

Chapter 16

Endocrine and Reproductive Health

1. The Endocrine System
2. The Male Reproductive System
3. The Female Reproductive System

#OnedayIwokeup #Doppitup

Lesson 1 — The Endocrine System

Your endocrine system sends chemical messages through the bloodstream. **Endocrine glands** release **hormones** that regulate growth, metabolism, mood, sleep, stress response, and reproduction.

■ Hypothalamus	Bridge between nervous and endocrine systems; monitors internal environment and directs the pituitary
■ Pituitary Gland	The 'master gland'; regulates all other endocrine glands. Produces growth hormone, TSH, ACTH, FSH, LH, ADH, and oxytocin
■ Thyroid Gland	Produces thyroxine, regulating metabolism, body heat, and bone growth
■ Pineal Gland	Produces melatonin — your body's built-in alarm clock. Screen light before bed suppresses melatonin and disrupts sleep.
■ Adrenal Glands	Release epinephrine (adrenaline) and cortisol — the fight-or-flight hormones

■ Pancreas

Produces insulin (lowers blood sugar) and glucagon (raises blood sugar). Dysfunction causes diabetes.

Diabetes — Updated Treatments

Type 2 diabetes is now increasingly diagnosed in teens — directly linked to diet and inactivity. New treatment: **GLP-1 receptor agonists** (like semaglutide/Ozempic) have transformed management. For Type 1, **continuous glucose monitors (CGMs)** are now revolutionary, sending real-time data to a smartphone.

Lesson 2 — The Male Reproductive System

At around ages 12–15, the pituitary gland kicks off puberty by releasing FSH and LH, signaling the testes to increase testosterone production. Testosterone drives: broadening shoulders and muscle development, facial and body hair growth, voice deepening, and sperm production.

Testicular cancer is most common in males ages **15–35** (updated from 14–40). Monthly testicular self-exam (TSE) is critical — survival rates with early detection exceed 95%.

Lesson 3 — The Female Reproductive System

At birth, a female has all the eggs she'll ever have — about **400,000 immature ova**. At puberty, one egg matures and is released monthly (ovulation). The uterine lining thickens to receive a fertilized egg; if none arrives, it sheds — this is menstruation.

HPV Vaccine — Major Update

Gardasil 9 (current HPV vaccine) covers **9 strains** of HPV — up from the original 4 strains. Recommended for ALL people (any gender) starting at ages 11–12, with catch-up dosing through age 45. These 9 strains cause ~90% of HPV-related cancers.

Cervical cancer screening now starts at age 21 per USPSTF (or age 25 per ACS 2025 update). The HPV vaccine has already dramatically reduced cervical cancer rates in vaccinated populations.

Chapter Vocabulary

Lesson 1

Endocrine glands	Ductless organs that release hormones directly into the bloodstream
Hormones	Chemical messengers that regulate body functions including growth, metabolism, mood, and reproduction
Thyroid gland	Neck gland that produces thyroxine, regulating metabolism, body heat, and bone growth
Pancreas	Dual-function organ that regulates blood sugar through insulin (lowers glucose) and glucagon (raises glucose)
Pituitary gland	The 'master gland' that regulates all other endocrine glands
Adrenal glands	Glands atop the kidneys that produce stress hormones (adrenaline, cortisol)

Lesson 2

Sperm	The male reproductive cell (gamete); produced in the testes
Testosterone	The primary male sex hormone; drives puberty, muscle development, and sperm production
Testes	The two male reproductive glands that produce sperm and testosterone
Sterility	The inability to reproduce, due to sperm problems, hormonal imbalances, or blockages

Lesson 3

Eggs (ova)	The female reproductive cells (gametes); released one at a time during ovulation
Ovaries	The female reproductive glands that store ova and produce estrogen and progesterone
Uterus	The hollow, muscular organ that nourishes and protects a developing fetus during pregnancy
Ovulation	The monthly release of a mature egg from an ovary into the fallopian tube

Menstruation	The monthly shedding of the uterine lining when pregnancy has not occurred
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