

Investigation 14.B: The Menstrual Cycle Answer Key

Answers to Analysis Questions

1. FSH increases during the follicular stage of the ovarian cycle (between day one and day six). During the rise in FSH, a follicle is maturing in preparation for the release of a mature ovum.
2. LH reaches its highest concentration on day 13. This causes the follicle to burst, releasing the ovum, and the follicle begins to develop into a corpus luteum.
3. LH begins to decline in the blood once the corpus luteum begins to secrete progesterone and some estrogen.
4. The greatest rise in estrogen levels happens as the follicle matures. This increase acts on the anterior pituitary to inhibit the release of FSH and trigger the release of GnRH from the hypothalamus. (This leads to an increase in LH levels.) The endometrium begins to thicken.
5. The most significant rise in progesterone levels is after ovulation (around day 14). During this time the endometrium thickens rapidly.
6. Estrogen and progesterone are at their lowest levels during the first two or three days of the cycle. During these early days of the cycle, the endometrium is sloughed off. This is menstruation.

Answers to Conclusion Questions

7. Increased levels of estrogen and progesterone suppress the release of FSH.
8. Yes, the names of FSH and LH correspond to their function in females. FSH — follicle-stimulating hormone — was named for its function, which is to stimulate follicles to grow and mature. LH — luteinizing hormone — was named for its function, which is to stimulate the development of the corpus luteum.
9. Your representation should show that estrogen stimulates the initial growth of the endometrium, while progesterone stimulates vascularization and maintenance of the endometrium.
10. A woman is most fertile on day 14, after the follicle has burst and the ovum has been released.