

## HORMONAL CONTROL OF REPRODUCTION

### THE OVARIAN AND MENSTRUAL CYCLES

- Pituitary gland in the brain is the control centre for reproduction – secretes follicle stimulating hormone (F.S.H) and luteinising hormone (L.H).
- F.S.H stimulates the production of follicles (primary follicle to secondary follicle to mature Graafian follicle).
- There is a slow progressive increase in F.S.H levels from the time that menstruation finishes until ovulation (approximately day 1-14).
- L.H is responsible for ovulation – blood L.H levels spike (are maximal) around day 14-15 – feeds back to the pituitary gland, causes it to stop releasing F.S.H.
- L.H is also responsible for forming the corpus luteum.
- Oestrogen is produced by follicles in the ovaries
  - responsible for the maintenance of the female secondary sex characteristics
  - levels follow the same progressive increase as F.S.H because
    - increased F.S.H causes follicle development and
    - increased follicle development causes increased oestrogen secretion from the follicles in the ovaries.
    - Follicles are a major source of oestrogen.
- Increased oestrogen levels cause increase in number and expansion of capillaries within the endometrium to be ready for the nourishment of an embryo if necessary (maximal oestrogen levels occur around day 14 of the cycle).
- Following ovulation, under the influence of L.H., the remains of the Graafian follicle (like a yellow scar on the ovary) become the corpus luteum.
- The corpus luteum secretes progesterone. Progesterone inhibits (slows down) F.S.H and L.H secretion from the pituitary gland. Progesterone maintains capillaries within the endometrium making it ready to receive an embryo.
- After 10 days (approximately day 14-24 of the cycle), due to the decreased levels of L.H., the corpus luteum degenerates (breaks down) and progesterone is no longer secreted.

- Vascularisation of the endometrium no longer supported because of low oestrogen and progesterone levels.
- Menstruation occurs – endometrium breaks down - unfertilized egg, mucus, blood, cellular material flushed out through the vagina.

## Males

- L.H acts on the interstitial cells in the male gonads (testes) stimulating them to secrete testosterone. Testosterone is responsible for the maintenance of the male secondary sex characteristics.
- F.S.H stimulates spermatogenesis in the cells of the testes.
- No cycles of L.H. and F.S.H. secretion and inhibition in males. These hormones function following puberty for most of a males lifetime.