Sex and sexual behavior (Chpt 9)

Why worry about reproductive behaviors?
- Sex/Love: at the bases of many social interactions. At the bases of Art production (literature, painting)
- Sexual behavior (sex) vs. Sexual experience (emotion): two different interacting neural systems.

Consequences: physical and psychological
- Sexually dimorphic behaviors: some differences between male/female behaviors are due at least in part to sex differences
- What are neural structures that are influenced by sex differences? What psychological functions might be affected by sex differences, how?
- Sexual orientation: how much is psychology; how much is biology?

Genetic sex
- Genetic factors:
  - gametes = ova + sperms. 23 chromosomes each → 23 pairs
  - 1 pair of sex chromosome
  - the X rating: 3X-only gametes but 50% XY
  - genetic sex is determined by male chromosome

Sex
- Y chromosome → activate other chromosomes → sex differences
- Gonads
  - testes + ovaries: produce sperm, ovum and hormones
  - 1 gene on the Y chromosome will trigger testes development (SRY gene)
  - gonads are physically differentiated 6 weeks after conception, functionally differentiated after 3 month of gestation.
  - after gonad development: organizational and activation hormonal effects.
- SRY testing gender verification: was abandoned in 2000 single genes are not reliable indicators of sex/gender.

- External sex organs: primary sex characteristics (birth): gonads, internal genitalia, external genitalia.
- Secondary sex characteristics (puberty): facial hair, breasts

Sex: internal genitalia
- Internal sex organs
  - Mullerian and Wolffian systems.
  - Male gonads (testes) produce: Anti-mullerian peptide hormones (demonizing), pro Wolffian steroid hormones called androgens such as testosterone or dihydrotestosterone (masculinizing)
- Males 48.9% → Females 51.1% (US census 1996)

- Genetic disorders:
  - Androgen insensitivity syndrome (XY: look female but no female internal organs)
  - Persistent mullerian duct syndrome (XY look male but internally both male and female)
Turner syndrome X0 (look female internally and externally but no gonads)
-XX= female XY= male

Sex: Puberty
-GNRH→ FSH/ LH → In females: ovaries → breast, hips enlargement fat redistribution lining of the uterus
-GNRH→ FSH/ LH → In males: testes: testosterone (androgen) → facial hair growth, muscle development, sperm production
-GNRH= gonadotropin releasing hormones
-FSH= follicle stimulating hormones
-LH= luteinizing hormones
-In females pubic and axillary hair depend on adrenal gland (kidney)
-CNS/PNS sex controllers? Hypothalamus and amygdala: sex and emotion

Sex: hormonal control
-hormones have activation and organizational effects, they also act on the nervous system → sexual dimorphic behaviors.
-hormonal cycles: females
  >estrous cycle: last several days, only period of mating (animals only)
  >menstrual cycle: month growth/ loss of lining of uterus, mating at anytime.
  >progesterone: lining of uterus, inhibits further ovum production. If there is no fertilization → decrease → loss of lining → menstruation.

-Male sexual behavior:
  >intromission → pelvic thrusting → ejaculation → refractory period
  >Coolidge effect: decrease of refractory period with the introduction of new females

-Female sexual behavior:
  >Lordosis: done intentionally to expose the vagina
  >3 measures of sexual behaviors:
    -attractiveness: change in male behavior
    -property, receptivity: change in female behavior (active vs. passive)

-Androgens (testosterone) have organizational effects on behavior
-Testosterone immediately after birth has behavioral defeminization and later, behavior masculinization effects

Sex Control: pheromones
-sexual communications between individuals. Vomeronasal organ.

-Animals
  >VNO: sensitive to urine (rat)
  >Damage of VNO: poor discrimination between male and female (mice)
  >single neurons in accessory olfactory bulb can selectively respond to male or female scents (rodents)

-Humans
  >tshirt smell → male/female discriminations in humans
  >in humans: sweat carries sexually dim phobic evaluations

Pheromones: experimental evidence
- Lee boot effect: group of co house female mice → stop of estrous cycle
- Whitten effect: synchronization of estrous cycle, if male odor present
- Vandenberg effect: early onset of female puberty upon exposure to male pheromones
- Bruce effect: female mouse inseminated expose to new male (intact testes) → failed pregnancy
- Classroom seating effect: possibly anecdotal