

The Menstruation Cycle and Its Phases

The process of menstruation starts by the shedding of the inside layer of the uterus (endometrium) along with bleeding. It starts during puberty and stops permanently at menopause. It takes place monthly all over a woman's reproductive life, except during pregnancy.

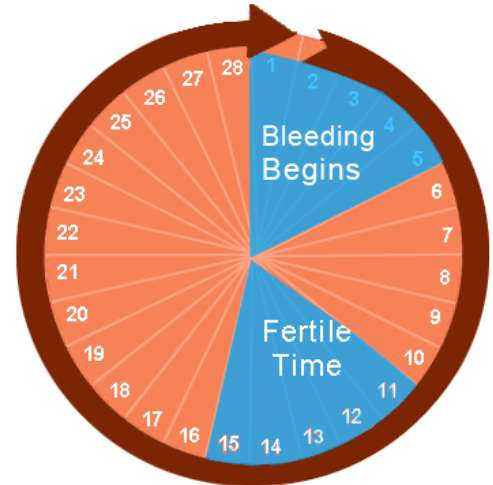
Menstrual Cycle

The menstrual cycle starts with the first day of bleeding, which is day 1. The cycle ends sooner than the subsequent menstrual period. Menstrual cycle is normally 28 days long. Menstrual bleeding lasts 3 to 7 days, with average of 5 days.

Phases of the 28 Day Menstrual Cycle

The cyclic reproduction changes of the human female are marked by menstruation, during which some cells, unclotted blood from ruptured blood vessels, other fluids and uterine endometrium are released through the cervix and vagina. Each menstrual cycle occurs about every 28 days and last for 4 - 5 days. The menstruation occurs 12 to 14 days after the ovum is released from the ovary (ovulation), about once in four weeks. The periodicity of cycle varies with individuals. After fertilization, menstruation ceases and it is the first indication of pregnancy.

The Menstrual Cycle



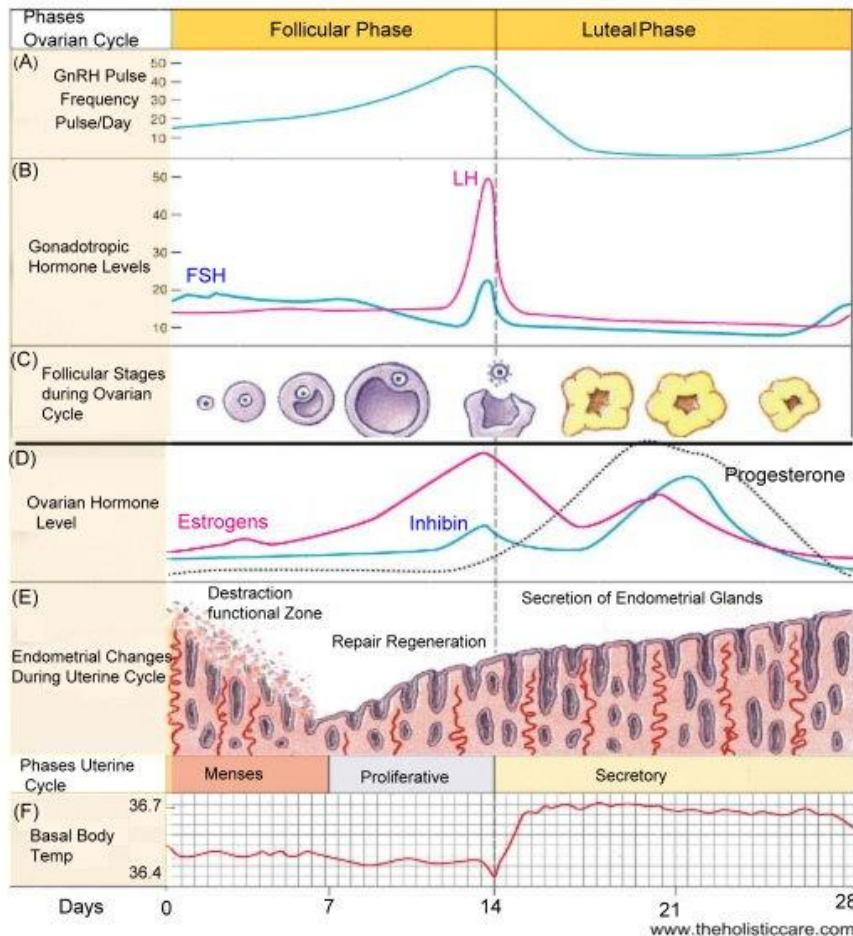
Days of Each Phase

The menstrual cycle can be divided into several different phases. The average length of each phase is shown below, the first three are related to changes in the lining of the uterus whereas the final three are related to processes occurring in the ovary:

Name of phase	Average start day assuming a 28-day cycle	Average end day
Menstrual phase (Menstruation)	1	4
Proliferative phase	5	13
Ovulatory phase (Ovulation)	13	16
Luteal phase (also known as Secretory phase)	16	28
Ischemic phase	27	28
Follicular phase (includes the Menstrual and Proliferative Phases)	1	13

3 Main Phases

The menstrual cycle consist of 3 main phases that start on the 1st day you have your period and end on the day before you start menstruating. These phases are:



1. Follicular Phase (includes Menstrual Phase and Proliferate Phase)

This phase starts on the 1st day of menstrual bleeding. The main process during this phase is the development of follicles in the ovaries. In the beginning, the lining of the uterus (endometrium) becomes thick with fluids and nutrients intended to nourish an embryo. Estrogen and progesterone levels are low at this stage. Consequently, the top lining of the uterus sheds, and menstrual bleeding occurs. Approximately, the follicular phase ends about 10 or 14 days. Among three phases, this phase is longer.

