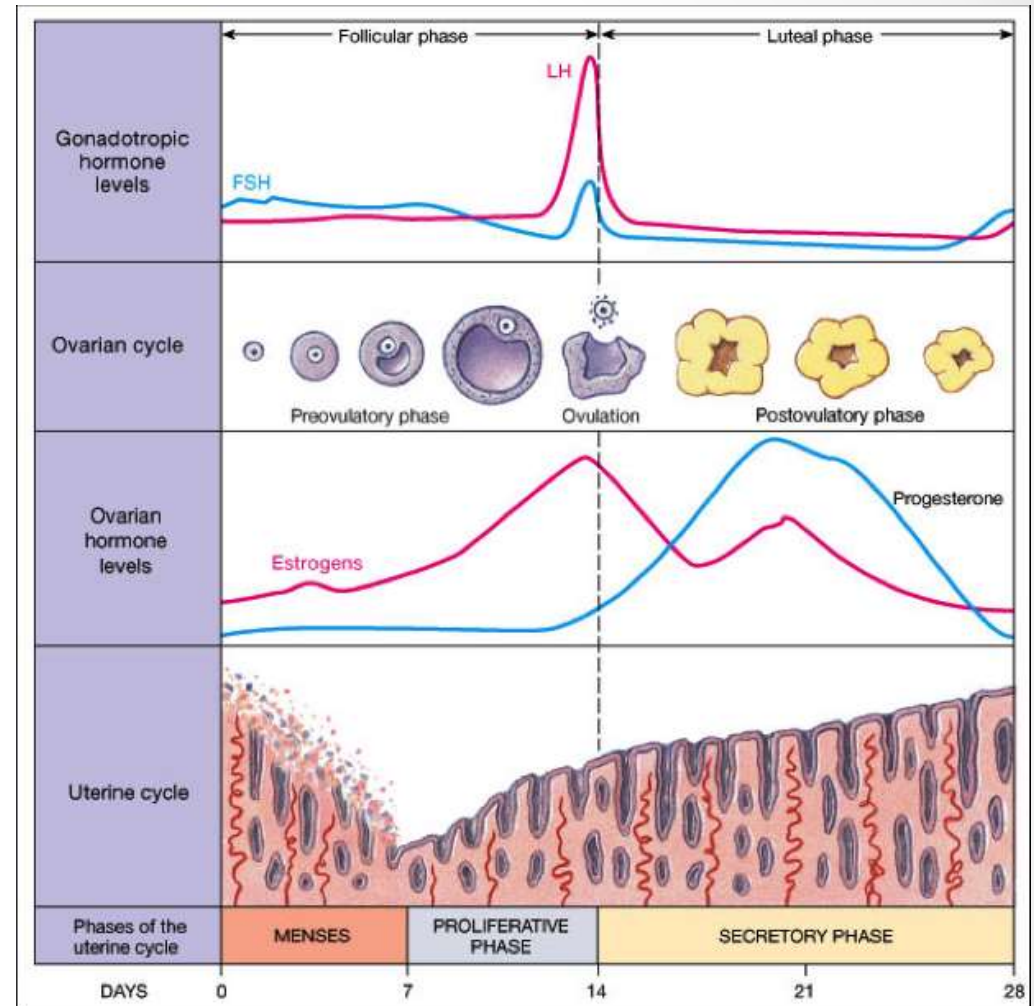
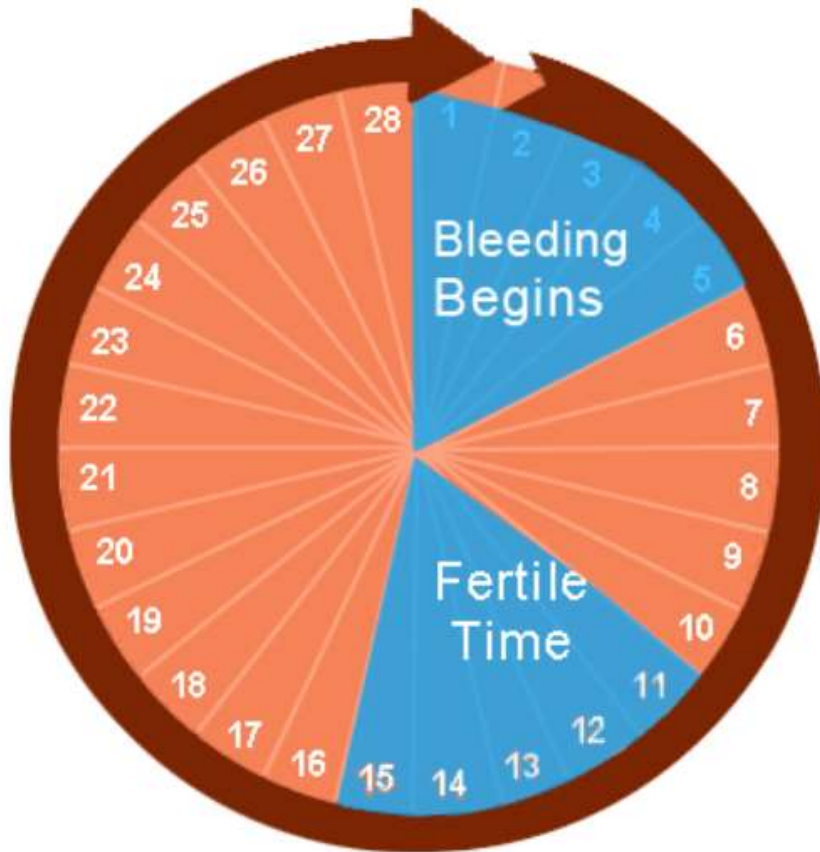


