Ch 46.3 Notes

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Vocab

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Testes: The male reproductive organs that produce sperm and hormones such as testosterone.

Seminiferous Tubules: A series of tiny tubes within the testes where sperm are produced.

Scrotum: The external sac that contains the testes in male mammals.

Urethra: A tube that carries urine and semen (in males) out of the body.

Semen: The fluid that is ejaculated from the penis during male sexual climax. It contains sperm and other substances that nourish and protect the sperm.

Seminal Vesicles: Glands that secrete a fluid that makes up a significant portion of semen.

Prostate Gland: A gland in males that produces a fluid that makes up a portion of semen and helps to nourish and protect the sperm.

Penis: The male reproductive organ that is used for sexual intercourse and urination.

Glans: The tip or head of the penis.

Prepuce: The retractable foreskin that covers the glans of the penis in some male mammals.

Ovaries: The female reproductive organs that produce eggs and hormones such as estrogen and progesterone.

Follicles: Small sacs within the ovaries that contain developing eggs.

Oocyte: A developing egg cell.

Oviduct: The tube through which eggs travel from the ovary to the uterus. It is also known as the fallopian tube.

Uterus: The muscular organ in female mammals where a fertilized egg implants and develops into a fetus.

Endometrium: The inner lining of the uterus that thickens and prepares for implantation of a fertilized egg.

Cervix: The lower part of the uterus that connects to the vagina.

Vagina: The muscular canal that connects the cervix to the outside of the body in female mammals.

Vulva: The external female genitalia.

Labia Majora: The outer, larger lips of the vulva.

Labia Minora: The inner, smaller lips of the vulva.

Clitoris: A highly sensitive female sexual organ located at the front of the vulva.

Mammary Glands: The glands in female mammals that produce milk to nourish offspring.

Gametogenesis: The process by which gametes (sperm and eggs) are produced.

Spermatogenesis: The process by which sperm are produced in the testes.

Oogenesis: The process by which eggs are produced in the ovaries.

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Notes

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Human Male Reproductive Anatomy

External

* Scrotum
* Penis

Internal

* Gonads
* Ducts
* Accessory glands

Testes

Seminiferous tubules

* Sperm production
* 2 degrees cooler than core for spermatogenesis

Scrotum

* Testicle= scrotum + testis inside
* Develop internally and descend before birth (with exceptions- e.g. whales)

Ducts

Epididymis

* Where sperm pass to from seminiferous tubules
* Humans- sperm here 3 weeks
* Sperm mature here

Vas deferns

* Sperm move from epididymis to here IF ejaculation happens
* Behind bladder

Urethra

* Vas deferens dumps into here
* Outlet for both reproductive and excretory (urinary)

Accessory Glands

Seminal vesicles

* dump into vas deferens
* make 60% of seminal fluid
* mucus, fructose, coagulating enzyme, ascorbic acid, prostaglandins

Prostate

* dumps into urethra
* anti-coagulating enzymes, citrate (nutrient for sperm)

Bulbourethral

* Along urethra, below prostate
* Neutralizes acids
* Fluid may carry sperm

Penis

Urethra

Spongy erectile tissue

* Arousal= fills with blood from arteries
  + Pressure blocks blood from leaving from veins
  + Erection allows insertion into vaginal canal
  + Difficulty maintaining erection= vasodilator drugs
  + Some animals have bones in the penis (e.g. dog)
* Shaft
  + Thicker skin
* Glans
  + Thinner skin= more sensitive
* Prepuce (foreskin)

Human Female Reproductive Anatomy

External

* Clitoris
* Two sets of labia
* Vaginal opening

Internal

* Gonads
* Ducts/chambers

Ovaries

Pair that flank uterus

Follicles

* Outer layer
* Oocyte in each follicle
  + partially developed egg
  + surrounded by support cells

Oviduct and Ovaries

Oviduct= fallopian tube

* connects ovary to uterus
* diameter near uterus= same width as a hair
* Cilia inside tube collect egg and wave it along towards the uterus

Uterus

* Thick, muscular organ
* Endometrium
* Cervix

Vagina and Vulva

Vagina aka birth canal

* Elastic/Muscular tube
* Site of insertion for penis

Vulva = external female genitalia

* Labia majora= thick fatty ridges protect vulva (outer labia)
* Labia minora= slender skin folds (length variable)

surrounds vaginal opening

clitoris at the top of the folds

Gametogenesis

Spermatogenesis

* continuous and prolific in adult males
* hundreds of millions of sperm per day
* seven weeks to make a sperm

Oogenesis

* development of mature oocytes starting at puberty
* immature eggs formed before birth but don’t finish maturing
* maturation happens starting at puberty

Spermatogenesis

Primordial germ cells form spermatogonia  then make spermatocytes

Each spermatocyte turns into four sperm cells

Oogenesis

Primordial germ cells make oogonia

Oogonia divide by mitosis to form cells that begin mitosis but STOP AT PROPHASE before birth (called primary oocytes)

Born with however primary oocytes you have (recently found not true in mice)

FSH stimulates follicles to make egg complete meiosis 1 (One follicle/month USUALLY)

* Meiosis 2 starts but stops at metaphase= secondary oocyte
* ONLY if a sperm fuses, does the oocyte finish meiosis 2