This phase ends when the level of luteinizing hormone increases resulting surges. These surges results in another phase called ovulation.

The menstrual (destructive phase): During this phase the uterus lining (endometrium) and its blood vessels break, and is discharge with in blood, mucus,

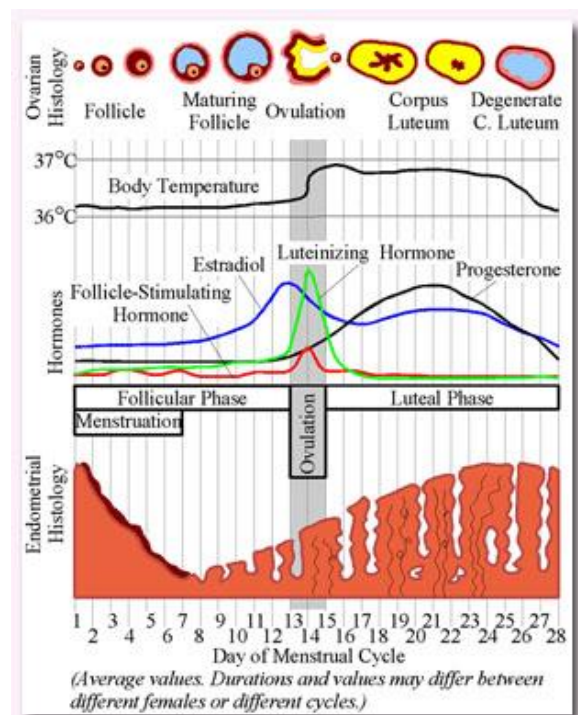
cells debris, and other fluid as the menses by way of the vagina. This may last for 4 – 5 days. The menses occur when fertilization does not take place.

2. Ovulatory Phase

This phase starts with hormone surges. During Ovulatory Phase, the ovaries release a one egg from only one of the two ovaries during each menstrual cycle. Luteinizing hormone stimulates the overriding follicle to swell from the surface of the ovary and rupture. This causes releasing of egg. The ovulation phase usually lasts 16 to 32 hours ending with release of egg.

3. Luteal Phase (Secretory Phase)

This phase starts after Ovulatory Phase. It lasts about 14 days and continues until Day 1 of your next menstrual period. The levels of estrogen and progesterone go up in this phase. These hormones work together to cause changes to the endometrial lining that prepare it for an embryo in case of conception. In this phase, the ruptured follicle closes after releasing the egg. Then they form a structure called a corpus luteum. Corpus luteum produces increasing quantities of progesterone. The corpus luteum gets ready the uterus in case conception occurs. Due to the progesterone, the endometrium thickens. It is filled with



fluids and nutrients to nourish an embryo. This thick lining prevents the sperm or bacteria from entering in the uterus. If conception, or pregnancy, does not take place, levels of estrogen and progesterone reduce resulting the endometrial lining to shed by menstruation.

Types of Estrogen

Steroidal

The three major naturally occurring estrogens in women are [estrone](#) (E1), [estradiol](#) (E2), and [estriol](#) (E3).

Estrone is produced during menopause, estradiol is the predominant form in nonpregnant females, and estriol is the primary estrogen of [pregnancy](#). In the body these are all produced from [androgens](#) through actions of [enzymes](#).

- From [menarche](#) to [menopause](#) the primary estrogen is estradiol. In postmenopausal women the primary estrogen is estrone.
- The enzyme [aromatase](#) converts [testosterone](#) to estradiol. Aromatase also converts [androstenedione](#) to estrone. The stress hormone cortisol can induce the enzyme aromatase, which speeds the conversion of testosterone to estradiol; this can result in elevated estradiol levels. Read more about this on the [Saliva Hormone Testing](#) panels
- Estrone is weaker than estradiol.

[Premarin](#), a commonly prescribed estrogenic drug, contains the steroidal estrogens [equilin](#) and [equilenin](#). There are also oestradiol skin patches such as Estraderm (the original brand, introduced in the late 1980s). (Although synthetic hormones are not good for the body's homeostasis, it is believed that a skin patch rather than pill also has the advantage of direct transmission into the blood stream without going through the liver.)

Nonsteroidal

A range of synthetic and natural substances have been identified that also possess estrogenic activity.

- Synthetic substances of this kind are known as [xenoestrogens](#).
- Plant products with estrogenic activity are called [phytoestrogens](#).
- Those produced by fungi are known as [mycoestrogens](#).

