Reproductive Organs

Primary sex organs (Gonads)
• Testes in males
• Ovaries in females
▪ Gonads produce gametes (sex cells) and secrete
hormones
• Sperm—male gametes
• Ova (eggs)—female gametes
Secondary sex organs: Provide the route by which sex
cells unite

Male Reproductive System

Testes	Vas Deferens	Accessory Glands
The penis and the scrotum are the external portions of the male reprod-uctive system. Inside the scrotum reside two testes, the organs that manufacture sperm and produce the male hormone testosterone	The vas deferens travels up through the spermatic cord, into the pelvic cavity, over the ureter to the prostate, and behind the bladder.	Prostate Gland: Encircles the urethra and ejaculatory duct. -- Secrets a thin, milky, alkaline fluid into urethra. --Adds volume to semen and comprises 30% of the fluid portion of semen

Male Reproductive System (cont)

Extending from the abdomen to each testicle is a strand of connective tissue called the spermatic cord; the sperm duct (vas deferens) as well as blood and lymphatic vessels and nerves lie within the cord	As the vas deferens turns downward, it joins the seminal vesicle to form the ejaculatory duct. (There are two ejaculatory ducts: one for each testis.) The ejaculatory ducts pass through the prostate and empty into the urethra.	Seminal Vesicles: secretes a thick, yellowish fluid into the ejaculatory duct. The fluid comprises about 60% of semen; it contains fructose (an energy source for sperm motility) and substances that nourish and ensure sperm motility

Male Reproductive System (cont)

Two small, oval testes lie suspended in a sac of tissue called the scrotum.	Ejacul-atory Duct empties into the urethra, moving sperm via PERIST ALSIS	Bulbourethra Glands: secrete a clear fluid into the penile portion of the urethra during sexual arousal. Besides serving as a lubricant for sexual interc-ourse, the fluid also neutralizes the acidity of residual urine in the urethra, which would harm the sperm.

The median septum divides the scrotum.

The cremaster muscle surrounds the spermatic cord and testis. In cold weather, it contracts to draw the testes closer to the body for warmth.

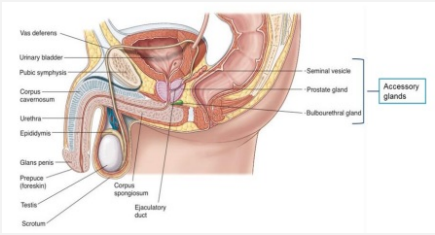
Semen

Milky white mixture of sperm and accessory gland secretions	Components of accessory gland secretions
65% of volume comes from seminal vesicles	Liquid portion acts as a transport medium to dilute sperm
30% comes from prostate gland	Sperm are stream-lined cellular “tadpoles”

Semen (cont)

5% comes from bulbourethral gland	Fructose provides energy for sperm cells
Emitted during the ejaculation that accompanies orgasm, semen is a whitish fluid containing both sperm and the fluid secretions of the accessory glands. Each ejaculation expels between 2 and 5 ml of semen containing between 40 and 100 million sperm.	Alkalinity of semen helps neutralize the acidic environment of vagina
Immediately after ejaculation, semen becomes sticky and jelly-like. This promotes fertilization by allowing the semen to stick to the walls of the vagina and cervix instead of immediately draining out. The alkalinity of semen counteracts the acidity of the vagina; this is important because sperm become immobile in an acidic environment.	Semen inhibits bacteria

Male Reproductive



Male Reproductive System - External Genitalia

Penis	Regions of the penis
Male organ of copulation that delivers sperm into the female reproductive tract	Shaft
Internally there are three areas of spongy erectile tissue around the urethra	Glans Penis - Enlarged tip
Erections occur when this erectile tissue fills with blood during sexual excitement	Prepuce - Forskin
	--Prepuce is often removed with circumcision

Spermatogenesis

1-Sperm begin as spermatogonia, primitive sex cells located in the walls of the seminiferous tubules.	Sperm Production	Sperm are formed in the seminiferous tubules of the testis

Spermatogenesis (cont)

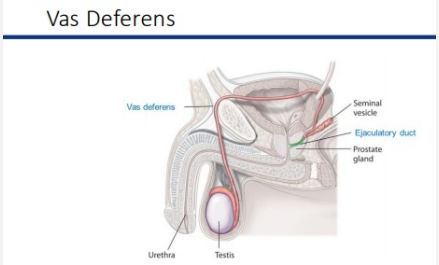
2-Spermatogonia divide by mitosis to produce two daughter cells, each with 46 chromosomes.	Begins at puberty and continues throughout life	Spermatogonia (primitive stem cells) begin the process by dividing rapidly
3-These cells then differentiate into slightly larger cells called primary spermatocytes, which move toward the lumen of the seminiferous tubule.	Millions of sperm are made every day	During puberty, follicle-stimulating hormone (FSH) is secreted in increasing amounts

4-Through meiosis, the primary spermatocyte yields two genetically unique secondary spermatocytes, each with 23 chromosomes.

