The Reproductive System

Unit 6 Reproductive System
Functions of the Reproductive System

• Production of the offspring
  – Gamete
    • A sex cell
      – Female gamete = egg (oocyte)
      – Male gamete = sperm
  – Gonad
    • An organ that produces gametes
      – Female gonad = ovary
      – Male gonad = testes
Functions of the Reproductive System

• Produce hormones to help in the maturation process
  – Female sex hormone = estrogen
  – Male sex hormone = testosterone
The Female Reproductive System

- **Ovaries**
  - Located in the pelvic cavity
  - Oval shaped about the size of an unshelled almond
  - Each contains about 200,000 tiny egg sacs called follicles
    - Each follicle contains an immature egg
Ovaries- Function

• Produce eggs
  – Called immature follicles and were actually produced before the female was born
  – Approximately 400,000 were produced, but only around 500 eggs reach maturity
Ovary Functions-cont.

- Ovarian Cycle
  - Due to the influence of hormones such as estrogen, an egg will mature each month following puberty
  - The follicle containing the egg will move to the surface of the ovary
  - The follicle then breaks releasing the egg in a process called ovulation
  - The egg then moves into the ovarian tube where it can be fertilized
Ovary Function – cont.

• 2. Produce the hormone estrogen which regulates the reproductive system and is responsible for formation of female secondary characteristics.

• Secondary Sex Characteristics – Characteristics associated with the female that are not directly linked to the production of offspring:
  • Breasts development
  • Broadened pelvis
  • Body hair
  • Increased body fat
Uterine Tubes

• Location
  – Extend from (but not attached to) to ovary to the uterus

• Structure
  – The ovary side has a funnel-shaped opening to receive the egg
  – The other end is attached to the uterus
  – Cilia lining the tube create a current that helps draw the mature egg into the tube. Also helps to move the egg through the uterine tubes to the uterus.
  – Transport the egg from the ovary to the uterus
  – Transport the sperm to the egg
Uterine Tubes

- Functions
  - Transport the egg from the ovary to the uterus
  - Transport the sperm to the egg
  - Site of fertilization
Uterus

- Inverted pear-shaped organ located in pelvis above the urinary bladder
- Three sections:
  - The fundus (top), body or middle section, and the cervix (connects to the uterus)
- Three layers:
  - Perimetrium (outside), myometrium (middle), and endometrium (inside lining)
    - A fertilized egg implants in the endometrium. If implantation does not occur, the endometrium will deteriorate and is lost during menstruation.
- Functions
  - Menstruation
  - Development of the embryo/fetus
  - Aids in expulsion of the fetus during labor
Vagina

- Fibromuscular tube connecting the uterus to the outside of the body
- Vaginal orifice (opening) is located between the urethra and the anus

Functions
- Passageway for menstruation
- Female copulatory organ
- Birth canal during the delivery of the fetus
Structures of the Male Reproductive System

- Testes
- Scrotum
- Epididymis
- Vas Deferens
- Prostate Gland
- Urethra
Testes

- Located in the scrotum
- Made up of small, coiled tubes called seminiferous tubules where sperm are made
  - Can produce sperm throughout the adult life of the male (beginning at puberty) at the average rate of 30 million sperm per day
Testes

- Function
  - Production of sperm
  - Production of testosterone
  - Stimulates the development of secondary sex characteristics in the male

![Diagram of spermatogenesis and meiosis](image-url)
Male Secondary Sex Characteristics

- Body hair
- Muscle development
- Deep voice
- Broadening of shoulders
- Narrowing of hips
Scrotum

- Loose, muscular sac that holds the testes
- Hangs from the base of the penis
- Function
  - Encloses and protects the testes
  - Maintains a constant temperature about 2 to 3 degrees below normal body temperature for optimal sperm production
Epididymis

- 2 coiled tubes about 20 feet long
- Comma shaped organ posterior and superior to each testes
- Function
  - Site of sperm maturation
  - Provides temporary storage area for sperm
Vas Deferens (Ductus Deferens)

- 2 muscular tubules extending from the epididymis through the abdomen to the urethra
- Function
  - Transports sperm from the epididymis to the urethra
Prostate Gland

• Plum shaped gland located inferior to the urinary bladder and surrounds the urethra

• Function
  – Secretes a large amount of alkaline fluid that helps increase sperm motility and neutralizes the acidic vagina
Urethra

- Tube that leads from the urinary bladder through the prostate gland
- Surrounded by the penis
- 6-8 inches in length
- Function
  - Passageway for sperm
  - Passageway for urine
Diseases and Disorders

Reproductive System
Premenstrual Syndrome (PMS)

- Physical, psychological, and emotional symptoms related to a woman’s menstrual cycle
- Symptoms are usually predictable and occur regularly during the two weeks prior to menses
- Symptoms may vanish after menstrual flow starts, but may continue even after the flow has begun

- Severity of symptoms may vary
PMS

• Most common symptoms include
  – Abdominal bloating
  – Cramping
  – Breast tenderness
  – Stress or anxiety
  – Depression
  – Appetite changes & food cravings
  – Sleep problems
  – Joint & muscle pain
  – Headache
  – Fatigue

  – Acne
  – Irritability and anger
PMS

• Treatment includes
  – Aerobic exercise
  – Reduced caffeine, sugar, and sodium
  – Increase fiber
  – Rest/sleep
  – Hormonal therapy
  – Anti-inflammatory drugs
Endometriosis

- Presence of the endometrium outside of the uterus
- Seems to be caused by the backflow of menstrual blood
- Symptoms include very painful periods, heavy periods, chronic abdominal pain, and infertility
- Controlled by birth control pills
- Surgery to remove the tissue from organs
Breast Cancer

- Second only to lung cancer for leading cause of death in women due to cancer
- Can also occur in men
- There are no early symptoms so annual check ups are vital
- Risk factors include:
  - Genetics
  - Exposure to radiation
  - High fat diet
  - Having the first baby after age 30

- Generally found with routine breast self exams and mammograms
- Treatment includes mastectomy, chemotherapy and radiation
Cervical Cancer

- Cancer that begins in the cervix
- Usually caused by human Papilloma Virus (HPV)
  - From sexual contact
- Other causes include smoking, having multiple sex partners, or women who have had sex with men who have had multiple partners.
- Lack of regular pap smears can also be considered a cause since early stages have no symptoms
Cervical Cancer

• Symptoms
  – None
  – Abnormal vaginal bleeding
  – Increased vaginal discharge
  – Pelvic pain
  – Pain during intercourse

• Treatment
  – Surgery
  – Radiation
  – Chemotherapy
Benign Prostatic Hypertrophy

- Abnormal growth of prostate cells, but the condition is not cancerous
- Prostate undergoes abnormal growth and presses against the urethra and bladder
- Interferes with the normal flow of urine

- Cause
  - Age

- Treatment
  - Surgery
  - Medications
Testicular Cancer

- About 7,500 men in the USA are diagnosed each year
- Occurs most often in men ages 15 to 39
- Most common cancer in men between ages 20 to 34
- Most testicular cancers are found by men themselves

- Symptoms include lump or swelling in the testicle, and feeling of heaviness in scrotum
- Treatment is removal of the testicle
Sexually Transmitted Infections (STI)

- Illness having significant probability of transmission between humans by means of sexual contact
- Most can be treated with medication
- A person may be infected and may potentially affect others without showing signs of disease
- Best way to prevent is abstinence before marriage and fidelity after