Exam 3 Review

MALE REPRODUCTIVE ANATOMY

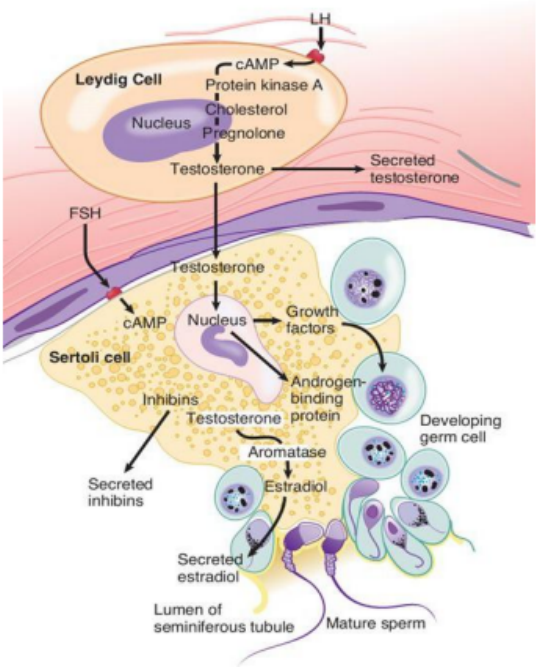
1. What is the target tissue/cell type of LH in the male (what cells have the LH receptor)?

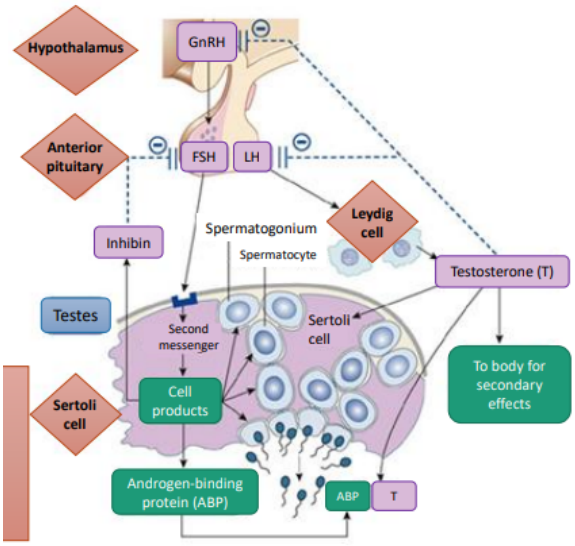
2. What is the target cell type of FSH in the male (what cells have the FSH receptor)?

3. What cell in the male produces testosterone?

4. Compare and contrast Leydig cells vs Sertoli cells.

Leydig Cells	Sertoli Cells





5. Functions of seminal plasma

Exam 3 Review

a. What structures make the seminal plasma?

6. Oogenesis vs Spermatogenesis ➡ why can males produce spermatozoa all their life?

7. What are the two different tissues that make up penial tissue?

a. What is the difference between Stallions vs Bulls?

8. What are the muscles associated with the penis?

9. *What is the pathway spermatozoa flow out of the male reproductive system?

10. *Explain all the methods used to maintain proper temperature. What is the proper temperature the testis needs to be? (Chapter 3: pg. 59-65)

