4.06 Understand the functions and disorders of the reproductive system
Understand the functions and disorders of the
Essential questions

• What are the functions of the female reproductive system?
• What are some common disorders of the female reproductive system?
• How do you relate the body’s hormone control to the female reproductive system?
• How do you relate the body’s use of nutrients to the female reproductive system?
Functions of the female reproductive system

• Ovary
  – Produce ova
  – Produce the female sex hormones, **estrogen** and **progesterone**

**Did you know a female will produce all of the oocytes she will ever have five months before she is born?**

*How many chromosomes are in an oocyte? 46!*
Functions of the female reproductive system

• **Fallopian tubes (oviducts)**
  
  – Lined with mucous membrane, smooth muscle and ciliated projections called fimbriae.
  – Ova are propelled down the oviducts to the uterus.
Functions of the female reproductive system

• **Uterus**
  – Functions as a holding tank for unborn fetus.
  – Contains 3 layers: perimetrium, myometrium, and endometrium.
Functions of the female reproductive system

• **Cervix**
  - Allows flow of menstrual blood through the opening
  - Directs sperm to the uterus

*What instrument is used to observe the cervix?*
Functions of the female reproductive system

• Vagina
  – Receives the penis during intercourse
  – Allows passage of menstrual fluid from the uterus
  – Birth canal; allows movement of the baby from the uterus
Functions of the female reproductive system

• **External genitalia**
  – Provide protection for the internal female reproductive organs
Functions of the female reproductive system

• Mammary glands (breasts)
  – Main function: produce milk for infants
Functions of the female reproductive system

• **Menstrual Cycle**
  – Usually 28 days
  – Four stages
    • Follicle stage
    • Ovulation stage
    • Corpus luteum stage
    • Menstruation stage
Functions of the female reproductive system

- **Follicle stage**
  - Usually lasts about 10 days
  - Follicle-stimulating (FSH) hormone is released by the pituitary
  - FSH stimulates the follicle and ovum to mature
  - Resulting in the release of estrogen and preparation of the uterine lining
Functions of the female reproductive system

- The pituitary stops producing FSH and starts producing luteinizing hormone (LH)
- At day 14 in the menstrual cycle, the follicle ruptures and the ovum is released
Functions of the female reproductive system

• **Corpus luteum stage**
  - Secretes progesterone and continues to do so if the egg is fertilized, preventing further ovulation and maintaining the uterine lining
  - Lasts about 14 days
Functions of the female reproductive system

• **Menstruation stage**
  - Final stage if fertilization of the ova has not taken place
  - The corpus luteum diminishes progesterone production
  - The uterine lining is broken down and discharged over the course of 3 to 6 days
Functions of the female reproductive system

Check your knowledge...

4.06 Understand the functions and disorders of the reproductive system
Breast cancer

- The leading cause of death in women between the ages of 32 and 52

- Treatment
  - Chemotherapy
  - Radiation therapy
  - Partial or full mastectomy
  - Lumpectomy

- Life-saving measures
  - Monthly breast exams
  - Mammogram
  - Ultrasound

Disorders of the female reproductive system
Disorders of the female reproductive system

Self breast exam

1. Using a mirror, inspect your breasts with your arms at your sides
2. Look for any changes in contour, swelling, dimpling of skin, or appearance of the nipple.
3. Using the pads of your fingers, press firmly on your breast, checking the entire breast and armpit area.
4. There are three patterns you can use to examine your breast: the circular, the up-and-down, and the wedge patterns.
5. Gently squeeze the nipple of each breast and report any discharge to your doctor immediately.
6. Examine both breasts lying down. To examine the right breast, place a pillow under your right shoulder and place your right hand behind your head. Using the pads of your fingers, press firmly, checking the entire breast and armpit area.
Disorders of the female reproductive system

• **Cervical Cancer**
  - What is a major cause of cervical cancer?
    • Human papiloma virus
    • Early and frequent sexual activity
  
  - Why do some women get cervical cancer but not all?

What are the benefits of receiving the HPV vaccine?
Disorders of the female reproductive system

**Endometriosis**

- When endometrial tissue is found outside the uterus.