Reproductive Hormones

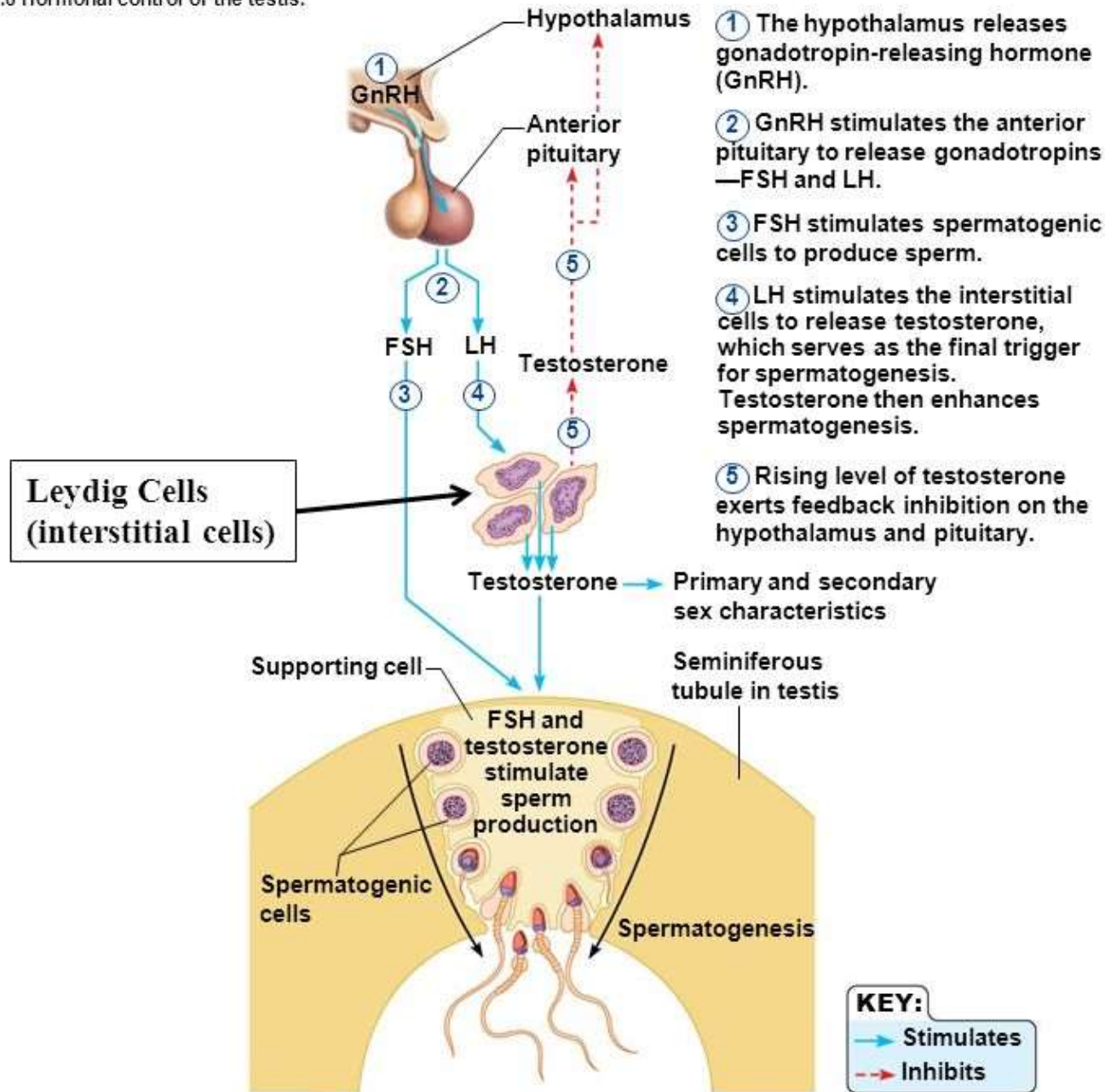
The Menstrual Cycle



EQ: Why is it important to have a negative feedback loop in reproductive hormones?

Male Hormones

Figure 16.6 Hormonal control of the testis.