Exam 3 Review

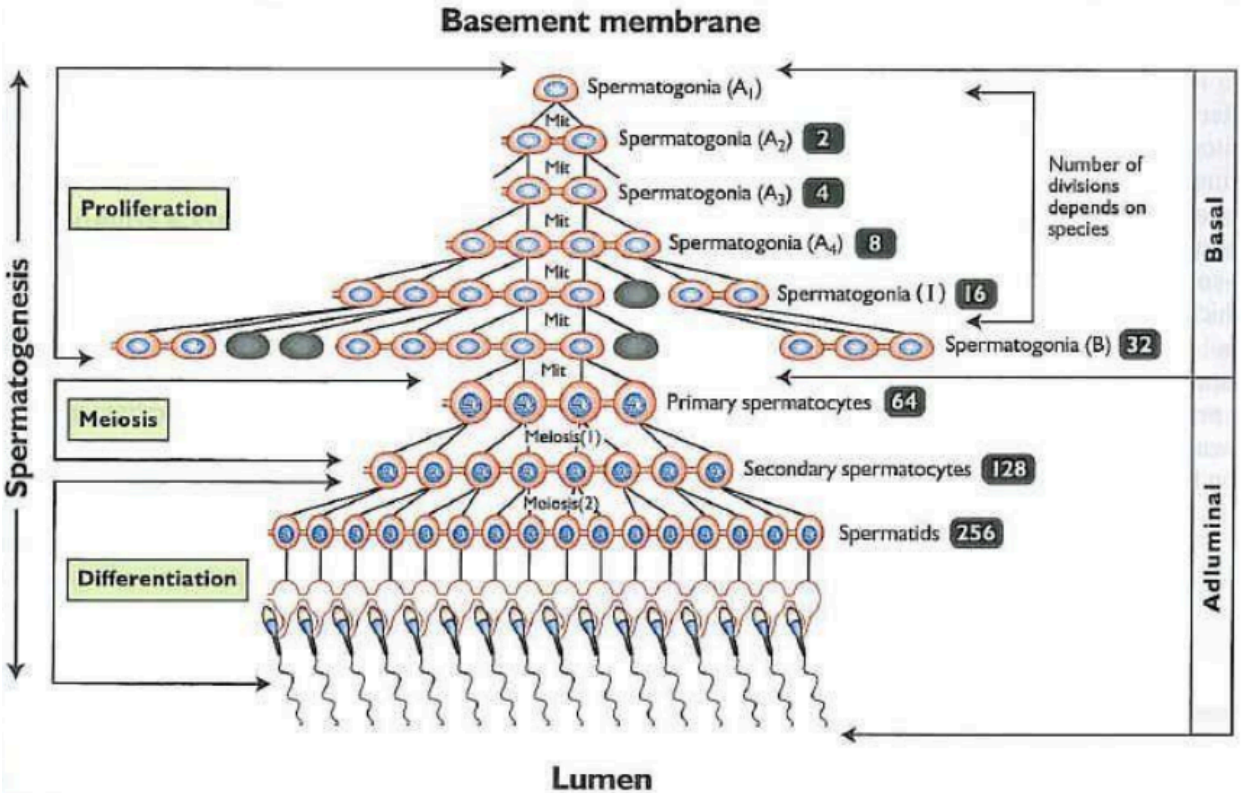
SPERMATOGENESIS

1. Where is the location of spermatogenesis?

2. What are the 3 phases of spermatogenesis? (pg.217)

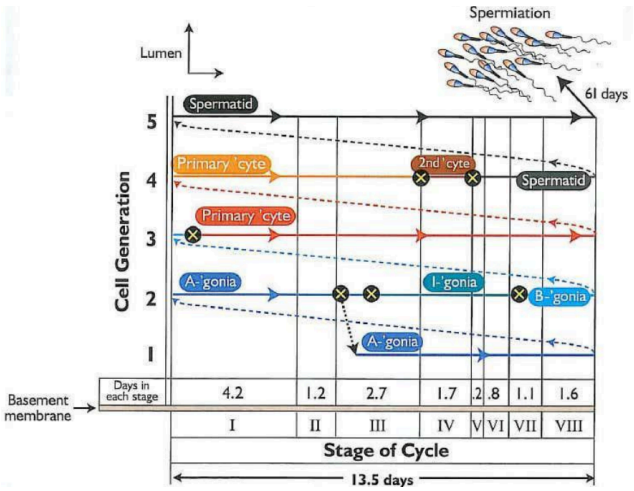
3. What type of cell division occurs during proliferation? Mitosis or Meiosis?

