MALE REPRODUCTIVE SYSTEM

Revised 12 April 2016 (see also Balinsky, p 61 etc.) (Ganong)
Martini’s 6th: 1047-1064, 7th: 1031-1047, 8th: 1043-1059, 9th: 1032-1049, 10th:

Draw and label: OVERVIEW: P 1036

TESTES STRUCTURE AND FUNCTION: (p 1037, 1042)

- Tunica albuginea capsule around testis
- septa between lobules
- seminiferous tubules (1035) form spermatozoa
- spermatogonia line basement membrane
- spermatocytes (1° & 2°) pushed away from basement membrane
- Sertoli cells nurse cells
- Interstitial cells of Leydig synthesize testosterone
- rete testis (P 1052) collects differentiated spermatozoa
- efferent ducts ciliated, carries to epididymus
- head of epididymis ciliated, carries to epididymus
- tail spermatozoons mature
- vas deferens ciliated, loops over ureter
- spermatic cord See previous page of notes

SCROTUM: (1035 & 1036)

Descent of testes caused out pouching of
- peritoneum (vaginal process) (note that the peritoneum does not contain the testes, they are retroperitoneal)
- gubernaculum (“rudder little” fibromuscular band attached to floor of scrotum and to testes, causes them to descend.
- cremaster muscle (“suspender”) extension of abdominal internal oblique, raises testes during cold, & final phases of sex.
- dartos tunic thin layer of smooth muscle under skin. Cold: wrinkles scrotum, warm: relaxes

DUCTUS DEFERENS AND ACCESSORY ORGANS (p 1053)

- ampulla
- seminal vesicle
- ejaculatory duct (just before vas joins urethra)
- prostate (makes prostoglandins as well as seminal fluids)

PENIS: (p 1045)

- bulbourethral glands (cowper’s gland)
- penis
- corpora cavernosa (two, dorsal) form crura (“legs”)
- corpora spongiosum (one, with urethra)
- glans penis
- prepuce

SEMIN COMPOSITION:

- spermatozoa ()
- HCO$_3^-$
- ascorbic acid
- spermine (polyamine: NC$_2$NC$_4$NC$_3$ N)
- fructose (semen about 50% fructose)
- mucus
- fibrinogenase

GLAND CONTRIBUTION:

- prostate (15-33%)
- seminal vesicle (60%)
- Cowpers (bulbourethral gland)

Production: 2.5 mL to 3.5 mL per ejaculation after 3 days continence.
Concentration ~100,000,000/mL sperm (50% sterility if 20-40 x 10$^6$, all under 20 x 10$^6$.)

SEXUAL RESPONSE:

Erection: parasympathetic stim: dilation of arterioles of penis stim by either physical stim, or erotic psychic stim,
Filling with blood, the dilated arteries compress the veins, block outflow.

ORGASM two stages:

Emission: (movement into urethra) fluids move fr prostate to prostatic urethra
Smooth muscle contractions moves into urethral bulb, which doubles in size, cremaster draws up testes.
Sense of impending orgasm

Ejaculation: sympathetic impulses: propulsion out of urethra by skeletal muscles (bulbocavernosus muscle)
spinal reflex mediated by centers in sacral/lumbar region of spine (rhythmic contractions of pelvic floor)
tense pleasure

Resolution: Sympathetic vasoconstrictor impulses on arterioles terminate erection, followed by refractory period

Testosterone synthesized from cholesterol in interstitial cells of Leydig, Keto at #17
Androgens: increase penis size, scrotum pigmented, seminal vesicles enlarge, secrete, form fructose. Larynx enlarges.