- Symptoms:
  - pain before and during menstruation
  - Painful intercourse
  - Infertility
  - Heavy or irregular bleeding

- Treatment:
  - Surgical removal of endometrial tissue
  - Hormonal drugs to stop ovulation
Disorders of the female reproductive system

Mastitis

- What is mastitis?
  - Inflammation of the breast

- What causes it?
  - Bacteria

- How is it contracted?
  - Bacteria enters through a break in the tissue of the nipple

- How is it treated?
  - Heat
  - Antibiotics
  - Anti-inflammatory drugs
Disorders of the female reproductive system

Pelvic inflammatory disease (PID)

- Define PID.
  - Infections that occur in the reproductive organs and spread to the fallopian tubes

- What are risk factors?
  - Multiple sexual partners

- What are some complications of PID?
  - Scarring of the fallopian tubes
  - Pain, high temperature

- How is PID treated?
  - Antibiotics
Disorders of the female reproductive system

Polycystic ovarian syndrome

- Define this disorder.
- What is the primary cause?
- There are many symptoms. What are the classic symptoms?
- How is it treated?
Disorders of the female reproductive system

Toxic shock syndrome

– Define toxic shock syndrome.

– What causes it?

– How is it treated?
Disorders of the female reproductive system

Vaginal yeast infection

– What is the cause?

– How can it be prevented?

– How is it treated?

Not a sexually transmitted illness. However, sexual partners may be infected and need to be treated to prevent re-infection.
Relevance of nutrients to the female reproductive system

- The female reproductive system plays a vital role in homeostasis
  - Help regulate hormonal balance and fetal development during pregnancy

4.06 Understand the functions and disorders of the reproductive system
Understand the functions and disorders of the male reproductive system
Essential questions

• What is the function of the male reproductive system?
• What are some common disorders of the male reproductive system?
• How do you relate the body’s hormone control to the male and female reproductive systems?
Functions of the male reproductive system

Hormone production

What is the male sex hormone? Testosterone

What does it do? Responsible for development of male reproductive organs, sexual characteristics; facial, body hair, deepening voice
Function of the male reproductive system

Define reproduction
Functions of the male reproductive system:

- **Seminiferous tubules**: contain sperm cells
- **Epididymis**: Sperm mature here
Functions of the male reproductive system

Sperm

- What is the function of the sperm?
  - Fertilization of the egg

- How many sperm does the average male have?
  - Sperm is produced continuously beginning at puberty until death
  - 525 billion over a life time.

- How is this different from the female reproductive system?
- **Vas Deferens**: sperm storage site and excretory duct of the testis.
- **Ejaculatory duct**: mixes sperm with fluid from seminal vesicles for release.
Seminal vesicles

What is the function of the seminal vesicles? Produce secretions which help nourish and protect sperm on its journey through the female reproductive system.
Prostate gland

What is the function of the secretion produced by the prostate gland? Secretes a thin milky fluid that enhances sperm motility.
**Bulbourethral glands**

Also called *Cowper’s gland*

**Function:** Add alkaline secretion to semen.

**How is it important to reproduction?**

Helps to neutralize acidic semen and vaginal secretions, which enhances viability and motility of sperm cells.
What is the reproductive function of the penis?
Cryptorchidism

- How will have this condition?
- What are the risks if left untreated?
- What is the treatment?
Epididymitis

- What are the most common causes of epididymitis?

- What are some risk factors that predispose someone to this condition?
Erectile Dysfunction

Also known as impotence

Failure of the penis to become rigid enough for intercourse to occur.

- Common causes:
  - Acute
  - Chronic

How is it treated?
Disorders of the male reproductive system and their treatments

Benign prostatic hypertrophy (BPH)

– What are the usual symptoms?
– How is most likely to develop BPH?
– How is it treated?
– Is it cancer?
Prostate cancer

- What age group is most susceptible to prostate cancer?
- How is it treated?
- What are the reproductive side effects to treatment?
Disorders of the male reproductive system and their treatments

**Testicular cancer**

– What are the risk factors for developing testicular cancer?
– What are the most likely symptoms?
Disorders of the male reproductive system and their treatments

Testicular self-examination

• Testicular self-examination is an examination of the testicles. The testicles (also called the testes) are the male reproductive organs that produce sperm and the hormone testosterone. They are located in the scrotum under the penis.