Exam 3 Review



4. Place the following terms in order from least mature to most mature:
   Spermatid, Spermatogonia, Spermatocyte, Spermatozoa

5. The release of sperm cells into the lumen of the seminiferous tubules is referred to as



6. Which type of germ cell is located closest to the basement membrane?

a. Spermatid
b. Spermatogonia
c. Spermatocyte
d. Spermatozoa

7. During which phase of spermatogenesis do germ cells reach a haploid state?

8. The differentiation phase of spermatogenesis is subdivided into 4 phases. List those phases.

9. What are the primary events that occur during the Golgi phase?

10. What are the primary events that occur in the Cap phase? (10-7)

11. What are the primary events in the Acrosomal phase? (10-7)

    a. Why is the acrosome of the sperm so important?

12. What are the primary events that occur in the Maturation phase?

13. *Describe the details of the differentiation phase of spermatogenesis. (Chapter 10: pg. 208-213)

Exam 3 Review

REPRODUCTIVE BEHAVIOR

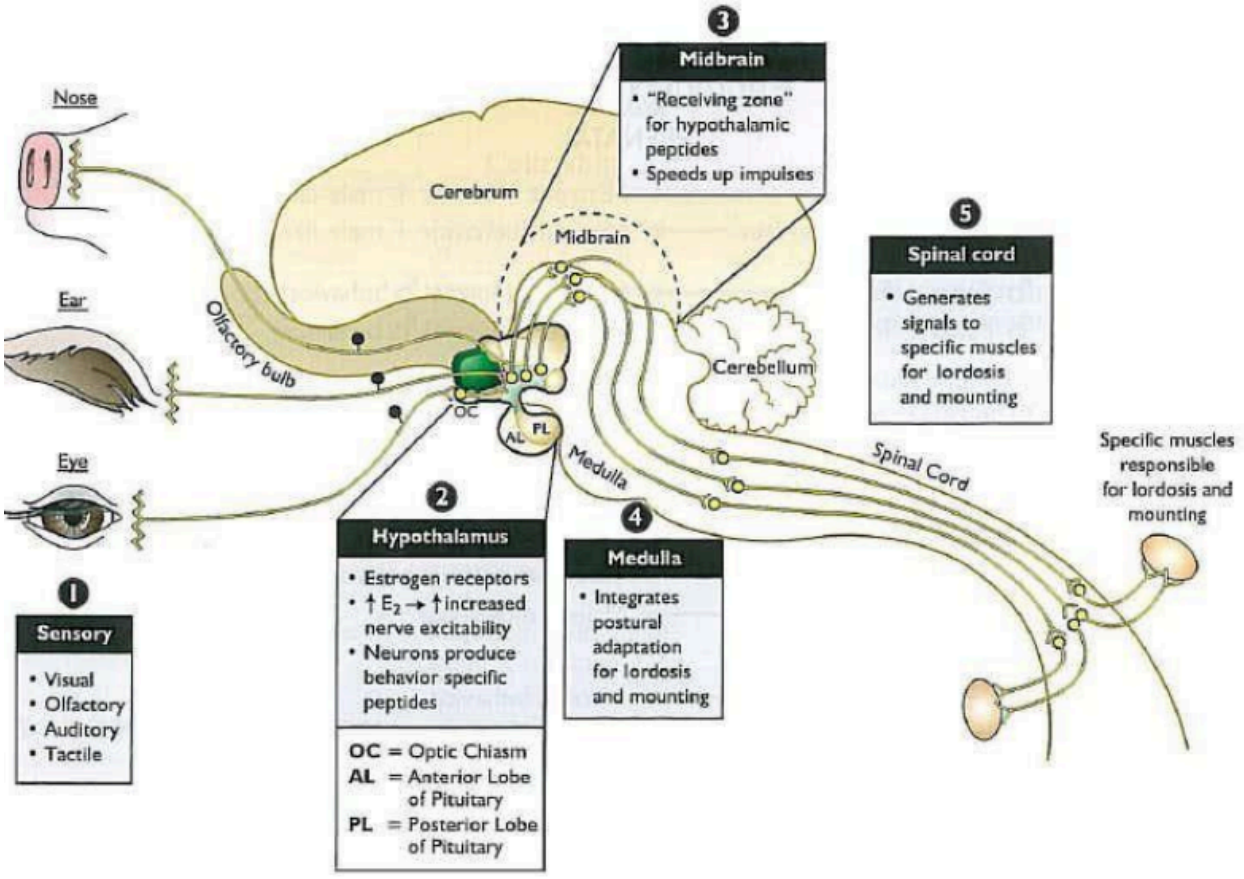
Stage of Male Reproductive Behavior

Precopulatory

1. What are the four physiological steps of the precopulatory stage?

2. How do pheromones play a role in this stage of Male Repro Behavior?

3. Know the neuronal loops that are stimulated during this phase



4. Explain the role of each sensory organ during this phase

5. What is the role of Nitric Oxide?

Exam 3 Review

6. Compare and contrast completion of the precopulatory phase of a Fibroelastic penis vs Muscovascular penis

Copulatory

7. What are the three physiological steps of the copulatory stage?

8. How does the sensory nerves of the glans penis stimulate ejaculation?

9. Know the major steps in ejaculation

Postcopulatory

10. What is the Refectory Period?

11. Explain how memory plays a role in Male Repro Behavior

Reproductive Behavior in Female

12. What is Attractivity?

13. What is Proceptivity?

14. What is Receptivity?

15. Know when a female is sexually active vs a male

16. Satiation vs Exhaustion

17. *Does the male or female initiate courtship-specific behaviors? Why is that so? (Chapter 11: pg. 230)

