The chemistry of the menstrual cycle

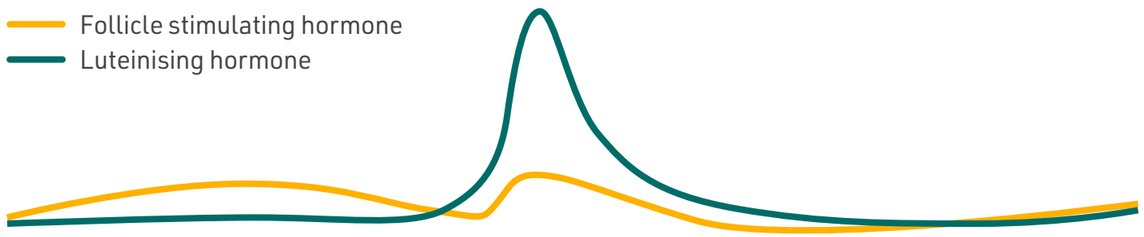
The Oxford Chemistry Period Podcast

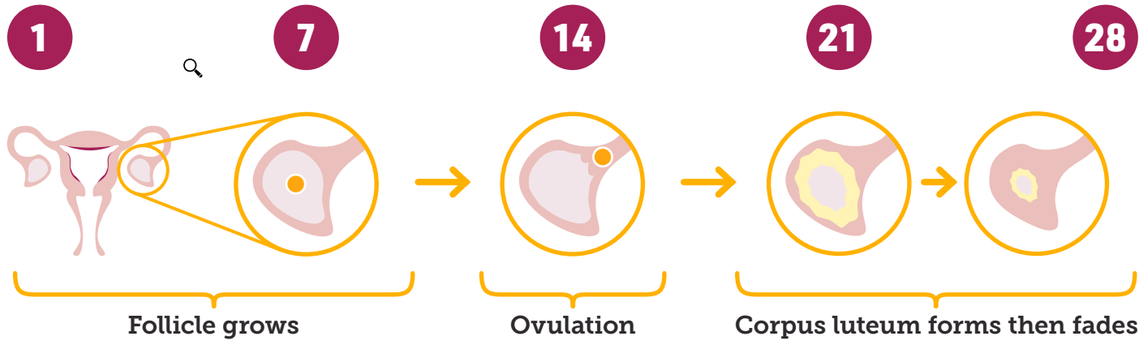
The menstrual cycle is divided into two sub-cycles: the ovarian and the uterian cycle. This graphic looks at the hormones involved in each and how their levels fluctuate.

The ovarian cycle

The ovarian cycle prepares hormone-releasing tissues in the body and the release of eggs.

Follicular phase | Luteal phase

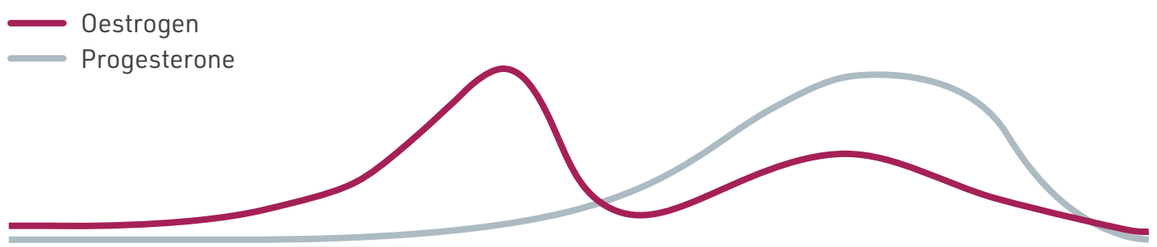


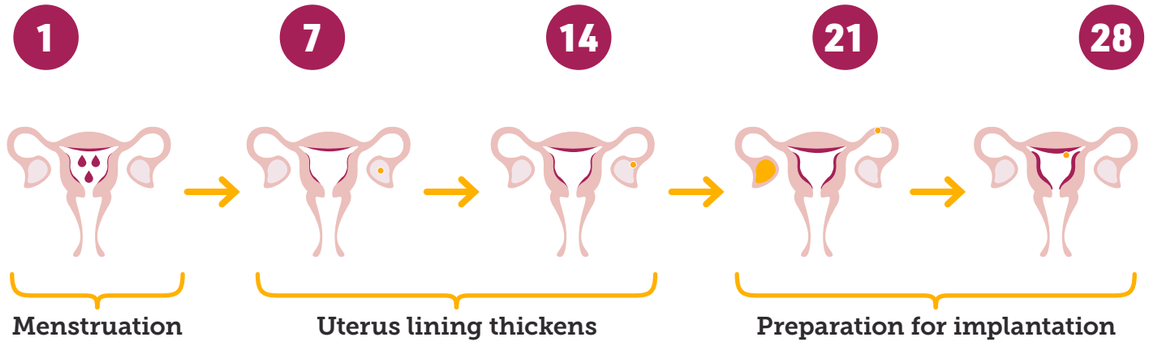


The uterian cycle

The uterian cycle prepares and maintains the lining of the uterus.

Period | Proliferative phase | Secretory phase





Follicle stimulating hormone (FSH) and luteinising hormone (LH)

Produced by the pituitary gland, FSH stimulates the growth of a follicle in the ovaries. The follicle releases oestrogen and prepares an egg for ovulation. After ovulation, oestrogen causes the levels of FSH to drop to prevent development of multiple follicles.

LH is produced in the pituitary gland and triggers the release of an egg from the ovaries. It also starts the conversion of the follicle to a corpus luteum, essential for establishing and maintaining pregnancy. If the egg isn't fertilised, the corpus luteum shrinks away.

Oestrogen and progesterone

Oestrogen, produced by the ovaries, causes the uterine lining to grow. It also triggers the production of luteinising hormone. Low levels of oestrogen and progesterone cause the top layers of the uterine lining to break down - this is menstruation.

The corpus luteum in the ovary releases progesterone which stimulates thickening of the uterine lining. Progesterone also triggers the production of prostaglandins. Prostaglandins cause contractions which shed the uterine lining and cause cramps.