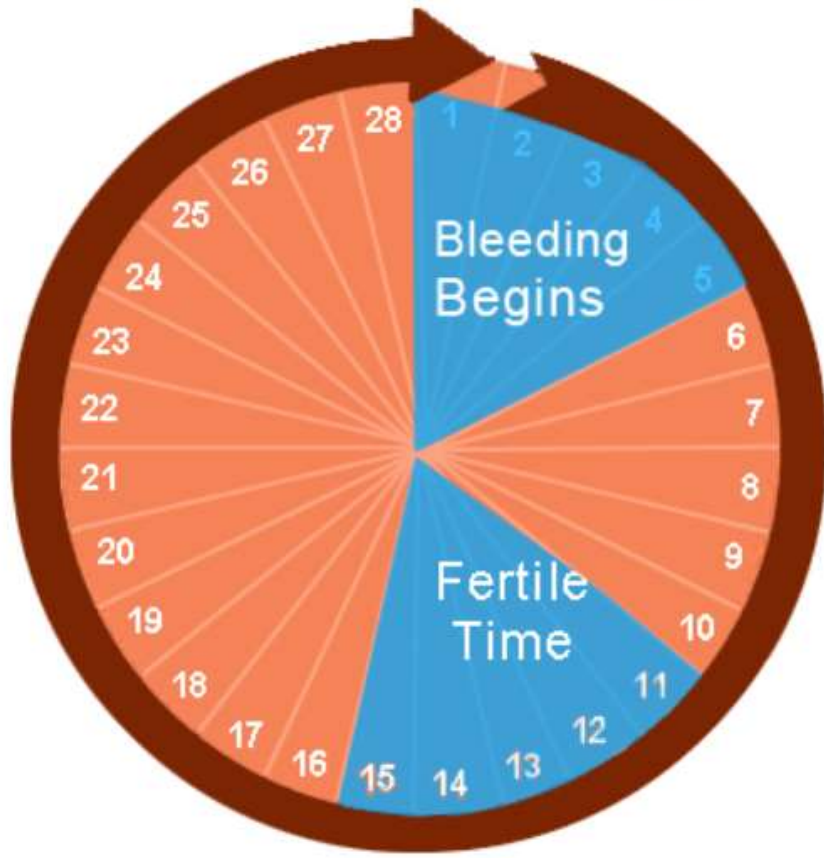


Actions of Testosterone

****Women have this too.... Just in smaller amounts****

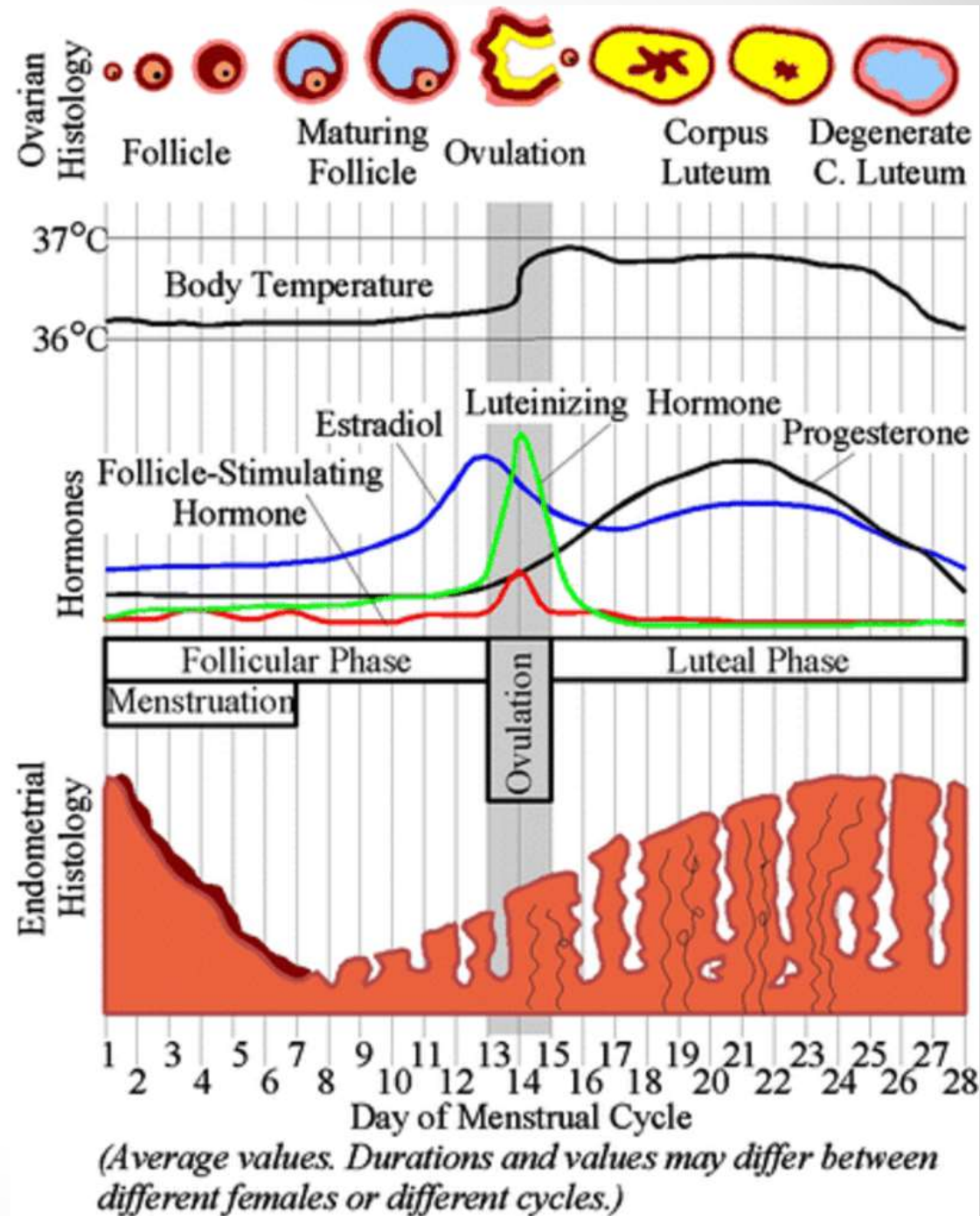
- In Embryo - Differentiation of male reproductive organ (occurs before 6 weeks)
- In Puberty – Develop male secondary sex characteristics
- Spermatogenesis
- Negative Feedback (GnRH and LH)
- Protein Anabolism
- Behavior: sex drive (libido)
 - May affect aggressive behavior
- Stimulates red blood cell production by way of kidney hormone production
- Bone growth