Unlike estrogens produced by mammals, these substances are not necessarily [steroids](#).

Sources of Progesterone

Animals

Progesterone is produced in the [ovaries](#) (to be specific, after ovulation in the [corpus luteum](#)), the [adrenal glands](#) (near the kidney), and, during pregnancy, in the [placenta](#). Progesterone is also stored in adipose (fat) tissue.

In humans, increasing amounts of progesterone are produced during pregnancy:

- At first, the source is the corpus luteum that has been "rescued" by the presence of human chorionic gonadotropins ([hCG](#)) from the conceptus.

- However, after the 8th week, production of progesterone shifts to the placenta. The placenta utilizes maternal cholesterol as the initial substrate, and most of the produced progesterone enters the maternal circulation, but some is picked up by the fetal circulation and used as substrate for fetal [corticosteroids](#). At term the placenta produces about 250 mg progesterone per day.
- An additional source of progesterone is milk products. They contain much progesterone because on dairy farms cows are milked during pregnancy, when the progesterone content of the milk is high. After consumption of milk products the level of bioavailable progesterone goes up.

Plants

In at least one plant, [Juglans regia](#), progesterone has been detected. In addition, progesterone-like [steroids](#) are found in [Dioscorea mexicana](#). *Dioscorea mexicana* is a plant that is part of the [yam](#) family native to [Mexico](#). It contains a steroid called [diosgenin](#) that is taken from the plant and is converted into progesterone. Diosgenin and progesterone are found in other [Dioscorea](#) species as well.

Another plant that contains substances readily convertible to progesterone is [Dioscorea pseudojaponica](#) native to [Taiwan](#). Research has shown that the Taiwanese yam contains [saponins](#) — steroids that can be converted to diosgenin and thence to progesterone.

Many other *Dioscorea* species of the yam family contain steroidal substances from which progesterone can be produced. Among the more notable of these are [Dioscorea villosa](#) and [Dioscorea polygonoides](#). One study showed that the *Dioscorea villosa* contains 3.5% diosgenin. [Dioscorea polygonoides](#) has been found to contain 2.64% diosgenin as shown by [gas chromatography-mass spectrometry](#). Many of the *Dioscorea* species that originate from the yam family grow in countries that have tropical and subtropical climates.

Read more about the hormones involved with the menstrual cycle:

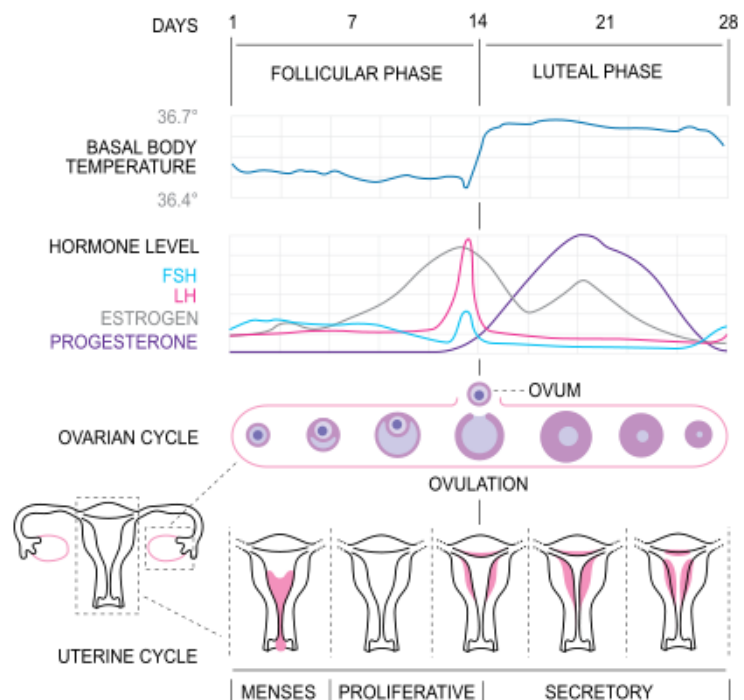
[Estrogen](#)

[Progesterone](#)

[FSH](#) - Follicle-stimulating hormone

[LH](#) - Luteinizing hormone (also known as lutropin)

[Activin and Inhibin](#)



Common Menstrual Problems

Some of the more common menstrual problems include:

- **Premenstrual syndrome (PMS)** - hormonal events before a period can trigger a range of side effects in women at risk, including fluid retention, headaches, fatigue and irritability. Treatment options include exercise and dietary changes. Click [here](#) for other natural remedy suggestions.
- **Dysmenorrhoea** - or painful periods. Click [here](#) for natural remedy suggestions.
- **Menorrhagia** - or heavy menstrual flow. If left untreated, this can cause anaemia. Click [here](#) for natural remedy suggestions.
- **Amenorrhoea** - or absence of menstrual periods. This is considered abnormal, apart from during pre-puberty, pregnancy, lactation and menopause. Possible causes include low or high body weight and excessive exercise. Click [here](#) for natural remedy suggestions.

Sources:

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