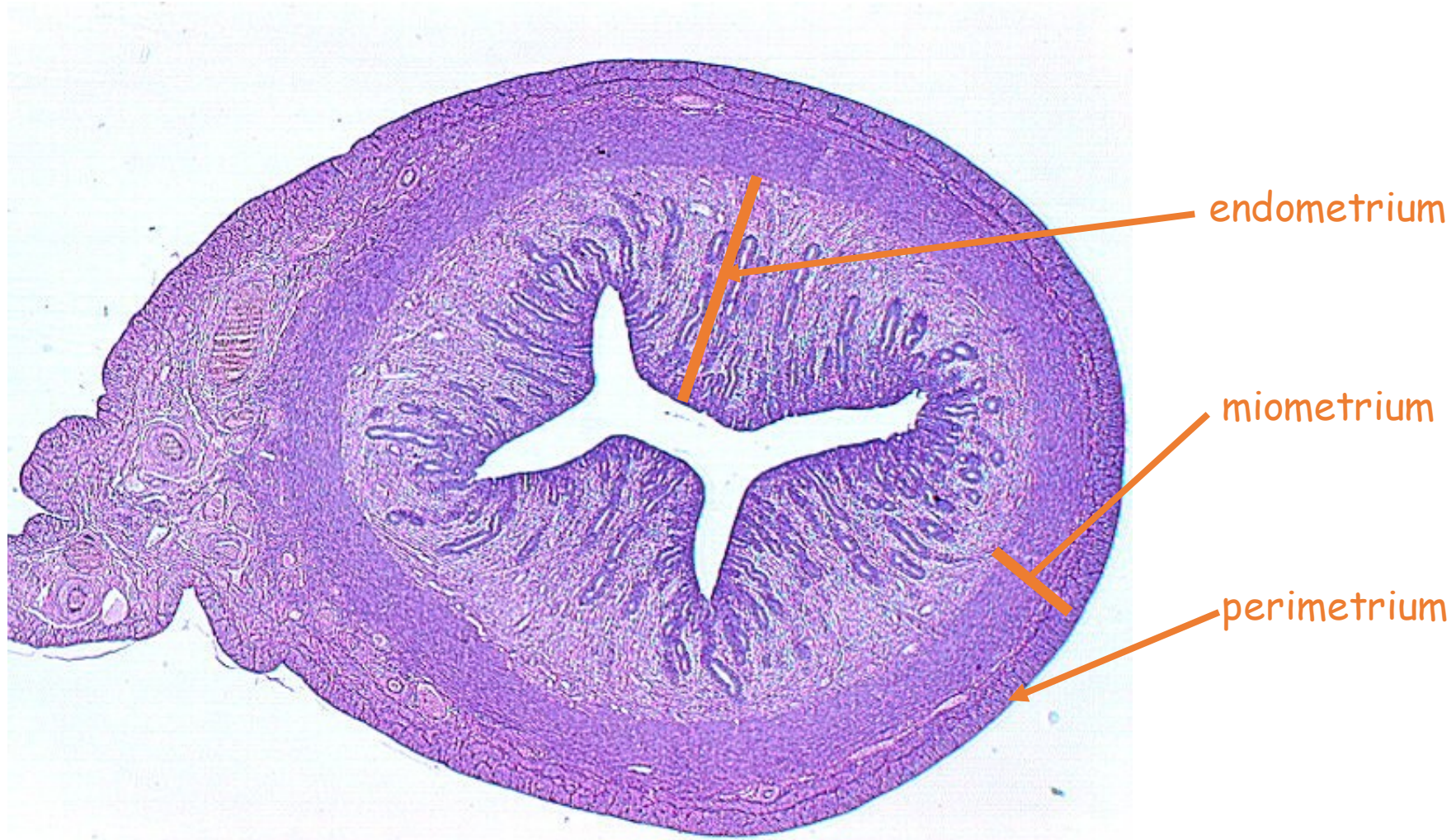


(a) Posterior view

The Uterine wall