• Perform this test during or after a shower. This way, the scrotal skin is warm and relaxed. It's best to do the test while standing.
Disorders of the male reproductive system and their treatments

Testicular self-examination

1. Gently feel your scrotal sac to locate a testicle.
2. Hold the testicle with one hand while firmly but gently rolling the fingers of the other hand over the testicle to examine the entire surface.
3. Repeat the procedure with the other testicle.

You may perform a testicular self-exam every month if you have any of the following risk factors:

- Family history of testicular cancer
- Past testicular tumor
- Undescended testicle
- You are a teenager or young adult
Reproductive process: conception
Reproductive process

- when the sperm and the egg unite
- pregnancy occurs
Reproductive process: fertilization

• Discuss the process of conception.
Functions of the female reproductive system

- **Embryo** - 1-8 weeks
- **Fetus** - 9-40 weeks
- **Newborn** - At birth

Terms to remember:
- Embryo
- Fetus
- Newborn

4.06 Understand the functions and disorders of the reproductive system
Reproductive process: fetal development

- 6-8 weeks
- 12-14 weeks
- 17-19 weeks
- 5-6 months

4.06 Understand the functions and disorders of the reproductive system
Functions of the female reproductive system

Labor

– Dilation stage

• The uterine smooth muscle begins to contract
• Contractions move the fetus down the uterus and cause the cervix to dilate
• The cervix is completely dilated at 10 centimeters
Functions of the female reproductive system

– **Placental stage**
  - The last stage of labor
  - Also known as afterbirth
  - Delivered due to final uterine contractions
Functions of the female reproductive system

– Expulsion stage
  • The baby is actually delivered
    – Natural
    – Cesarean

What is an episiotomy? Why might it be necessary?
Disorders of the female reproductive system

- What does ectopic mean?

- What are some symptoms of ectopic pregnancy?

- What is the most common treatment option?

- What are the risk factors?
Disorders of the female reproductive system

Postpartum depression

- New mothers often feel restless, anxious, fatigued and worthless
- Some new moms worry they will hurt themselves or their babies
- Unlike the "baby blues," postpartum depression does not go away quickly
- What causes this condition?
Disorders of the female reproductive system

Infertility

- Unable to become pregnant after a year of trying
- If a woman keeps having spontaneous abortions, it is also called infertility

4.06 Understand the functions and disorders of the reproductive system
Infertility

• Failure for pregnancy to occur after one year of trying to conceive

• Discuss the causes of infertility in the male.

• What are some treatment options?
Reproductive process:

Abstinence

Sterilization
  – Tubal ligation

Barrier methods
  – Female condom
  – Spermicides
  – Diaphragm
  – Cervical cap
  – Contraceptive sponge

Hormonal Methods
  – Birth Control Pills
  – Depo-Provera
  – Lunelle
  – NuvaRing/Vaginal Ring
  – Ortho Evra Patch/Birth Control Patch
  – Intrauterine Device (IUD)

4.06 Understand the functions and disorders of the reproductive system
Reproductive process: **male contraception**

**Abstinence**

**Vasectomy**
- Vas / ectomy
- Permanent

**Condoms**

Compare the benefits and concerns with each form of male contraception.
Sexually transmitted infections

- Chlamydia
- Genital warts
- Gonorrhea
- Herpes
- HIV
- Syphilis
- Trichomonas

Effects females and males. May or may not present symptoms. May or may not have a cure!
Essential questions

• What are the functions of the female reproductive system?
• What are some common disorders of the female reproductive system?
• What is the function of the male reproductive system?
• What are some common disorders of the male reproductive system?
• How do the male and female reproductive systems work together?
• How do you relate the body’s hormone control to the male and female reproductive systems?