The Menstrual Cycle

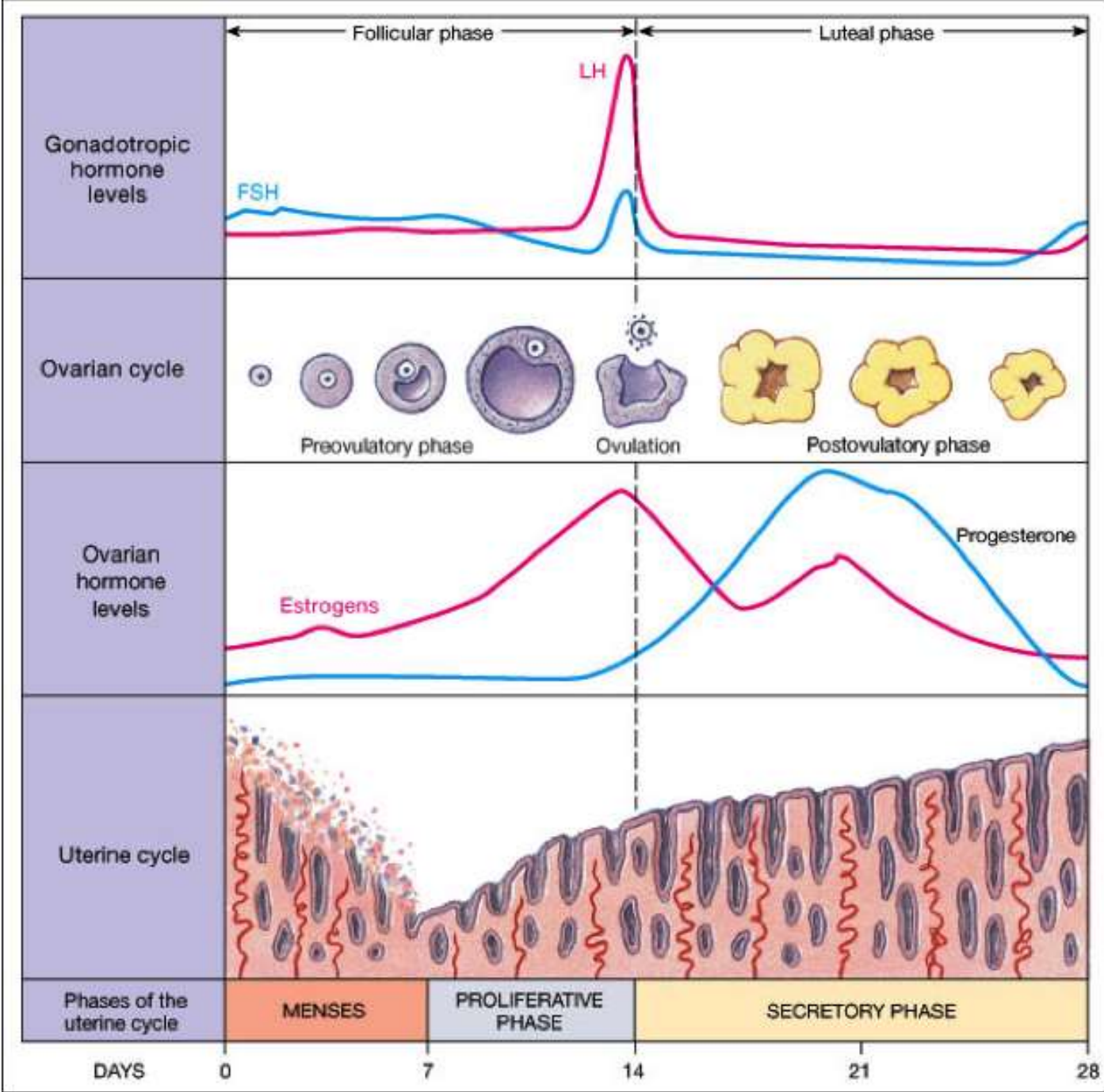


GnRH from the hypothalamus stimulates Anterior Pituitary Gland to produce FSH and LH

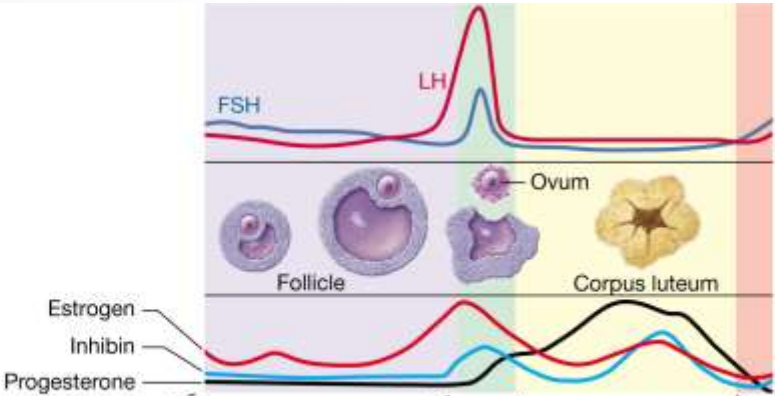
Female Sex Hormones



Female Menstrual Cycle



Female Menstrual Cycle



(a) Early to mid-follicular phase

Low levels of estrogen exert negative feedback to GnRH, FSH, LH. Estrogen promotes more estrogen secretion by the follicle. AMH prevents more follicles from developing.