EVENTS IN THE LIFE OF THE SPERM AND THE OOCYTE

1. What Happens after Ejaculation?

Know the step-wise diagram

Exam 3 Review

2. What occurs at each place in the FRT?

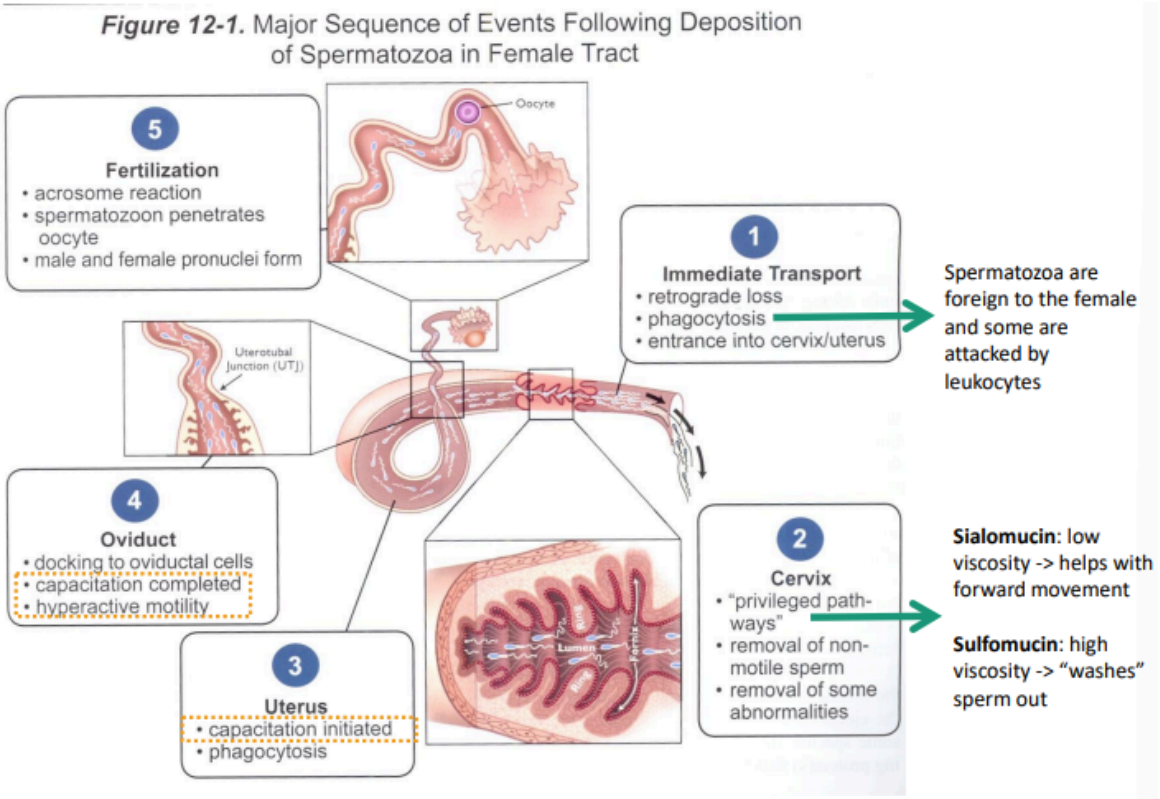
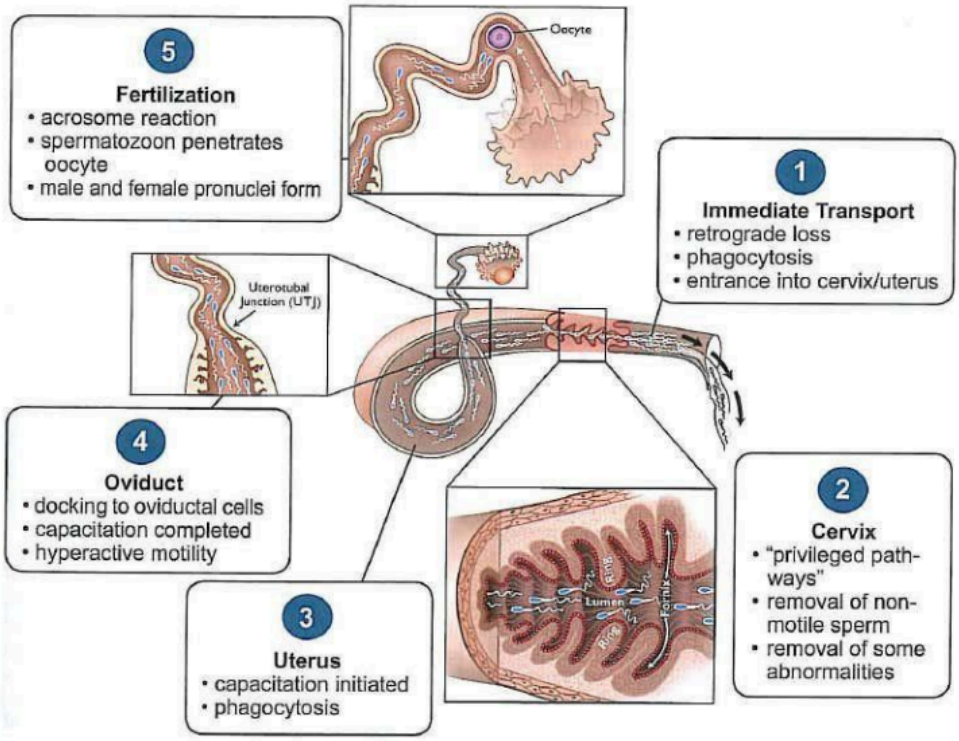


Figure 12-1. Major Sequence of Events Following Deposition of Spermatozoa in Female Tract



3. Where is semen deposited in the domestic animals discussed in lecture?

Exam 3 Review

a. Fractionated vs Un-fractionated

4. How do spermatozoa travel in the FRT?

a. What are the two major hormones that drive sperm movement in the FRT?

b. Where do they come from? ⬆

c. What do these steroids stimulate?

