



Unit IV – Problem 9 – Physiology: Hormonal Changes in Pregnancy

- Pregnancy:

- It is characterized by steadily increasing levels of estrogen and progesterone (why?)
 - ✓ Maintaining endometrium.
 - ✓ Stimulating development of breasts.
- **Fertilization:**
 - ✓ If there is fertilization, corpus luteum degeneration will not occur due to secretion of human Chorionic Gonadotropin (hCG) from the placenta.
- **First trimester (first 3 months of pregnancy):**
 - ✓ Corpus luteum is responsible for the production of estradiol and progesterone.
- **Second and third trimesters (months: 4-9):**
 - ✓ Progesterone is produced by the placenta (as it is formed in the 4th month).
 - ✓ Fetal adrenal gland synthesizes dehydroepiandrosterone-sulfate (DHEA-S) which is then hydroxylated in the fetal liver. These intermediates are transferred to the placenta where enzymes remove sulfate and aromatize to estrogens (estriol).
- **Parturition (عملية الولادة):**
 - ✓ Near term, the estrogen/ progesterone ratio increases, which makes the uterus more sensitive to contractile stimuli.
- **Lactation:**
 - ✓ Estrogens and progesterone stimulate the growth and development of breasts throughout pregnancy.
 - ✓ Estrogen stimulates prolactin secretion but it blocks the action of prolactin on the breast.
 - ✓ Lactation is maintained by suckling which stimulates both oxytocin and prolactin secretion.
 - ✓ Ovulation is suppressed as long as lactation continues because prolactin has the following effects:
 - ❖ Inhibits hypothalamic GnRH secretion → consequently inhibits LH and FSH secretion.

