

## Your Menstrual Cycle



Do you know how many hormones play a role each month in causing your periods to be normal or abnormal? Can you name all of the parts of the female reproductive system? There is a delicate interaction between your reproductive organs and your hormones that influence the timing and amount of blood flow you experience during your monthly menstrual cycle. To understand how your reproductive organs and hormones interact first you should know something about the biology behind your menstrual cycle. Any change in your hormones or reproductive organs can have a significant affect the timing of your periods, the amount of blood flow you experience during menstruation, and your fertility.

### What Are the Reproductive Organs?

The uterus is a pear-shaped organ which, in its non-pregnant state, is collapsed and about the size of your fist.

It is located between the bladder and the lower intestines.

The lower third of the uterus is called the cervix. The cervix has an opening called the os which opens into the vaginal canal and permits your period to flow out.

Extending from each side of the uterus are the fallopian tubes. Near the end of each fallopian tube is an ovary.

The ovaries are almond-sized organs which produce eggs. Each ovary contains from 200,000 to 400,000 follicles. These follicles contain the material necessary to produce eggs.

The inner lining of the uterus is called the endometrium. The endometrium sheds during menstruation. Your menstrual flow also contains blood and mucus from the cervix and vagina. When pregnancy occurs, the endometrium thickens and fills with blood vessels that mature into the placenta that contains the growing fetus.

### What Hormones Interact with the Reproductive Organs?

The area of the brain called the hypothalamus, together with the pituitary gland, control the hormones necessary for reproductive health.

Six hormones serve as chemical messengers to your reproductive system. These hormones include:

- Gonadotropin-releasing hormone (GnRH)
- Follicle-stimulating hormone (FSH)
- Luteinizing hormone (LH)
- Estrogen
- Progesterone
- Testosterone

During your menstrual cycle, GnRH is released first by the hypothalamus. This causes a chemical reaction in the pituitary gland and stimulates the production of FSH and LH. Estrogen, progesterone, and testosterone (yes, the "male" hormone) are produced by the ovaries in reaction to stimulation by FSH and LH. When these hormones work in unison, normal menstrual cycles occur.

### Your Menstrual Cycle in Phases

The menstrual cycle is divided into two phases--the follicular or proliferative phase; and the luteal or ovulatory phase. The follicular phase includes the time when menstruation occurs and is followed by proliferation or the growth and thickening of the endometrium. This phase typically lasts from 10-14 days, starting with the first day of menstruation.

Estrogen and progesterone levels are at their lowest during menstruation. When bleeding stops, the proliferative phase begins causing the endometrium to grow and thicken in preparation for pregnancy. During the next (approximately) two weeks, FSH levels rise causing maturation of several ovarian follicles and the size of the eggs triple.

FSH also signals the ovaries to begin producing estrogen which stimulates LH levels until around day 14 of your cycle when one of the follicles bursts, and the largest egg is released into one of the fallopian tubes.

This phase is followed by the premenstrual phase, known as the luteal phase. This premenstrual period lasts approximately 14 days. After ovulation, LH causes the corpus luteum to develop from the ruptured follicle. The corpus luteum produces progesterone.

Together estrogen and progesterone stimulate the endometrium to prepare a thick blanket of blood vessels that will support a fertilized egg should pregnancy occur. When pregnancy occurs this blanket of blood vessels becomes the placenta which surrounds the fetus until birth.

When pregnancy does not occur, the corpus luteum deteriorates and becomes the corpus albicans. Once this occurs, progesterone and estrogen levels decline, and the endometrial lining is shed during menstruation.

#### Did You Know?

- Periods can vary greatly from woman to woman and from month to month and still be normal. Generally, the length of your menstrual cycle can fluctuate from 3 weeks to 5 weeks, without alarm.
- When counting the days in your cycle, always count the first day of your period as day one. The average period lasts about 6 days, although some women may experience slightly shorter or longer periods and be perfectly normal.
- Variations in the amount of menstrual flow and the timing of menstruation are quite normal in young women during the first few years following the onset of menstruation. Periods may be irregular or very light. The use of oral contraceptives can often cause fluctuations in menstruation which include either light periods or spotting/bleeding between periods.

It is not uncommon for young women to feel frightened when dark clumps of tissue is discovered in their menstruation. However, this is usually nothing abnormal and just a part of the endometrium or uterine lining shedding.

- The average age of the onset of menstruation is about 12 or 13, however it may begin as young as 8 for some girls or not until 14 or 15 for others. If your period has not started by the time you are 16, see your physician to determine whether there may be an underlying condition causing your period not to start occurring.