Reproductive Systems

Organs: gonads
        ducts
        accessory glands
        external genitalia

I. Male Reproductive System
A. Testes
1. Anatomical relationships
   - contained within the scrotum
   - *spermatic cord* connects testes to internal structures, contains:
     ductus (vas) deferens
     testicular artery and veins, nerve
     cremaster muscle
   - testes descend through the *inguinal canal* in the fetus (~ 7 mos.);
     spermatic cord passes through the inguinal canal
2. Connective tissue coverings
   - tunica vaginalis
   - tunica albuginea
3. Histology
   - *seminiferous tubules*
     a. spermatogenic cells
     b. Sertoli cells (sustentacular cells)
B. Ducts
1. Ducts of the testis
2. Epididymis - functions for sperm storage and maturation
3. Ductus (vas) deferens - long sperm conveyance tube(s)
   - mucosa - pseudostratified columnar epithelium
   - muscularis - thick, 3 layers (longitudinal, circular, longitudinal)
4. Ejaculatory ducts - pass through the prostate
5. Urethra - shared urinary and reproductive outlet
   - prostatic urethra
   - membranous urethra
   - spongy urethra
C. Accessory Glands
   - function to produce semen and lubricating fluid
   1. Seminal vesicles (seminal glands)
   2. Prostate
   3. Bulbourethral (Cowper's) glands
D. External Genitalia
   - suspended from the *perineum*
   1. Penis - mostly *erectile tissue*
      - body of the penis:
        - corpora cavernosa
        - corpus spongiosum
      - root of the penis:
        - crus (pl. crura) of penis
        - bulb of penis
   2. Scrotum - pouch of skin, superficial fascia and smooth muscle
      - raphe
      - scrotal septum
      - dartos muscle
II. Female Reproductive System

A. Ovaries
   1. Attachments
      - mesovarium (continuous with broad ligament of the uterus)
      - ovarian ligament
   2. Histology
      - germinal epithelium
      - tunica albuginea
      - cortex - contains ovarian follicles
   3. Ovarian follicles
      - oocyte (egg cell)
      - follicular cells
         - granulosa cells
         - theca folliculi
      - primordial follicle → primary follicle → secondary follicle → mature (graafian) follicle → ovulation

B. Duct System
   1. Uterine tubes (= fallopian tubes)
      - site of fertilization, transport of fertilized egg to the uterus
      - mucosa - ciliated simple columnar epithelium
      - muscularis - inner circular, outer longitudinal regions: fimbriae, infundibulum, ampulla, isthmus
   2. Uterus
      - site of implantation of the blastocyst, development of embryo and fetus, labor
      - attachments: broad ligament
      - round ligament
      - regions: cervix
      - body
      - fundus
      - layers: endometrium (= mucosa) - simple columnar epithelium, endometrial glands
         - stratum functionalis
         - stratum basalis
      - myometrium (= muscularis) - very thick, 3 layers of smooth muscle
      - perimetrium (= serosa)
   3. Vagina
      - mucosa - stratified squamous epithelium; rugae
      - muscularis - inner circular, outer longitudinal layer

C. External Genitalia = Vulva
   1. Mons pubis
   2. Labia majora
   3. Labia minora
   4. Clitoris
      - erectile tissue:
         - glans clitoris
         - crus (pl. crura) of the clitoris
         - bulb of the vestibule

D. Homologous Structures
   - labia majora
   - labia minora
   - glans clitoris
   - crura of clitoris
   - bulb of vestibule
   - scrotum
   - spongy urethra
   - glans penis
   - corpus cavernosa, crura of penis
   - corpus spongiosum, bulb of penis
1. Identify the specific structures that comprise the gonads, ducts, accessory glands, and external genitalia of the male reproductive system, and summarize their functions.

2. What structures are contained in the spermatic cord? What is the name of the passageway that the spermatic cord travels through to exit the abdominopelvic cavity? What is an inguinal hernia?

3. What process occurs in the seminiferous tubules? What are the functions of the Sertoli cells? What forms the blood-testis barrier?

4. Identify the specific structures that comprise the gonads, ducts, and external genitalia of the female reproductive system.

5. Describe the structure of an ovarian follicle. Distinguish between the two major layers of follicular cells, and differentiate between a primary, secondary, and mature follicle. What is the corpus luteum, and what is its function?

6. Identify the layers of the uterine endometrium. What specific changes occur in the endometrium during the uterine (menstrual) cycle?

7. Where does fertilization normally take place in the female reproductive system?

8. Identify the structures that attach the uterus and uterine tubes to the pelvic wall. What two structures are connected by the ovarian ligament?

9. Identify homologous reproductive organs and structures between males and females (note: gonads and external genitalia are homologous; ducts are non-homologous).

10. What is the name of the ball of embryonic cells that implants in the uterus, and approximately how many days after fertilization does this take place? (Refer to textbook Chapter 4.)

11. How are the interfacing blood supplies of the developing embryo and mother arranged in the uterus. What embryonic structures form the placenta? What maternal structures contribute to the placenta? (Refer to textbook Chapter 4.)