REPRODUCTION
CHAPTER 18
The endocrine system regulates long-term changes in the body such as growth and development. It also controls many of your body’s daily activities.

System is made up of a group organs called endocrine glands.

- Produces and releases chemical substances (into the blood stream) that signals changes in other parts of the body.
- The chemicals produced by the endocrine glands is known as a hormone.

  1. Chemical “messenger”
  2. Example: the hormone adrenaline causes an increased heart rate, mental alertness, and muscle tension.
The diagram shows the general location of each endocrine gland and endocrine-related organ.
Functions of Endocrine Glands

- **Hypothalamus Gland**
  - Located in the brain
  - Part of the nervous AND endocrine system.
  - Controls feelings of sleep, hunger, and body water levels.
  - Produces "releasing hormones" that signal the release of hormones from the pituitary gland.

- Luteinizing and Follicle-stimulating hormones, produced by the pituitary gland, (LH and FSH) signal the testes to begin making sperm and the ovaries to produce estrogen and progesterone.
THE ENDOCRINE SYSTEM (cont.)

- Pituitary Gland
  - Controls growth, reproduction, and metabolism.
  - Produces growth hormones in the body.
Igor Vovkovinskiy, 24, is a 7-foot-8-inch giant whose home in Rochester, Minn., was custom-built for his enormous frame. The house has cathedral ceilings and a nine-foot bed. When Vovkovinskiy was 3 years old, he already was nearly 5 feet tall. Doctors discovered a tumor in his pituitary gland that was causing his growth spurts.
Pituitary dwarfism is a result of growth hormone deficiency. The deficiency may be genetic or the result of a severe brain injury. When untreated, skeletal growth is extremely slow, and puberty may or may not occur. Development can be normalized with the regular administration of synthetic hormones.
Other Endocrine Glands
- See figure 2 on page 462

Another important function of the endocrine system is **Puberty**.
- Period of sexual development in which a person is physically able to reproduce.
- Starts when the hypothalamus signals the pituitary gland to produce two hormones.
  - These hormones signal the reproductive glands to produce sex hormones
The Male Reproductive System

- Reproductive cells are called **sperm**.
- Main function of MRS is to produce sex hormones, produce and store sperm, and to deliver the sperm to the female reproductive system.
  - Sperm may join with an egg in a process called **fertilization**.
The Male Reproductive System (cont.)

- **Testes** – male reproductive glands.
  - Produces **testosterone**, which affects the production of sperm and signals physical changes at puberty.
  - Located outside the body in a sac called the **scrotum**.

- **Penis** – the external sexual organ through which sperm leaves the body.

- Sperm Production
  - Once a male reaches puberty (about 10 years old) millions of sperm are produced each day in the testes.
The Male Reproductive System (cont.)

- The Pathway of Sperm
  - 1. Sperm are produced in the **testes**. Once mature they are stored in the **epididymis**.
  - 2. Released from the **epididymis** where the sperm travels through the **vas deferens** to the **seminal vesicles**.
  - From the **seminal vesicle** through the **prostate gland** to the **urethra**.
  - See figure 4 on page 466.
  - During **ejaculation** several million sperm are released.
Keeping a Healthy Reproductive System
- Clean scrotum and penis everyday. This will prevent fungus, such as jock itch
- Sexual Abstinence
  - Choosing to not have sex until married will prevent unwanted pregnancies, as well as serious sexually transmitted infections (STIs).
- Wear a “cup”
- Self-Exams
  - 1/3 of testicular cancer cases occur in the late twenties and early thirties.
- See a doctor if:
  - You have pain when urinating
  - Sores appear
  - Unusual discharge
  - You notice a hard unusual lump in the testicle
Female Reproductive System

- **Function**
  - Produce sex hormones, eggs, and provide a nourishing environment in which a fertilized egg can develop into a baby.

- **Ovaries** – reproductive glands in which eggs are produced.
  - Produces sex hormones *estrogen* and *progesterone*.

- **Ovulation** – a process that occurs once a month in which a mature egg is released by an ovary.
**Female Reproductive System (cont.)**

- **Fallopian Tubes** – Passage way from the ovaries to the Uterus.
  - Usually this is where fertilization occurs.
- **Uterus** – hollow, muscular, pear shaped organ.
  - Allows the fertilized egg to grow into a baby.
- **Vagina** – hollow, muscular passageway, leading from the uterus to the outside of the body.
  - Sperm enters a female body through the vagina.
  - During childbirth the baby will pass through the vagina.
The Menstrual Cycle (see pg. 472)
- Once a month an ovary releases a mature egg.
- If egg is not fertilized, the uterine lining will shed, and a new cycle begins.
- Usually lasts 28 days
- May be irregular, especially during puberty.
- Occur each month from puberty until menopause.
  - Occurs about 45 to 55 years old.
  - Body no longer releases a mature egg.
Female Reproductive System (cont.)

- Menstrual Discomfort
  - Abdominal cramps – caused by uterus contractions.
  - Premenstrual Syndrome (PMS)
    - Occurs before the menstrual cycle.
    - Nervous tension
    - Mood swings
    - Headaches
    - Bloating

- Toxic Shock Syndrome
  - Associated with tampon use
  - Bacterial infection
  - Can be deadly
  - Symptoms include fever, rash, vomiting, diarrhea
  - To avoid, women should change tampons often.
Female Reproductive System (cont.)

- Sexual Abstinence
  - Choosing not to have sex until marriage, with another virgin, is the only way to avoid unwanted pregnancy, and serious sexually transmitted infections.

- Treat infections immediately
  - Can be caused by:
    - Yeast
    - Bacteria
    - Other microorganisms
  - Symptoms
    - Discharge, odors, itching, burning sensation during urination.
      - See a doctor if any of these symptoms appear.
Female Reproductive System (cont.)

- Medical Checkups
  - Yearly checkup is recommended.
  - Breast Exam
    - Self exam (see page 476)
    - **Mammogram** at age 40
      - X-ray of breasts
  - Pap Smear – sample of cells taken from the cervix.
    - Tests for cervical cancer.