

<u>Lecture Date</u>	<u>Topic</u>	<u>Reading in Marieb, Mallatt, and Wilhelm</u>
L27	Thurs 4/30	Reproductive system
		Ch. 24, pp. 712-743

Reproductive system**Genitalia**

primary sex organs (gonads; produce sex cells or gametes)

testes

ovaries

accessory sex organs

internal glands and ducts

external genitalia

Male reproductive system

scrotum

contains paired testes

maintains temperature at about 34 °C

dartos muscle

smooth wrinkles scrotal skin in response to cold

cremaster muscle

skeletal muscle, elevate the testes in response to cold

testes

gross anatomy

tunica vaginalis

tunica albuginea

lobules

seminiferous tubules

straight tubule

rete testis

epididymis

pampiniform plexus (countercurrent exchange)

seminiferous tubules and spermatogenesis

stratified epithelium

spherical spermatogenic cells

spermatogenesis (sperm formation)

spermatogonia (stem cells) > primary spermatocytes >

secondary spermatocytes > spermatids > spermatozoa

spermiogenesis (spermatid > spermatozoa)

columnar sustentacular cells (Sertoli cells)

interstitial cells

make and secrete androgens (testosterone)

reproductive duct system in males

sperm leaves testis through the efferent ductules

simple columnar epithelium

ciliated

smooth muscle

duct of the epididymis
epididymis
head of epididymis contains efferent ductules > duct of the epididymis
body
tail
pseudostratified columnar epithelium
stereocilia, microvilli increase surface area for secretion/absorption
20 day transit time
acquire ability to swim and acrosome
smooth muscle ejaculate sperm from epididymis
ductus deferens
stores and transports sperm during ejaculation
joins duct of seminal vesicle to form the short ejaculatory duct > prostatic urethra

- 1) pseudostratified epithelium*
- 2) thick muscularis*
- 3) outer adventitia*

spermatic cord
tube of fascia
contains ductus deferens, testicular vessels, nerves
urethra
carries sperm from the ejaculatory ducts to the outside of the body
prostatic urethra
membranous urethra in the urogenital diaphragm
spongy urethra in the penis
accessory glands
produce the bulk of semen (sperm plus secretions of accessory glands and accessory ducts)
seminal vesicles
posterior surface of the bladder
secretory pseudostratified columnar epithelium

- (1) fructose*
- (2) prostaglandins (stimulate uterus to contract)*
- (3) immunosuppressive elements*
- (4) substances that enhance sperm motility*
- (5) enzymes that clot the ejaculated semen in the vagina, then liquefy it so that sperm can swim out*

yellow fluorescent compound
prostate
encircles the first part of the urethra
tubuloalveolar glands (main, submucosal, mucosal)
milky fluid
enhances sperm motility
enzymes that clot and liquefy ejaculated semen
prostate-specific antigen (PSA)
measured to detect prostatic cancer
bulbourethral glands
pea-sized glands inferior to the prostate

produce a mucus, prior to ejaculation
neutralizes traces of acidic urine
lubricates urethra

penis

male organ of sexual intercourse

external genitalia (with scrotum)

root

shaft (body)

glans penis

prepuce (foreskin)

erectile bodies

corpus spongiosum (midventral, surrounding spongy urethra

enlarged distally as glans penis

enlarged proximally as the bulb of the penis

corpora cavernosa

most of the mass of the penis

crura (legs; singular, crus) proximal ends,

erection

parasympathetic control

ejaculation

sympathetic control

Female reproductive system

ovaries

gamete (ova, or “egg”) producing reproductive organs

tunica albuginea

cortex

houses developing gametes (oocytes)

within follicles

medulla

blood vessels, nerves, lymphatic vessels (via hilum)

ovarian cycle

follicular phase (first half of the ovarian cycle)

primordial follicles

oocyte plus follicular cells

primary follicles

granulosa cells

convert androgens to estrogens

zona pellucid

theca folliculi

secrete androgens

secondary (antral) follicle

antrum

vesicular (Graafian) follicle

mature follicle

ovulation (midpoint of the ovarian cycle)

empties into peritoneal cavity, swept into a uterine tube

luteal phase (second half of the ovarian cycle)

corpus luteum

remaining granulosa and theca layers
secretes estrogens and progesterone
corpus albicans

oogenesis
meiosis (2n to n)
primary oocytes (arrested in meiosis I)
ovum (following penetration of sperm and completion of meiosis II)
uterine tubes (oviducts; fallopian tubes)
infundibulum
fimbriae
ampulla
site where fertilization normally takes place
isthmus
site of 90% of all ectopic pregnancies
implantation of the embryo outside the uterus

uterus
body
cavity of the body
fundus
isthmus
cervix
cervical canal
cervical glands
external os
internal os
uterine wall
perimetrium
outer serous membrane (peritoneum)
myometrium
smooth muscle
endometrium
mucosal lining
simple columnar epithelium
stratum functionalis (functional layer)
adjacent to the cavity of the body
stratum basalis (basal layer)
adjacent to the myometrium
uterine cycle (menstrual cycle)
menstrual phase (days 1-5)
stratum functionalis is shed
proliferative phase (days 6-14)
stratum functionalis rebuilds
secretory phase (days 15-28)
endometrium prepares for implantation of the embryo

vagina
outer adventitia
muscularis (smooth muscle)
inner mucosa

- rugae*
 - stratified squamous epithelium*
- vaginal orifice*
- hymen*
- fornix*
- external genitalia (vulva, pedundem)*
- mons pubis*
 - labia majora*
 - homologue of the scrotum*
 - labia minor*
 - vestibule*
 - greater vestibular glands*
 - secrete lubricating mucus*
 - clitoris*
 - homologue of the penis*
 - glans*
 - body*
 - paired corpora cavernosa*
 - crura*
 - prepuce of the clitoris*
 - bulbs of the vestibule*
 - mammary glands*
 - nipple*
 - areola*
 - lactiferous ducts*
 - lactiferous sinus*
 - pregnancy and childbirth*
 - pregnancy*
 - events leading to fertilization*
 - acrosomal reaction*
 - cortical reaction*
 - fertilization*
 - implantation*
 - about 6 days after fertilization*
 - inner cell mass*
 - outer trophoblast*
 - inner layer, cytotrophoblast*
 - outer layer, syncytiotrophoblast*
 - formation of the placenta*
 - chorion*
 - chorionic villi*
 - decidua basalis*
 - decidua capsularis*
 - placenta*
 - deciduas (maternal portion)*
 - anatomy of the placenta*
 - childbirth*
 - parturition*

labor

dilation (first) stage

expulsion (second) phase

placental (third) stage