

Female Reproductive Anatomy:

What are the eight functions of the female reproductive system?

1. Control activity of organs → Hormonally
2. Produce oocyte (egg)
3. Transport Sperm and oocyte
4. Facilitate Fertilization
5. Provide an environment for embryo and fetus
6. Give birth to fetus
7. Re-cycle to become pregnant again
8. Provide nutrition to young

Anatomy of the Ovary:

Structure	Definition	Function
Germinal Epithelium	Surface epithelium covering the tunica albuginea, continuous with peritoneal lining	Does NOT produce germ cells Breaks at ovulation
Tunica Albuginea	Dense connective tissue layers	Provides structure to ovary
Cortex	Outer inside portion of the ovary	Contains germ cells, oocyte population, follicles, Corpus Luteum
Medulla	Central part of the ovary	Contains connective tissue, houses blood and lymphatic vessels as well as nerves
Hilus	Where vessels, nerves, and ducts enter an organ	-----

What is the difference between the mare's ovary and any other species' ovary?

Regular: ovulation can occur at any point of the cortex layer on the outside, CL can be palpated

Cortex = outer layer, Medulla = inner layer

Mare: Ovulation can ONLY occur at the ovulation fossa, CL cannot be palpated

Cortex = inner layer, Medulla = outer layer

Oogonia:

- Female stem cells
- Mitosis produces primary oocytes
- Oogonia no longer exist by birth

Primary Oocyte:

- Largest cell of body
- Suspended in dictyotene stage during Prophase 1 since birth
- 2N

Secondary Oocyte:

- +1st polar body
- Completion of Meiosis 1 at the time of ovulation
- 1N

Ootid:

- The oocyte after meiotic divisions in which the polar bodies are present
- 2nd stage of oocyte arrest = Meiosis 2

Ovarian Follicles:

Primordial Follicle	Primary oocyte surrounded by single layer of squamous cells, immature and smallest follicle in ovarian cortex
Primary Follicle	Primary oocyte surrounded by a single layer of cuboidal cells, stage of majority of follicles
Secondary Follicle	Primary oocyte surrounded by several layers of cuboidal follicular cells (Granulosa), NO ANTRUM, Zona Pellucida present, actively secreting steroid hormones
Tertiary/Antral/Graafian Follicle	Primary oocyte present, differentiation of several distinct cell layers within follicle, ANTRUM IS PRESENT, Actively secreting hormones

