

Menstrual cycle

The average length of the menstrual cycle is 28 days, although this can vary between women, and from one cycle to the next in individuals. The length of the menstrual cycle is calculated from the first day of the period to the day before the next period begins. Menarche (the onset of the first period) occurs, on average, between the ages of 11 and 14 years. Usually, the young woman has already developed secondary sexual characteristics, such as pubic hair and budding breasts.

Hormones and the menstrual cycle

The menstrual cycle is complex, controlled by a variety of glands and their associated hormones. A brain structure called the hypothalamus influences the nearby pituitary gland to secrete special chemicals, which prompt the ovaries to secrete their sex hormones, principally oestrogen and progesterone. The menstrual cycle is a biofeedback system, which means all of the structures and glands are influenced by the activity of the others. There are four main phases of the menstrual cycle: menstruation, the follicular phase, ovulation and the luteal phase.

Menstruation

This is the elimination of the thickened uterine lining from the body via the vagina. Menstrual fluid contains blood, cells from the uterine lining (endometrial cells) and mucus. The average length of a period is between three days and one week, depending on the individual. Sanitary pads or tampons are used to absorb the menstrual flow. Both pads and tampons need to be changed regularly, at least every four hours. Tampon use has been associated with an increased risk of a particularly rare illness called toxic shock syndrome.

Follicular phase

The follicular phase spans the length of time between the first day of menstruation and the moment of ovulation. Prompted by the hypothalamus, the pituitary gland releases follicle stimulating hormone (FSH). This hormone stimulates the ovary to produce around five to 20 follicles (tiny nodules or cysts), which bead on the surface. Each follicle houses an immature egg. Typically, only one follicle will mature into an egg, while the others die away. This can occur at around day 10 of a 28-day cycle. The growth of the follicles stimulates the lining of the uterus (endometrium) to thicken in preparation for possible pregnancy.

Ovulation

Ovulation means the release of a mature egg from the ovary surface. This occurs roughly at mid-cycle, around two weeks or so before the onset of menstruation. During the follicular phase, the ripening follicle causes a rise in the level of the sex hormone oestrogen. The hypothalamus in the brain recognises these rising levels and releases a chemical called gonadotrophin-releasing hormone (GnRH). This hormone prompts the nearby pituitary gland to produce boosted levels of luteinising hormone (LH) and FSH. Within two days, ovulation is triggered by the high levels of luteinising hormone. The egg is funneled into the Fallopian tube, and towards the uterus, by waves of small projections. The life span of the typical egg is quite short, only around 24 hours. Unless it meets a sperm on its journey within that time, it will die.

Luteal phase

During ovulation, the egg bursts from its follicle. However, the ruptured follicle remains on the surface of the ovary. For the next two weeks or so, the follicle transforms into a structure known as the corpus luteum. This structure starts releasing the sex hormone progesterone, along with small amounts of oestrogen. This hormonal combination maintains the thickened uterine lining, awaiting implantation of the fertilised egg. The corpus luteum needs the presence of an implanted fertilised egg (blastocyst) and its associated hormones (including human chorionic gonadotrophin) to continue producing elevated levels of progesterone and maintain the thickened uterine lining. If pregnancy doesn't occur, the corpus luteum withers and dies, usually around day 22 in a 28-day cycle. The falling production of progesterone allows the uterine lining to come away. This is menstruation. The cycle then repeats.

Common menstrual problems

Some of the more common menstrual problems include:

- **Premenstrual syndrome (PMS)** - the activity of the corpus luteum and associated high levels of progesterone before a period can trigger a range of side effects in susceptible women including fluid retention, headaches, fatigue and irritability. Treatment options include exercise and dietary modifications.
- **Dysmenorrhoea** - or painful periods. It is thought that the uterus is prompted by certain hormones to squeeze far harder than necessary to dislodge its lining. Treatment options include painkillers.
- **Menorrhagia** - or heavy menstrual flow. Excessive periods can cause anaemia. Treatment options include oral contraceptives to regulate the flow.
- **Amenorrhoea** - or absence of the menstrual period. This is considered abnormal apart from pre-puberty, pregnancy, lactation and menopause. Possible causes include low body weight and excessive exercise.

Where to get help

- Your doctor
- Family planning clinic
- Gynaecologist.

Things to remember

- The menstrual cycle is complex, controlled by a variety of glands and their associated hormones.
- The menstrual cycle consists of four phases: menstruation, the follicular phase, ovulation and the luteal phase.
- Common menstrual problems include heavy or painful periods and premenstrual syndrome.

This page has been produced in consultation with, and approved by:

Family Planning Victoria

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