

## BIO 1640 Lecture 6: Reproduction

### MALE REPRODUCTION

1. What part of the testes makes testosterone? **Interstitial cells**
2. What is the function of testosterone? **Primary & secondary sexual characteristics**  
What is the function of FSH in the male? **Production of sperm; secretion of testosterone; development of prostate, enlargement of testes**
3. Final maturation of sperm occurs where? **Epididymis**
4. List 3 glands that make semen fluid and where they are located: **Prostate gland ; Seminal Vesicle; Bulbourethral gland**  
Ninety percent of the fluid come from what 2 glands? **Prostate gland and Seminal vesicle**  
Where are these glands located: **Prostate: base and inferior to urinary bladder; Seminal vesicle: posterior wall of bladder; Bulbourethral gland: inferior to prostate**  
Are they all paired? **Seminal Vesicle and Bulbourethral gland are paired; Prostate Gland is not paired**  
The seminal vesicle produces fluid that is rich in? **Fructose ;**  
What is the function of fructose in semen fluid? **Provides fuel/nourishment for sperm; The high pH of seminal fluid protects sperm from the acidity of the male urethra and the vagina**
5. The number of sperm per ml in a fertile male? **100 million/ml (approx. a “drop”)**  
What percent of these sperm reach the oocyte? **Less than 1%**
6. What is a vasectomy? **The cutting of the vas deferens (also ductus deferens)**  
What is circumcision? **The removal of the prepuce (foreskin)**  
What are the components of the spermatic cord? **It consists of blood vessels, nerves**
7. What part of the penis surrounds the urethra? **Corpus spongiosum**
8. Erection of the penis/clitoris is under parasympathetic or sympathetic control? **Parasympathetic (however, EJACULATION is sympathetic)**
9. List the organs of the male reproductive system in the order of the production, maturation, and ejaculation of sperm (pg. 1064):  
**Testis → Epididymis → Vas (ductus) deferens → Seminal vesicles (Prostate gland, Seminal vesicle, Bulbourethral gland) → Ejaculatory ducts → Prostatic urethra → Membranous urethra → Spongy (penile) urethra → External urethral orifice**

## ☒ FEMALE REPRODUCTION

1. List from anterior to posterior the following structures: vaginal opening, clitoris, urethral opening, anus:  
**Clitoris, urethral opening, vaginal opening, anus**
2. Folds of the peritoneum that attach the uterus to the left & right sides of the pelvic cavity? **Broad ligaments**
3. What is homologous to the penis and scrotum in the female? (pg. 1100) **Penis – clitoris & labia minora;**  
**Scrotum – labia majora**
4. What are the layers of the uterus? (innermost to outermost) **Endometrium → Myometrium (smooth muscle and most of uterus) → Perimetrium**
5. What is the infection of the uterine (fallopian) tubes? **Salpingitis**
6. The epithelium of the vagina? **Stratified squamous**
7. A pap smear removes what? **Stratified squamous in the cervix; it can also detect cervical cancer**
8. List three structures or movements that move the oocyte into & through the uterine (fallopian) tube? **Cilia, fimbriae (“fingers”), peristalsis**

## ☒ FEMALE REPRODUCTIVE CYCLE

(All days based on 28-day cycle)

1. When is LH in highest concentration? **Day 13-14 and related to ovulation**  
When is progesterone the highest? **Starts at day 14 and highest on Day 24**  
When is the endometrium the thickest? **Day 24**
2. Repair of the endometrium is the result of what hormones? **Estrogen & progesterone**  
What part of the uterus is shed during menstruation? **Endometrium**  
Menstrual flow begins because? **No hormones are stimulating ovaries to make estrogen; at day 24, everything shuts off**
3. Estrogen and progesterone are produced by what 2 organs? **Ovaries, placenta (if pregnant)**  
What do these hormones do? **Repairs/maintains endometrium**  
Is progesterone the first or last hormone to increase from day 1 of the menstrual cycle? **It's last; estrogen is the first**
4. What happens to the corpus luteum if fertilization does not occur? **It disintegrates within 10 days (day 24) and becomes the corpus albicans**

What is the reason the corpus luteum is maintained during early pregnancy? **To make sure the endometrial lining doesn't shed**