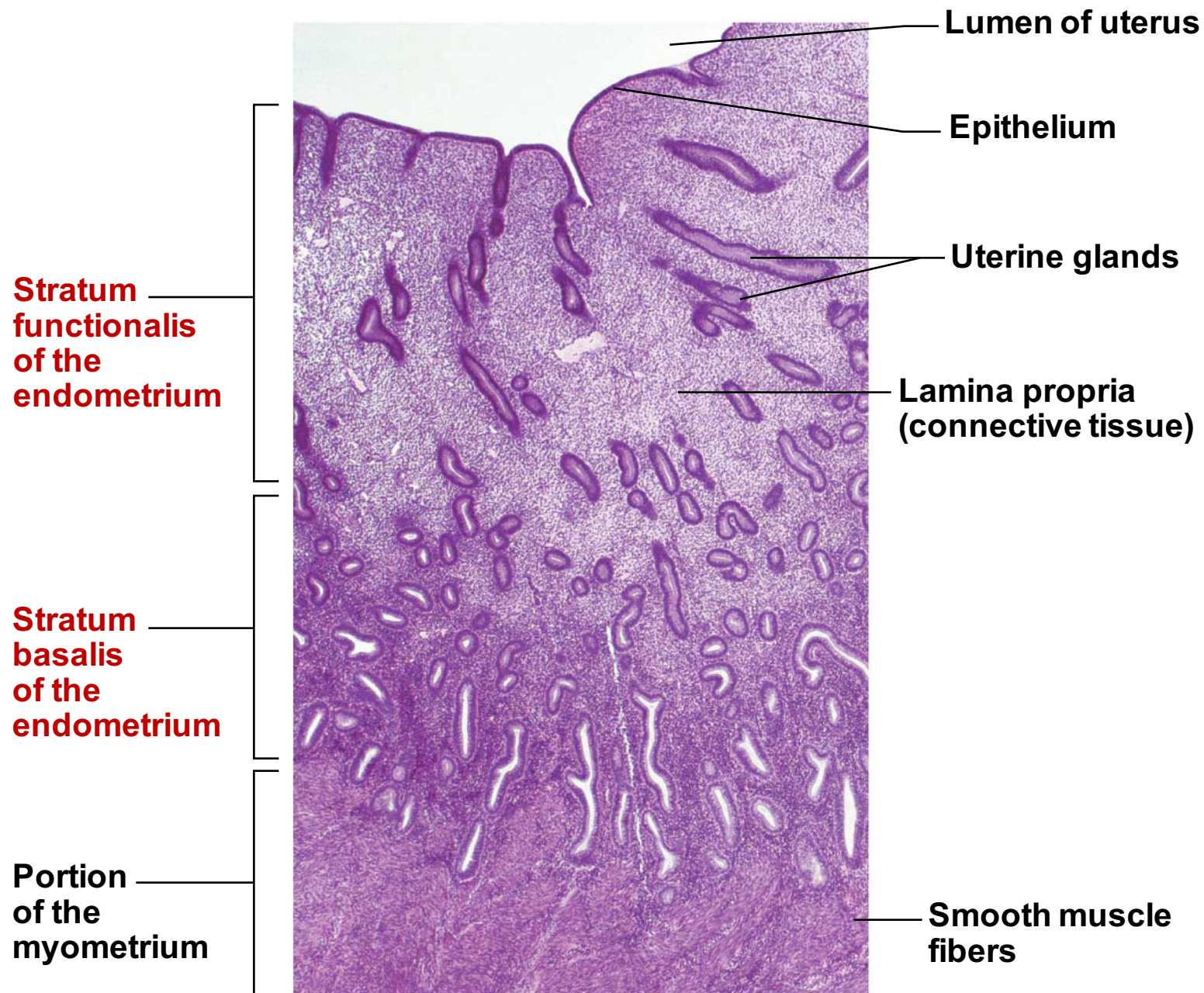


UTERUS: STRUCTURE



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>