Exam 2 Review

FEMALE REPRODUCTIVE ANATOMY – STRUCTURES AND FUNCTIONS

The female reproductive tract is a series of connected tubes – describing the layers of the tubular structure.

- How is the female reproductive tract suspended in the body?
    - Describe how the broad ligament develops.
    - What are the specific areas of the broad ligament?
- The ovary
    - What is the endocrine function?
    - What are the two dominant ovarian structures?
    - Compare and contrast the overall structure of the mare's ovary to all other females.

Mare Ovary	**Other Species' Ovary**

- How do oocytes develop – review oogenesis.

- What are the four stages of follicular development?

Follicle	**Characteristics**
Primordial Follicle	
Primary Follicle	
Secondary Follicle	
Tertiary/Antral/Graafian Follicle	

- What structures develop on the ovary after ovulation?

- What are the characteristics of small and large luteal cells?

- The components of the oviduct
  - What happens at each section of the oviduct?

- Where does fertilization take place?

- How does the oocyte move through the oviduct?

- The uterus: organ of pregnancy
  - What is the function of the three layers of the uterus?

  - Compare and contrast the differences across species.
    Mare, Cow, Ewe, Doe

    Sow, Bitch, Queen

    Humans

  - Why would a sow have longer uterine horns?

  - Why is semen deposited in the uterine body in the mare and sow?

  - How does estrogen and progesterone change the environment of the uterus?

- The cervix
    - How does estrogen and progesterone change cervical mucus?

    - What are the functions of the cervix?

    - The cervical canal is composed of various structures that increase surface area – compare and contrast the differences in a cow, sow and mare.
      Cow

      Sow

      Mare

- Functions of the vagina
    - How does the cranial vagina differ from the caudal vagina?

    - What female has semen deposited near the fornix vagina?

    - What is the purpose of the vestibule?

REPRODUCTIVE REGULATION – ESTROUS CYCLE

- Reproductive Hormones from the hypothalamus and anterior pituitary
    - What hormone is synthesized and released from the hypothalamus?
    - What two hormones are released from the anterior lobe of the pituitary in response to GnRH?
    - What response do the gonadotropins cause at the ovary? What specific cells do they target?
- Estrous cycle
    - What are the two phases of the estrous cycle?
    - How does the hormone profile change during the cycle?
    - What is the average length of the estrous cycle of a cow, sow, ewe and mare?
- Stages of the follicular phase
    - Describe what occurs during proestrus and estrus.
    - What initiates the stage?

- What are the structures on the ovary?
- What is the role or function of the hormones produced during these stages?

- Stages of the luteal phase
  - Describe what occurs during metestrus and diestrus.
  - What initiates the stage?
  - What are the structures on the ovary?
  - What is the role or function of the hormones produced during these stages?

- True anestrus
  - What is an example of physiological anestrus?
  - How does nutritional anestrus occur?

    - Other than the hypothalamus and pituitary – what portion of the brain controls seasonal breeding?

    - When are mares cyclic vs ewes cyclic?

- Menstrual cycle vs Estrous cycle
    - What is the length of the follicular phase?

    - What is the length of the luteal phase?

    - When does ovulation occur?

    - How is sexual receptivity different?

THE FOLLICULAR PHASE

- GnRH centers in the hypothalamus
    - Compare and contrast the GnRH tonic and GnRH surge centers.

- Which one has many small pulses?

- Which one is stimulated right before ovulation occurs?

- When do follicular dynamics occur during the estrous cycle?

- What are the five events of folliculogenesis?

- What events involve primordial – secondary follicles?

- Which stage of follicles are gonadotropin independent vs dependent on gonadotropins?

- Describe recruitment, selection, and dominance.

- What is atresia?

- *What happens when the LH surge reaches the dominant follicle?

- Page 172 and 176-177 of your textbook has details about the cascade of events stimulated by the LH surge which leads to ovulation
- Page 173 of your textbook has the diagram from our lecture notes

LUTEAL PHASE

- What is the dominant hormone of the luteal phase?

- What 2 major events mark the beginning and end of the luteal phase?

- What 2 stages of the estrous cycle occur during the luteal phase?

- What is meant by the term luteolysis?

- What is meant by the term luteinization?

- What hormone is responsible for luteolysis?

- What hormones cause luteinization?

- During what stage would a CH be observed?
- Approximately how many days does it take until a CL is fully functional?
- Which cells develop into the large luteal cells (LLC)?
- Which cells develop into the small luteal cells (SLC)?
- What hormone is secreted by the luteal cells of the CL?
- The hormone secreted by the CL has a negative feedback on which structure/organ?
- This inhibits secretion of which hormone?
- What is the difference between structural and functional Luteolysis?
- Where is PGF2α produced and secreted in the female tract?
- How is PGF2α transported to the ovary?

- Why is a unique transport method necessary for PGF2α?

- What are the stages of luteolysis?

  - Pages 192-196 of your textbook has details about luteolysis
  - Slide 21 of your lecture notes