(b) Late follicular phase and ovulation

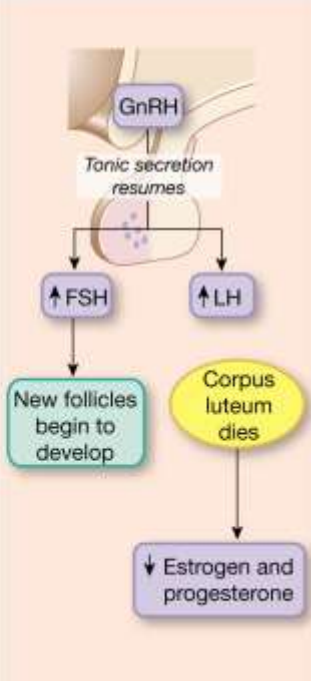
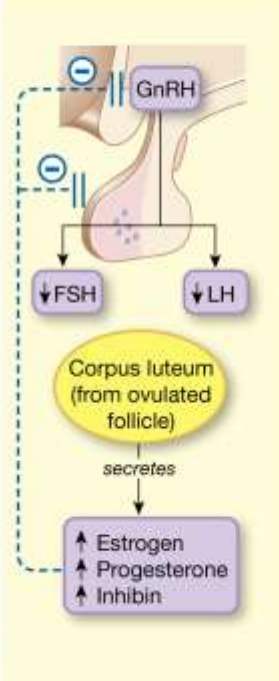
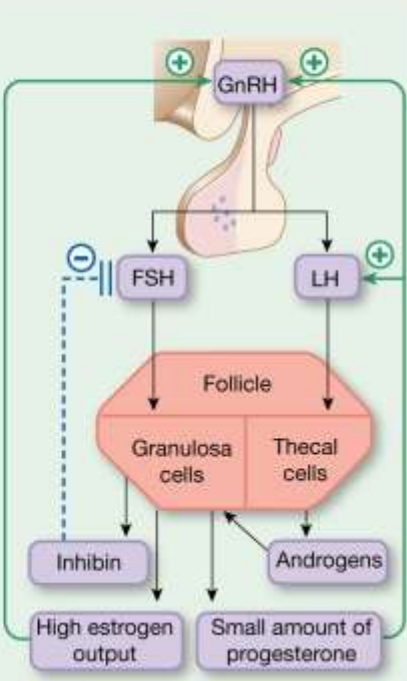
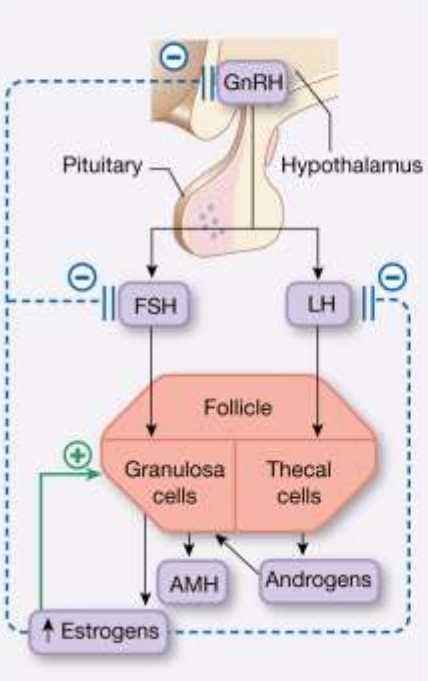
Rising levels of estrogen plus increasing progesterone cause the LH surge. FSH is suppressed by inhibin.

(c) Early to mid-luteal phase

Combined estrogen and progesterone shut off FSH and LH.

(d) Late luteal phase

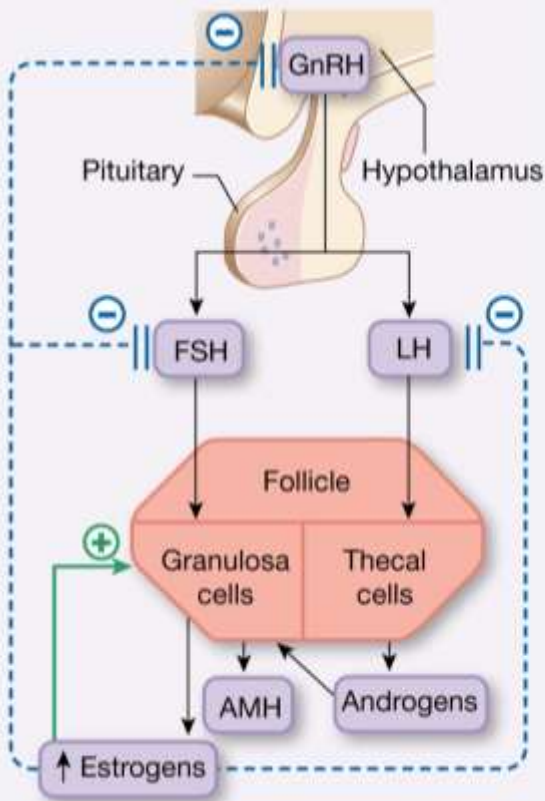
Estrogen and progesterone fall when corpus luteum dies. Gonadotropins start follicular development for a new cycle.



