

FEMALE HORMONES

Revised 12 April 2016
 Martini 7th: 1050-1058, 9th: 1066-1067
 10th: 1081-1087

Menstrual cycle: involves: pituitary, hypothalamus, ovaries, uterus (and placenta in pregnancy)

Estrogen

produced at onset of puberty
 stimulates breast enlargement
 cessation of long bone growth
 menstrual events begin to cycle

Ovarian cycle:(p 1072)

follicular phase:

FSH triggers development of several follicles at first

luteal phase

post ovulatory phase,
 corpus luteum secretes estrogen and progesterone

uterine phases: (p 1078)

Flow release of menses = menstruation
 Proliferative estrogen triggers endometrium to
 Secretory progesterone triggers secretion of nutrient rich mucoid material

Flow: In higher primates (others resorb the material.)

Estrogen has several effects:

As follicle grows, moderate levels of estrogen are released:

- 1) shuts off release of FSH
- 2) terminates less developed follicles (atresia)
- 3) triggers the proliferation of the endometrium

When Graafian follicle is mature, high levels are released:

- 4) high doses trigger the release of luteinizing hormone from the anterior pituitary
- 5) high doses induce estrus

Progesterone effects:

- 1) triggers endometrium to enter secretory phase
- 2) maintains enriched secreting endometrium
- 3) inhibits release of luteinizing hormone by anterior pituitary

Hormones used for pharmacological purposes:

- estrogen primary ingredient in birth control pill, inhibits FSH release, no follicles mature hormone replacement during menopause
- diethylstilbestrol estrogen analog, DES promoted by Squibb to "stabilize" pregnancy, caused higher CA in daughters DES fed to cattle to feminize steers...
- Follicle stim H "Fertility drug" triggers follicle maturation (can lead to multiple births Also to increase eggs for harvest in *in vitro* fertilization
- RU 486 (mifepristone) progesterone analog, blocks action of progesterone on uterus, causes endometrium to be shed, inducing menstruation
- morning after pill "Plan B" contains progestin, probably prevents ovulation