5. Metabolic Characteristics of Sperm

a. What form of metabolism does a sperm use?

b. Explain the limited life span of a sperm

Capacitation of Sperm

6. What is the role of capacitation?

7. Compare and contrast Decapacitation vs Capacitation

Exam 3 Review

a. Where do they take place?

b. Why are these processes important?

8. What are the functional consequences of capacitation?

9. What is the end result of capacitation?

10. How does the sperm locate the oocyte in the oviduct?

True Acrosome Reaction

11. Why is vesiculation an important step in the Acrosome Reaction?

12. What are the two enzymes that are released from the acrosome?

13. Know how the ZP3 interacts with the two binding sites on the spermatozoa

14. Be able to explain the steps of fertilization once a sperm has digested through the ZP

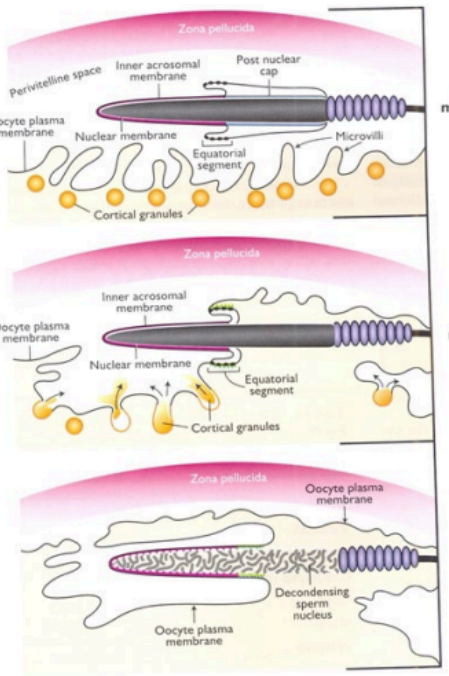
Exam 3 Review

Once sperm completely penetrate the ZP is travels into the perivitelline space

Sperm attaches to vitelline membrane of oocyte at the equatorial segment

Cortical granules are released into the perivitelline space

Sperm is then engulfed by the oocyte



Perivitelline Space = space between ZP and oocyte plasma membrane

Sperm settles into bed of microvilli from oocyte plasma membrane

The fusion protein on the equatorial segment allows the sperm to bind to the oocyte

Glutathione in the oocyte cytoplasm reduces the di-sulfide bridges in the sperm nucleus

Block to Polyspermy

15. What is Polyspermy?

16. How are the two different blocks initiated?

17. Zona vs Vitelline

Fertilization

18. What happens to the sperm once engulfed by the oocyte?

19. *Describe the details of how a sperm and oocyte interact once the sperm penetrates the Z.P. (Chapter 12: pg. 263-264)

Exam 3 Review

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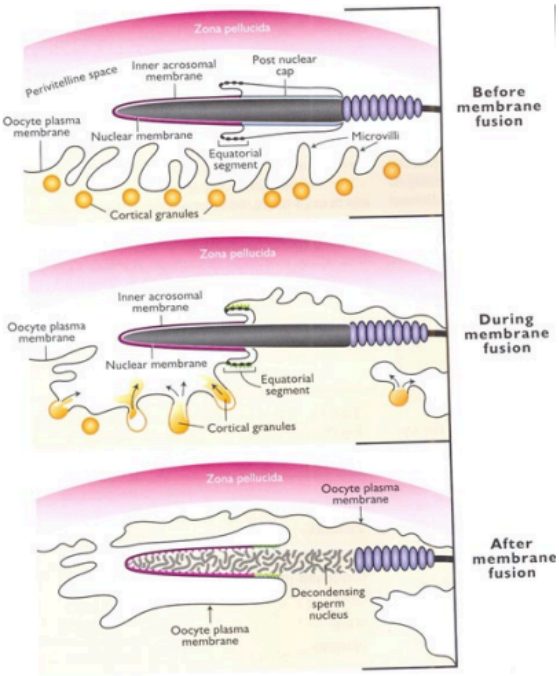

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