5. What do oral contraceptives contain? (pg. 1124) **Estrogen & progesterone**

How do they prevent pregnancy? Raise hormone levels (approx. day 16 level) to trick body into thinking it has ovulated

6. List in order: ovulation, maturation of follicle, menstruation, formation of corpus luteum: **Menstruation, maturation of follicle, ovulation, formation of corpus luteum**

7. High levels of estrogen & progesterone maintain the endometrium, prevent menstruation, & prevent ovulation: **True**

8. LH & FSH are secreted in response to GnRH produced by the hypothalamus: **True**

## ☞ MEIOSIS, FERTILIZATION, GROWTH & DEVELOPMENT

1. Define meiosis: **Formation of egg/sperm**

What is meiosis in females? Oogenesis

What is meiosis in males? Spermatogenesis

What is the difference in the # of cells produced in meiosis of males & females? 4:1

How many chromosomes does an egg and sperm have? 23

The first meiotic division in oogenesis occurs? Before birth of the baby

2. Identical twins come from 1 egg or 2? One (Fraternal twins come from 2)

3. Human gestation lasts? 38 weeks after fertilization

4. When is the embryonic period? Day 0 – end of 2<sup>nd</sup> month

5. Why must sperm remain in the female reproductive tract for several hours for fertilization to occur? So the acidity of the vagina softens the sperm's outer membrane on their head so it's able to release digestive enzymes that it needs to penetrate the egg.

6. Name of the process in which sperm is deposited in the vagina of the female: **Coitus, copulation, sexual intercourse**

7. How many days after fertilization does implantation occur? **About 10**

Where in the uterus does implantation normally occur? **The fundus (body also)**

Name of the solid ball cells first produced by zygote? **Morula**

List structures in order of appearance: morula, blastocyst, embryo, zygote, fetus: **Zygote, morula, blastocyst, embryo, fetus**

8. Early pregnancy test is based on detection of? **hCG**  
 What is the function of hCG? **Stimulates corpus luteum to make estrogen/progesterone**  
 hCG mimics the action of what hormones? **LH & FSH**  
 hCG is produced by? **The corion which eventually becomes the placenta**
9. Is there mixing of maternal and fetal blood? **Not normally (gases, nutrients, hormones will interchange)**  
 What fills the intervillous spaces? **The mother's blood**  
 How does most material cross the placenta? **by diffusion**
10. Deoxygenated blood goes to the placenta by what vessel? **Umbilical artery**
11. A major advantage of chorionic villus sampling over amniocentesis is? **time, because its reading is a lot faster**
12. In karyotyping one can detect the sex of a fetus because? (pg. 1149) **if the size of the smallest pair of chromosomes is the same then it is a girl and if the size is not the same, it is a boy**
13. Formation of the 3 primary germ layers is Gastrulation ? **True, Gastrulation is the beginning of the beginning of the nervous system (pg. 1119)**
14. Does ossification occur during the first month of embryonic development? **No, it occurs in the 2<sup>nd</sup> month**
15. The fetus is protected from mechanical injury by what sac? **Amnion**  
 The "water" referred to when a woman's "water breaks" is? **Amniotic fluid**
16. Softening of the connective tissue around the pelvic joints is caused by? **Relaxin**
17. What bodily processes increase during pregnancy? **Metabolic rate, respiratory rate, heart rate, glomerulus filtration rate**
18. Hypertension as a result of impaired renal function is called? **Preeclampsia (toxemia)**
19. A major problem with premature infants can be a lack of? **Surfactant (lubricates lung alveoli)**
20. What stimulates uterine contractions prior to childbirth? **Stretching of uterus → pituitary releases oxytocin → more contractions → more stretching**  
 What are the 3 stages of labor and what occurs during each?  
**Dilation : stretching of the cervix**  
**Expulsion : birth of the baby**  
**Placental : whole placenta be evacuated**
21. How does respiratory rate of newborns compare to adults? **Higher**  
 How does WBC count of newborns compare to adults? **Higher**
22. Milk production is stimulating by? **Sucking – (colostrum, which has antibodies, is the yellowish fluid ejected from the breast the first few days after delivery)**