

WED, 2009-10-28, 8-9:20 AM,

Semen enters vagina, passes through cervix, fertilizes egg in fallopian tube. Egg moves to uterus & implants itself, grows into baby.
Semen passes through vas deferens from epididymis, goes out through urethra (same for urine).

Vas deferens ^{loops} goes over bladder, picks up sugar from seminal vesicles and goes out urethra.

Gonads = makes gametes (sperm). The sack the gonads are in is called the scrotum.

Seminiferous Tubules within the testes make sperm by meiosis.

The gonads are outside the body because sperm need to be below 98.6°F to grow properly. **seminiferous tubules**

Sperm cells are made in the ~~seminal vesicles~~, stored and matured in the **epididymis**, and spurt out through the **vas deferens** → **urethra** in ejaculation (sex/masturbation).

Seminal vesicles make the sugar for sperm — they do not ~~and~~ make sperm.

Prostate makes alkalai to neutralize acid in vagina.

Cowper's gland makes ^(clear) lubricating fluid before ejaculation.

It may exit the urethra before ejaculation.

A muscle prevents urine from exiting during ejaculation.

It also prevents semen from exiting during urination.

Gametogenesis = production of gametes (eggs or sperm)

Primary oocyte (women) = goes to ovary after Meiosis I —

development is arrested in meiosis I. **Oogenesis** = egg growth

Entry of sperm completes meiosis II, making a zygote.

WED, 2009-10-28, 8-9:20 AM

- 1.) Fertilized egg develops in the uterus
- 2.) Sperm are deposited in the vagina

WED
8-9:20 quiz

Spermatogenesis begins at puberty

Oogenesis meiosis haploid

1 → 4 [3 die] → 0 1 egg (haploid)

spermatogenesis

1 → 4 haploid sperm

Ovarian cycle: controls

growth/release of ovum (egg)

ovum = unfertilized egg

Menstrual cycle: prepares the uterus

zygote = fertilized egg

for implantation of an embryo.

Menstruation begins with loss of the endometrium of the uterus

The rest of the period rebuilds it. "period" = once every ~lunar

Female reproductive cycle:

month ≈ 28 days (4 weeks)

hypothalamus releases hormone to anterior pituitary

all controlled by hypothalamus

← stimulated by estrogen

Beginning of ovarian cycle

← inhibited by estrogen &

= increase in FSH & LH.

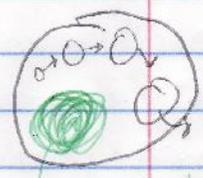
progesterone

↳ follicle stimulating hormone

↳ luteinizing hormone

P+E inhibits follicle growth =

birth-control pill → but also makes



ovulation

↳ makes progesterone

the endometrium less thick

corpus luteum (very big) & estrogen

& bloody by reducing the

(body yellow) ↳ makes

New baby

size of the corpus luteum

P+E so we don't have

makes HCG

over time

multiple eggs released

to tell mother not to slough off endometrium

normally

Human Chorionic Gonadotropin (period

Copulation a.k.a. ejaculation into vagina a.k.a. sexual

stops during pregnancy)

intercourse releases up to 500M sperm cells.

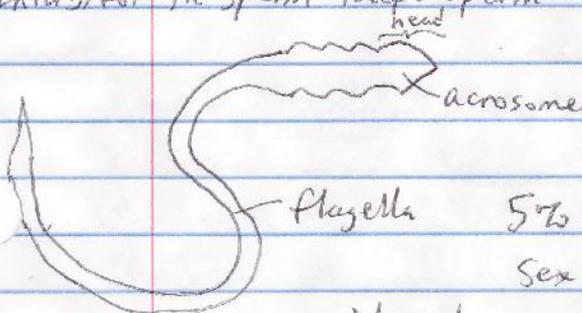
WED, 2009-10-28, 8-9:20 AM,

Males ~~egg~~ carry XY chromosomes, so they determine maleness.
Y chromosomes swim faster so about 105 ~~to~~ men are born
for every 100 women

- Parts of sperm:
- 1.) head: acrosome to eat hole in jellylike layer around egg, chromosomes (found in head of sperm also).
 - 2.) middle piece has mitochondria to make ATP for energy
 - 3.) Tail: flagella for movement (fed by mitochondria)

Inhibitor in sperm keeps sperm from eating in vagina

LH makes corpus luteum



Sperm cell

Birth control pill = P+E combo

5% chance of pregnancy in year of sex typically

Vasectomy = 0.1% chance of pregnancy, cut vas deferens in men

Tubal ligation = 0.4% chance of pregnancy, cut fallopian tubes

Only certain STDs are visible on the genitalia in men (penis/scrotum/hair/vulva) Spermicide kills sperm, not AIDS, etc

Pubic lice can transmit despite condom. Same for herpes if not on penis' shaft. ☺ More education = fewer children

Sexually Transmitted

↳ high school, college, post grad, etc

Disease (STDs) are contagious diseases spread by sexual contact

Bacterial diseases = treated w/ antibiotics

Fungal diseases = treated w/ anti-fungal chemicals

Viral diseases = AIDS, genital herpes, warts, etc are incurable because they live in your body cells. But can be controlled w/ medications.

WED, 2009-10-28, 8-9:20 AM: STDS:

Bacterial: chlamydial infections, gonorrhoea, syphilis (chancere sore)

Viral: genital herpes, warts, AIDS & HIV infection

Protozoan: trichomoniasis (like yeast infections)

Fungal: yeast-infections (candidiasis)

☺ HIV = RNA modification. French discovered first.