5-Each secondary spermatocyte divides again to form two spermatids.

6- Spermatids differentiate to form heads and tails and eventually transform into mature spermatozoa (sperm), each with 23 chromosomes.

Vas Deferens



Testosterone Production

During puberty	Testosterone
Follicle-stimulating hormone (FSH) begins prodding seminiferous tubules to produce sperm	Most important hormonal product of the testes
Luteinizing hormone (LH) begins activating the interstitial cells to produce testosterone	Stimulates reproductive organ development
	Underlies sex drive
	Causes secondary sex characteristics Deepening of voice Increased hair growth Enlargement of skeletal muscles Increased bone growth and density

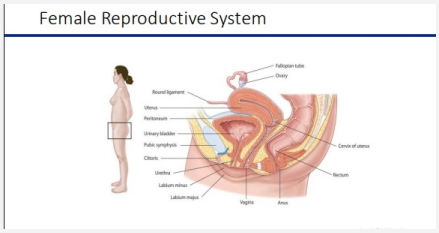
Female Reproductive System

Ovaries

Duct system • Uterine (fallopian) tubes • Uterus • Vagina

External genitalia

Female Reproductive System



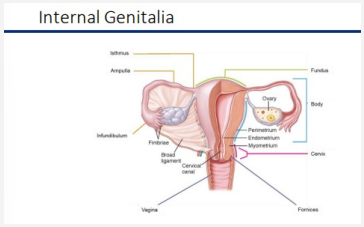
Female Reproductive System

The organs of the female reproductive system are housed within the abdominal cavity.

The female's primary reproductive organs (gonads) are the ovaries. The ovaries produce ova, the female gametes.

The accessory organs—which include the fallopian tubes, uterus, and vagina— extend from near the ovary to outside the body.

Internal Genitalia



Internal Genitalia

Fallopian Tubes	Uterus	Vagina
extend from the ovary to the uterus	A muscular chamber that houses and nurtures a growing embryo.	A receptacle for the penis and sperm, a route for the discharge of menstrual blood, and the passageway for the birth of a baby.
A narrow isthmusis the portion closest to the uterus.	It sits between the urinary bladder and the rectum, held in place by the broad ligament.	The smooth muscle walls of the vagina can expand greatly, such as during childbirth.

Internal Genitalia (cont)

The middle portion (the ampulla) is the usual site of egg fertilization.	It tilts forward over the bladder. The curved, upper portion is the fundus	The vagina extends slightly beyond the cervix, creating pockets called fornices.
Cilia lining the inside of the beat to help propel the egg toward the uterus	The upper two corners connect with the fallopian tubes.	
The distal end is the infundibulum.	The inferior end is the cervix.	
. The fallopian tube does not attach directly to the ovary; finger-like projections called fimbriae fan over the ovary.	A passageway through the cervix, called the cervical canal, links the uterus to the vagina. Glands within the cervical canal secrete thick mucus; during ovulation, the mucus thins to allow sperm to pass.	

Uterine (Fallopian) Tubes

Form the initial part of the duct system

Receive the ovulated oocyte from the ovaries

Provide a site for fertilization

Empty into the uterus

Little or no contact between ovaries and uterine tubes

Supported and enclosed by the broad ligament

Infundibulum • Distal, funnel-shaped end

Fimbriae • Fingerlike projections of the infundibulum • Receive the oocyte from the ovary • Cilia located inside the uterine tube transport the oocyte

Wall of the Uterus

Perime-trium	Myometrium	Endometrium
Outer layer consisting of a serous membrane	Thick middle layer consisting of smooth muscle that contracts during labor	Innermost layer where embryo attaches
		Stratum functi-onalis
		• Thickens each month in anticipation of fertilized egg • If fertilization doesn't occur, it sloughs off, resulting in menstruation

Wall of the Uterus (cont)

• Attaches the endometrium to the myometrium • Does not slough off; rather it helps functionalis layer regenerate each month

Roles of the wall of the uterus: house and nourish growing fetus and expel fetus from body during delivery.