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**CYCLIC CHANGES IN THE VAGINA**

The vagina undergoes well marked cyclical changes in correlation with those of the ovaries and ovules. During the anoestrum the vagina is lined by a low columnar epithelium consisting of only two or three rows of cells and without a cornified layer. During the pro-oestrum and oestrus the vagina epithelium is several layers in thickness and in the deeper part of the cells become high and squamous. There is a pronounced cornified layer. Later, during cestrus, the cornified layer begins to slough, the process being continued over some time. The entire period represents the ‘follicular stage’ of LOEB and other authors, and is presumably brought about by the action of oestrin. During pregnancy and pseudo-pregnancy (the latter condition in the ferret only occurring under experimental conditions as after copulation with a vesectomised male) the vagina epithelium becomes reduced to a low columnar or cubical structure. There is no cornified layer, this being completely shed during oestrus. This period clearly represents the ‘luteal phase’ in the ovarian cycle.

It is noted that the vulval swelling and other characteristics of the follicular stage terminate with ovulation just as does the swelling of the sexual skin in the primate, as described by ZUCKERMAN AND PARKES. The description of the changes here recorded are in the general agreement with observations by PARKES (1930) on the vaginal smear at different stages of the cycle in the ferret. The vaginal cycle in the ferret is in general way similar to that of the dog as described by EVANS and COLE. It may be again remarked, however, that pseudo-pregnancy only occurs under experimental conditions in the ferret, yet under the influence of pro-gestin secreted by the corpus luteum the vagina undergoes similar changes during both pregnancy and pseudo-pregnancy.

**CYCLIC CHANGES OF BREAST**

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 are believed to be responsible for the cyclical changes that many women feel in their breast 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 breasts go back to normal size. Once menstruation starts, the cycle begins again.

By the time a woman reaches her late 40s and early 50s, perimenopause is starting or is well underway. At this time, the levels of esrogen and progesterone begin to change. Estrogen levels dramatically decrease. This leads to many of the symptoms commonly linked to menopause. Without estrogen, the breast’s connective tissue becomes dehydrated and is no longer elastic. The breast tissue, which was prepared to make milk, shrinks and loses shape. This leads to the ‘saggy’ breasts associated with women of this age. Women who are taking hormone therapy may have some of the premenstrual breast symptoms that they had while they were still menstruating, such as soreness and swelling. But if a woman’s breast were saggy before menopause, this will no change with hormone therapy.

Many healthcare providers believe the breasts are not fully mature until a woman has given birth and made milk. Breast changes are one of the earliest signs of pregnancy. This is a result of the hormone progesterone. In addition, the dark areas of the skin around the nipples (the areolas) begin to swell. This followed by the rapid swelling of the breast themselves. Most pregnant women feel soreness down the sides of the breasts, and nipple tingling or soreness. This is because of the growth milk duct system and formation of many more lobules. By the fifth or sixth month of pregnancy, the breasts are fully capable of producing milk. As in puberty, estrogen controls the growth of the ducts, and progesterone controls the growth of the glandular buds. Many other hormones also play vital roles in milk production. These includes follicle-stimulating hormone (FSH), luteinizing hormone (LH), prolactin, oxytocin, and human placental lactogen (HPL). Other physical changes happen as well. These include the blood vessels of the breast becoming more visible and the areola getting larger and darker. All these changes are in preparation for breast feeding the baby after birth.

**MENUSTRUAL CYCLE**

Each month during the years between puberty and menopause, a woman’s body goes through a number of changes to get it ready for possible pregnancy. This series of hormone-driven events is called the menstrual cycle. During each menstrual cycle, an egg develops and is released from the ovaries. The lining of the uterus builds up. If a pregnancy doesn’t happen, the uterine lining sheds during a menstrual period. Then the cycle starts again.

A woman’s menstrual cycle is divided into four phases: menstrual phase, follicular phase, ovulation phase and luteal phase. The length of each phase can differ from woman to woman, and it can change over time.