END Ch 26 Sex chapter

Ch 9 | ☺ A genetic defect (ss) causes sickle-cell anemia

Ss = fine & resistant to malaria! s = mutant

(SS) = fine combined dominant S = dominant

Nucleic acids & mutant alleles = best in Africa, but chance

$\frac{1}{3600}$ of Ashkenazi Jews' babies have

of passing on 2 mutants if you have a child to an Ss or ss woman or man (25% & 50% chance respectively)

Tay Sachs disease = death^o about 2 yrs. old ☺

Alleles are not visible on a karyotype! So you can't tell eye color

THU, 2009-10-29, 12:30-1:50 PM: cutting & tying the vas deferens = vasectomy = sterilizing

Seminal vesicles make "last big lunch"

Seminiferous tubules make sperm cells

Prostate contributes alkalai to neutralize the acidic pH of the

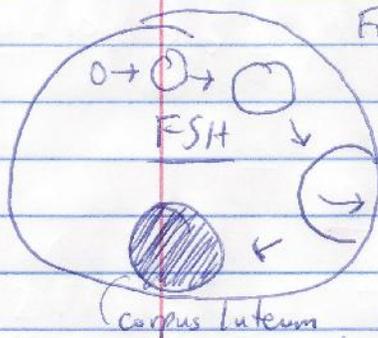
Cowper's gland makes lubricating fluid before ejaculation vagina

In men, STDs cause burning when urinating more often because ejaculatory tract & urinary tract (urethra) is combined.

Spermatogenesis in ~~ex~~ men

Gametogenesis = production of gametes. Oogenesis in women

THU, 2009-10-29, 12:30-1:50 PM:



Follicle grows, releases egg by rupturing during ovulation, then becomes the corpus luteum (body yellow).

The follicle does not actually move around. It gets bigger & ruptures in place.

Meiosis II is not completed until sperm fertilizes the egg.

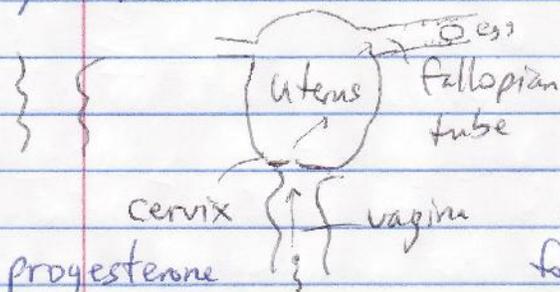
Oogenesis = 4 eggs, 3 die

Spermatogenesis = 4 sperm, all live

FSH = follicle stimulating hormone

The thick lining of the uterus (the endometrium)

is lost during menstruation. Rest of the menstrual cycle rebuilds the endometrium of the uterus.



Increase of FSH & LH (luternizing hormone) begins ovarian cycle

Combo of P+E inhibits follicle growth = birth control pill AND corpus luteum

P+E = progesterone & estrogen

"The pill" arrests follicle growth. No egg = no baby = no risk of pregnancy from sex.

FSH + LH spikes during ovulation. The corpus luteum (follicle left over) makes inhibitors so no more eggs are released. (in practice, risk is 50% yearly).

The baby makes HCG (human chorionic gonadotropin) helps maintain uterus so baby isn't sloughed off. When the egg is fertilized it changes polarity -- no more sperms.

JHU, 2009-10-29, 12:30-1:50 PM

Men carry the determining factor (the Y chromosome)
to make male children

Spermatozoas: head: acrosome has digestive enzymes

prophase:

chromosomes

toward

middle

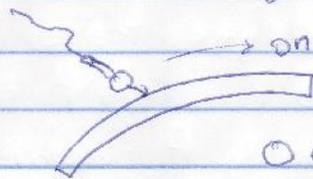
@ middle:

metaphase

specialized lysosome
middle piece: makes ATP (mitochondrial)

tail: flagellum whips for movement.

breaks down jellylike matrix of egg: 50-100 needed



only head goes in

middle piece, tail, & other

egg sperms die

vas deferens = cut & tie the vas deferens } permanent
tubal ligation = cut & tie the fallopian tube } sterilization

~~STD~~ STD rates are higher than pregnancy rates
because women can only get pregnant when they are
ovulating (~5 days of month).

Education reduces birth rate. STDs can also be acquired
Antibiotics kill bacteria only. by sharing needles.

AIDs, genital herpes, & genital warts stay in nerve cells.

They are incurable.

Chlamydial infections, gonorrhea, & syphilis are curable
(w/ antibiotics because they are bacterial infections.)

→ Can damage the fallopian tubes.

Yeast infections (candidiasis) are more common in women
because they have shorter urethras.

HIV infects RNA — it is a virus.

Gregor Mendel first described genetics correctly.

Thripp
Survey
Pg. 7

THU, 2009-10-29, 12:30-1:50 PM:

First described genes in the 1860s. Wasn't proven until about 1900 after his death. ← after Darwin.

Most genes aren't simple/complete dominance

Genes code for polypeptides which form proteins

Proteins have functions:

structural, hormonal, contractile, enzymatic

Phenotype: observable characteristics (think photography)

Genotype: combination of alleles of an organisms

Allele: variations or alternate forms of a gene.

↓
blue eyes,

brown

eyes, etc

END