

# The Female Cycle

GnRH is released by the hypothalamus → FSH & LH are released by the anterior pituitary → This induces follicle growth → The growing follicle produces estrogen (the increasing estrogen levels have a positive feedback effect on the hypothalamus. More GnRH is released causing more release of LH & FSH from the anterior pituitary) → The increasing LH & FSH levels induce further LH increases and maturation of the follicle → This leads to ovulation → After ovulation, LH induces formation of the corpus luteum → The corpus luteum secretes progesterone & estrogen:

## Fertilization

If fertilization occurs, continued progesterone & estrogen production by the corpus luteum prepares the uterus for implantation of the embryo → When the embryo implants it begins to produce HCG which stimulates the corpus luteum to continue to produce progesterone & estrogen which prevent ovulation and menstruation.

## No Fertilization

If fertilization does not occur, the combined effect of the increasing estrogen & progesterone levels complete a negative feedback loop causing a decrease in the GnRH release from the hypothalamus → which acts to decrease the amount of LH & FSH → which leads to a disintegration of the corpus luteum → which leads to a decrease in the amount of estrogen and progesterone → menstruation ensues and the cycle repeats. (\*Note that the difference here is that there is no embryo implantation and thus no HCG production to stimulate the corpus luteum to continue to produce progesterone and estrogen.)