

CYCLIC CHANGES IN THE BREASTS

Each month, women go through changes in the hormones that make up the normal menstrual cycle. The hormone estrogen is produced by the ovaries in the first half of the menstrual cycle. It stimulates the growth of milk ducts in the breasts. The increasing level of estrogen leads to ovulation halfway through the cycle. Next, the hormone progesterone takes over in the second half of the cycle. It stimulates the formation of the milk glands. These hormones are believed to be responsible for the cyclical changes that many women feel in their breasts just before menstruation. These include swelling, pain, and soreness.

During menstruation, many

women also have changes in breast texture. Their breasts may feel very lumpy. This is because the glands in the breast are enlarging to get ready for a possible pregnancy. If pregnancy does not happen, the breasts go back to normal size. Once menstruation starts, the cycle begins again.

CYCLIC CHANGES IN THE VAGINA

Similar changes in the vaginal epithelium of women have been shown to occur at different stages of menses. Proliferation and maturation of vaginal epithelial cells in the vaginal mucosa during ovulation is well shown in women. Since females are more likely to have intercourse during ovulation (peak follicular phase) increasing the layers and integrity of the vaginal epithelium is likely a physiologic

mechanism to prepare the vaginal mucosa for the potentially traumatic effects of intercourse, as well as to the exposure of allogenic and/or environmental antigens that will be introduced into the vagina during intercourse. Squamous epithelial cells, particularly when several layers thick, are likely to present a formidable barrier to the entry of viruses and other potential pathogens into the vagina. This may be why vaginal estrogen therapy is beneficial in preventing or ameliorating vaginitis in postmenopausal women. This may also explain why large doses of SIV are required to vaginally infect macaques without exogenous progesterone treatment. However, careful immunologic assessment of other factors that could play a role in HIV-1

transmission remain to be fully explored.

If the hypothesis that women who frequently have intercourse during menses, pregnancy, or specific age groups (juveniles) are more susceptible to HIV-1 is correct, it is possible that this could be affecting rates of transmission in specific populations. For example, in areas where economic or religious factors encourage women to use the 'rhythm method' (avoiding intercourse during the follicular phase), this could lead to increased rates of transmission. Regardless, developing effective prophylactic control measures against vaginal HIV transmission requires a better understanding of the potential factors influencing such transmission. Thus, a better knowledge about the

physiologic, anatomic, and immunologic alterations that occur in the vaginal epithelium could help to design more effective prevention strategies.

MENSTRUAL CYCLE

The menstrual cycle is the hormonal driven cycle; Day 1 is the first day of period

(bleeding) while day 14 is the approximate day females 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.

Menstruation is bleeding from the vagina that happens about once a month, as a normal part of the menstrual cycle. It is also known as having a period.

During this cycle, hormones

make the lining of the uterus become thicker, getting ready in case of pregnancy.

Hormones also cause an egg to be released from an ovary, which is known as ovulation.

If pregnancy doesn't occur, periods start about two weeks after ovulation. The lining of the uterus falls away and, along with some blood, flows out through the vagina. Periods can be light or heavy, and the blood can range from bright red to dark brown. You might also notice small clots.