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**The Cyclic Changes in the cervix.**

Thirty parous ewes were divided into six groups and sacrificed on day 0 (first day of estrus), 1, 2, 10, 15 or 16 of the estrous cycle. The cervices were removed immediately and processed for examination with the scanning electron microscope. Observation of the tissues reveals that the surface of the cervix is highly convoluted, which results in the formation of numerous folds or crypts. Two forms of columnar epithelial cells, a ciliated and a non-ciliated cell with microvilli, line the luminal surface of the cerix in the day 10, luteal-phase ewes. However, on day 15, 2 days before estrus, the non-ciliated cells differentiate into two morphologically distinct types of secretory cells. One type forms when the apex of the non-ciliated cell dilates outward into the lumen of the cervix. Concurrent with apical enlargement, the microvilli are lost and the limiting cell membrane becomes smooth. The other type of cell is characterized by only a slight apical swelling. Consequently, remnants of microvilli along with secretory granules can be observed on the limiting membrane of this cell. Both cells release a particulate component, which is believed to be a precursor of mucus, into the lumen of the cerix. These particles undergo a series of morphological transformations to form a fibrillar layer, generally referred to as 'cervical mucus', that covers the epithelial surface at estrus. One to 2 days following the onset of estrus, the fibers become more closely assoicated with amorphous material that begins to coagulate, thereby revealing the underlying ciliated and non-ciliated cells that characterize the cervix of the luteal-phage ewe. The cyclical variation in secretory cells and factors that may influence that structural transformations which occur in mucus are discussed.

**The Cyclic Changes in the Vagina**

Vaginal cytology was evaluated weekly over 12 months in 20 adult female Cynomolgus monkeys (Macaca fascicularis). After sacrifice of the animals the histology of the ovaries, uterus and vagina were studied in different phases of the menstrual cycle. The cytological examination of the vaginal smears showed that the superficial cells increased in number towards the middle of the cycle and the number of intermediate cells declined gradually. Parabasal cells were observed mainly at the beginning of the cycle; they disappeared towards the middle of the menstrual cycle. During the early follicular phase, the cells were moderately separated from each other, and during the second half of the proliferative or follicular phase, the superficial cells appeared clumped together. Leucocytes were usually absent except for at the beginning of the cycle and in the last few days of the late secretory or luteal phase. The maturation index of the vaginal smears can be considered as a tool for distinguishing the different phases of the menstrual cycle. The microscopic examination of the genital organs showed that during the proliferative or follicular phase of the cycle, which corresponds to the development of the ovarian follicles, the uterus showed growth of endometrial glands, stroma and endothelial cell proliferation with capillary sprouts. Shortly after ovulation and parallel to the formation of the corpora lutea, the endometrium enters the secretory or luteal phase, which is characterized by coiling of endometrial glands, glandular secretion and the differentiation of the spiral artery. The most striking changes in the vagina, is the marked basal cell proliferation and thickening of the stratum granulosum during the follicular phase of the menstrual cycle. The histological changes observed in the vagina demonstrated a good correlation with the observation on cytological examination of the smears. The present study demonstrated that the process of angiogenesis in the uterus during the different phases of the menstrual cycle is a multiple phenomenon involving proliferation, maturation and differentiation.

**The Menstrual cycle.**

Medically, menstruation (also termed period or bleeding) is the process in a woman of discharging (through the vagina) blood and other materials from the lining of the uterus at about one monthly interval from puberty until [menopause](https://www.medicinenet.com/menopause/article.htm) (ceasing of regular menstrual cycles), except during pregnancy. This discharging process lasts about 3-5 days.

#### **The signs and symptoms of menstruation.**

Beside the bleeding, other signs and symptoms of menstruation may include [headache](https://www.medicinenet.com/headache/article.htm), [acne](https://www.medicinenet.com/acne/article.htm), [bloating](https://www.medicinenet.com/why_am_i_so_bloated/article.htm), pains in the low abdomen, [tiredness](https://www.medicinenet.com/fatigue/article.htm), [mood changes](https://www.medicinenet.com/mood_swings/symptoms.htm), food cravings, breast soreness, and [diarrhea](https://www.medicinenet.com/diarrhea/article.htm).

**The Beginning And Ending Of Menstrual cycle.**

The menstrual cycle is the hormonal driven cycle; Day 1 is the first day of your period (bleeding) while day 14 is the approximate day you ovulate and if an egg is not fertilized, hormone levels eventually drop and at about day 25; the egg begins to dissolve and the cycle begins again with the period at about day 30. Menstruation begins day 1 and normally ends days 3-5 of the menstrual cycle.

At what age do girls go through puberty and begin and start their period (begin to menstruate)?  
The average age for a girl to get her first period in the US is 12, but the range of age is about 8 to 15 years old. Women usually have periods until about ages 45 to 55.

**Duration Of Menstruation.**

The menstrual cycle is the hormonal driven cycle. Day 1 is the first day of your period (bleeding) while day 14 is the approximate day you ovulate and if an egg is not fertilized, hormone levels eventually drop and at about day 25. The egg then begins to dissolve and the cycle begins again with the period at about day 30.  
Most periods vary somewhat, the flow may be light, moderate or heavy and can vary in length from about 2 to 7 days; with age, the cycle usually shortens and becomes more regular.

**The Signs And Symptoms Of Menstruation.**

Some women get symptoms leading up to and during menstruation, for example, [cramps](https://www.medicinenet.com/cramps_but_no_period/article.htm) or pains low in the abdomen, bloating or swelling in the abdomen, [constipation](https://www.medicinenet.com/constipation/article.htm) before your period, diarhrea when your period starts, [acne](https://www.medicinenet.com/acne_visual_dictionary_pictures_slideshow/article.htm), tiredeness, and mood changes.