**MENSTRUAL PHASES**

The menstrual phase is the first stage of the menstrual cycle. It’s also when you get your period. This phase start when an egg from the previous cycle isn’t fertilized. Because pregnancy hasn’t taken place, levels of the hormones estrogen and progesterone drop. The thickening lining of your uterus, which would support a pregnancy, is no longer needed, so it sheds through your vagina. During tour period, you release a combination of blood, mucus and tissue from your uterus. You may have period symptoms like these: cramps, tender breasts, bloating, mood swings, irritability, headaches, tiredness and low back pain. On average, women are in the menstrual phase of their cycle for 3 to 7 days. Some women have longer periods than others.

**FOLLICULAR PHASES**

The follicular phase starts on the first day of your period (so there is some overlap with the menstrual phase) and ends when you ovulate. It starts when the hypothalamus sends a signal to your pituitary gland to release follicle stimulating hormone (FSH). This hormone stimulates your ovaries to produce around 5 to 20 small sacs called follicles. Each follicle contains an immature egg. Only the healthiest egg will eventually mature. (On rare occasions, a woman may have two eggs mature). The rest of the follicles will be reabsorbed in your body. The maturing follicle of a surge in estrogen that thickens the lining of the uterus. This creates a nutrient-rich environment for an embryo to grow. The average follicular phase lasts for about 16 days. It can range from 11 to 27 days., depending on your cycle.

**OVULATION PHASE**

Rising estrogen levels during the follicular phase trigger your pituitary gland to release luteinizing hormone (LH). This is what starts the process of ovulation. Ovulation is when your ovary releases a mature egg. The egg travels down the fallopian tube toward the uterus to be fertilized by sperm. The ovulation phase is the only time during your menstrual cycle when you can get pregnant. You can tell that you’re ovulating by symptoms like these: a slight rise in basal body temperature, thicker discharge that has the texture of egg whites. Ovulation happens at around day 14 if you have a 28 days cycle–right in the middle of your menstrual cycle. It lasts about 24 hours. After a day, the egg will die or dissolve if it isn’t fertilized.

**LUTEAL PHASE**

After the follicle releases its egg. It changes into the corpus luteum. This structure releases hormones, main progesterone and some estrogen. The rise in hormones keeps your uterine lining thick and ready for a fertilized egg to implant. If you don’t get pregnant, your body will produce human chronic gonadotropin (hCG). This is the hormone pregnancy tests detect. It helps maintain the corpus luteum and keeps the uterine lining thick. If you don’t get pregnant, the corpus luteum will shrink away and be resorbed. This leads to decreased levels of estrogen and progesterone, which causes the onset of your period. The uterine lining will shed during your period. During this phase, if you don’t get pregnant, you may experience symptoms of premenstrual syndrome (PMS). These include: bloating, breast swelling or tenderness, mood changes, headaches, weight gain, change in sexual desire, food cravings and trouble sleeping. The luteal phase lasts for 11 to 17 days. The average length is 14 days.

**COMMON ISSUES**

Every woman’s menstrual cycle is different. Some women get their period at the same time each month. Others are more irregular. Some women bleed more heavily or for a longer number of days than others. Your menstrual cycle can also change during certain times of your life. For example, it can get more irregular as you get close to menopause. One way to find out if you’re having my issues with your menstrual cycle is to track your periods. Write down when they start and end. Also record any changes to amount or number of days you bleed, and whether you have spotting between periods.

Any of these things can alter your menstrual cycle: birth control pill, pregnancy, polycystic ovary syndrome (PCOS), uterine fibroids and eating disorders. Here are a few signs of a problem with your menstrual cycle: you’ve skipped periods, or your periods have stopped entirely, your periods are irregular, you bleed for more than seven days, your periods are less than 21 days or more than 35 days apart, you bleed between periods (heavier than spotting). If you have these or other problems with your menstrual cycle or periods, talk to your healthcare provider.