Female Menstrual Cycle

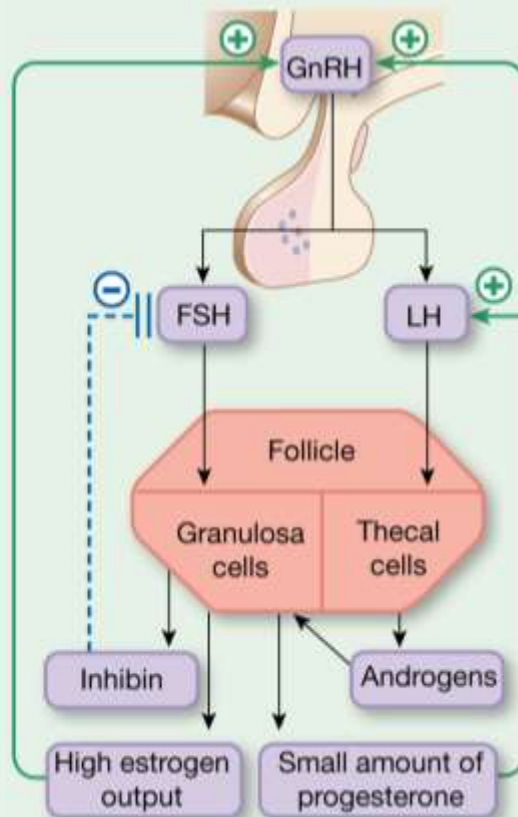
(a) Early to mid-follicular phase

Low levels of estrogen exert negative feedback to GnRH, FSH, LH. Estrogen promotes more estrogen secretion by the follicle. AMH prevents more follicles from developing.



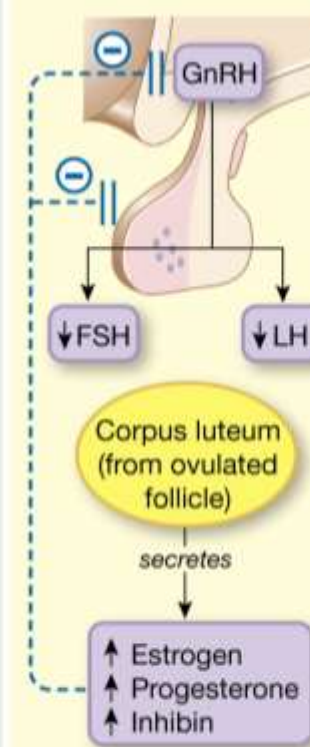
(b) Late follicular phase and ovulation

Rising levels of estrogen plus increasing progesterone cause the LH surge. FSH is suppressed by inhibin.



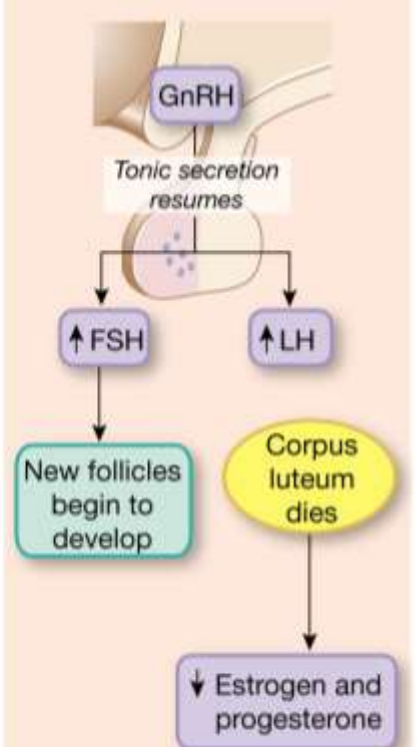
(c) Early to mid-luteal phase

Combined estrogen and progesterone shut off FSH and LH.



