

Preparation for Pregnancy

Progesterone signals the body to prepare for fertilization. If fertilization occurs, the corpus luteum continues to produce progesterone for several weeks. If fertilization does not occur, production of progesterone slows and eventually stops, marking the end of the ovarian cycle. Prescription drugs containing relatively large doses of synthetic estrogen and progesterone-like hormones have been designed to disrupt the ovarian cycle and prevent ovulation.

Menstrual cycle While changes occur in the ovaries during the ovarian cycle, changes also occur in the uterus, as shown in Figure 9. The series of changes that prepare the uterus for a possible pregnancy each month is called the **menstrual (MEN struhl) cycle**. The menstrual cycle lasts about 28 days.

The events of the menstrual cycle are influenced by the changing levels of estrogen and progesterone during the ovarian cycle. Prior to ovulation, increasing levels of estrogen cause the lining of the uterus to thicken. After ovulation, high levels of both estrogen and progesterone cause further thickening of the uterine lining. If pregnancy does not occur, the levels of estrogen and progesterone decrease. This decrease

causes the lining of the uterus to shed, marking the end of the menstrual cycle. The end of the menstrual cycle coincides with the end of the luteal phase of the ovarian cycle.

Menstruation

When the lining of the uterus is shed, blood vessels break and bleeding results. A mixture of blood and discarded tissue then leaves the body through the vagina. This process, called **menstruation (men STRAY shuhn)**, usually occurs about 14 days after ovulation. At the end of the ovarian and menstrual cycles, neither estrogen nor progesterone are being produced. In the absence of estrogen and progesterone, the pituitary again begins to produce FSH and LH, starting the cycles again.

Women eventually stop menstruation, usually between the ages of 45 and 55. After this event, called *menopause*, a woman no longer ovulates and thus moves out of the childbearing phase of her life. During menopause, many women experience symptoms, such as hot flashes, caused by a decrease in estrogen production. Estrogen, which can be taken to relieve symptoms of menopause, is a widely used prescription drug in the United States.

Real Life

Many women have cramps during their menstrual periods.

The release of a prostaglandin stimulates contractions of muscles in the wall of the uterus, which causes cramps in the uterus.

Finding Information

Research ways that menstrual cramps can be treated.

Menstrual Cycle Review Questions

If ovulation were considered to be the point in the menstrual cycle where women are most fertile, at which point would this occur in?

- a.) Day 1-5
- b.) Day 9-16
- c.) Day 17-21
- d.) Day 22-28

Which hormone is the Corpus Luteum responsible for producing?

- a.) Progesterone
- b.) FSH
- c.) LH
- d.) GnRH

What is the result of decreasing estrogen and progesterone levels?

- a.) Production of FSH and LH
- b.) Fertilization of the egg
- c.) Shedding of the endometrium
- d.) Maturation of the Dominant Follicle

At which stage of the menstrual cycle does the follicular phase occur?

- a.) Day 12-16
- b.) Day 16-28
- c.) Day 20-28
- d.) Day 1-13

What causes the endometrial lining of the uterus to thicken and then to be shed during the menstrual cycle? (base your answers on hormonal changes)