(d) Late luteal phase

Estrogen and progesterone fall when corpus luteum dies. Gonadotropins start follicular development for a new cycle.



Female Hormone Functions

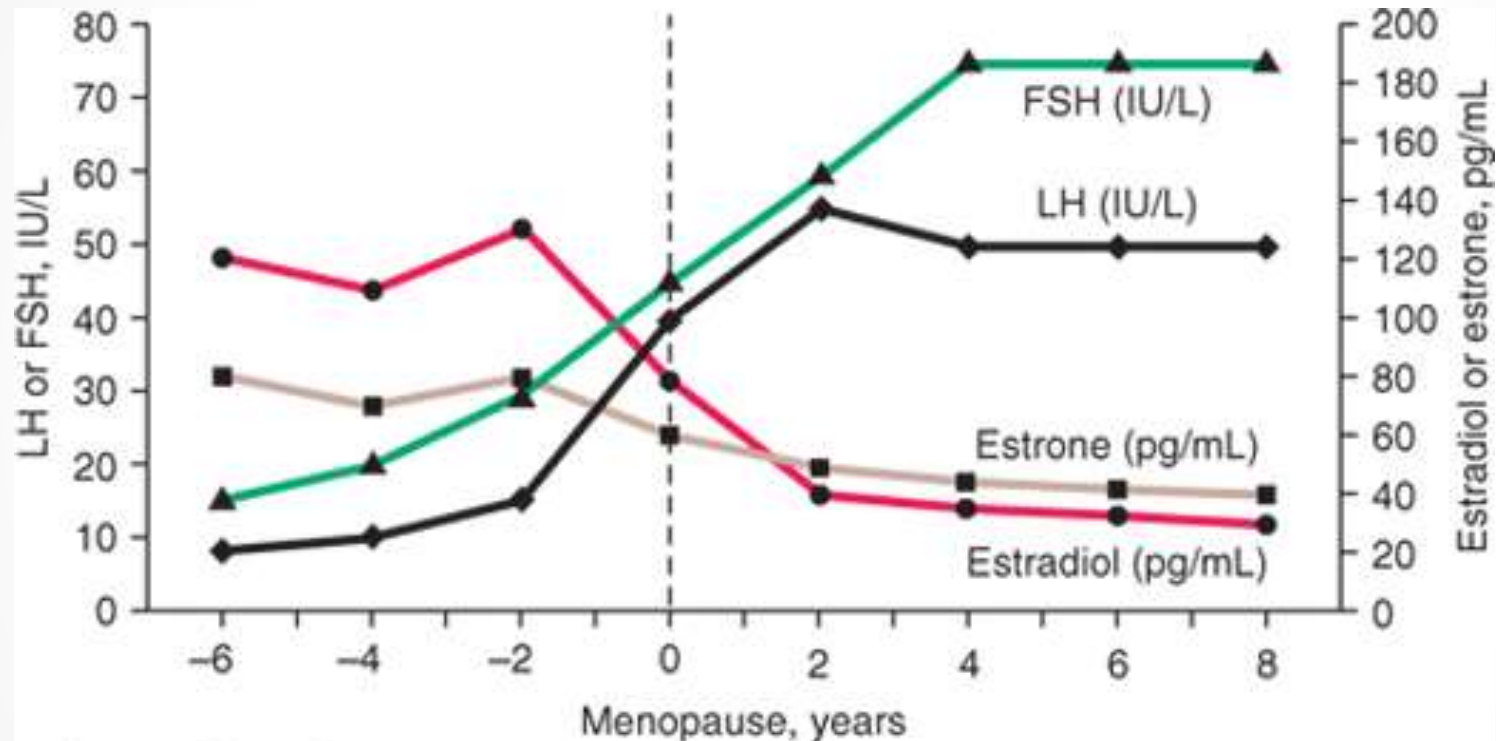
Estrogen

- Growth of ovary/follicles
- Primes smooth muscle and epithelium of repo tract
- In Puberty – Breast growth
- Female fat deposition
- Bone growth
- Stimulates Prolactin
- Protects against Atherosclerosis

Progesterone

- Affects endometrium
- Induces thick, sticky cervical mucus
- Decreases smooth muscle contractions of repo tract
- Stimulates breast growth
- Inhibits prolactin (in breast tissue)

Menopause (~2 year process)



Source: J. Larry Jameson,
Harrison's Endocrinology, Fourth Edition
www.accessbiomedicalsscience.mhmedical.com
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