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CYCLIC CHANGES IN CERVIX

Mucus membrane of the cervix also shows cyclic changes during different phases of menstrual cycle.

- Proliferative phase

During this phase, the mucus membrane of cervix becomes thinner and more alkaline due to the influence of estrogen. It helps in the survival and motility of spermatozoa.

- Secretory phase

During the secretory phase, the mucus membrane of the cervix becomes thick and adhesive because of the action of progesterone.

During the ovulation phase, estrogenic secretion is increased. The increase is associated with characteristic changes in quantity and becomes watery, clear and translucent. In the view of these changes "the water phase of the cervical mucus", it immediately proceeds and coincides with the thermal shift, as determined by basal temperature recordings. But the cyclic changes in the cervix are not limited to the functions of the glandular structures and to the physiochemical properties of the cervical mucus. The diameter of the cervical canal also undergoes cyclic changes and is larger during the proliferative phase than during the secretory phase. This also applies to the width of the uterine isthmus.

CYCLIC CHANGES IN VAGINA

In the course of the reproductive cycle, the vaginal epithelium is subject to normal cyclic changes, that are influenced by estrogens: with increasing circulatory levels of the hormones, there is proliferation of epithelial cells along with an increase in the number of cell layers. As cells proliferate and mature, they undergo partial cornification. Although hormone induced changes occur in the other tissues and organs of the female reproductive system. The vaginal epithelium is more sensitive and its structure is an indication of estrogen levels.

- Proliferative phase

Epithelial cells of vagina are cornified. Estrogen is responsible for this.

- Secretory phase

Vaginal epithelium proliferates due to the actions of progesterone. It is also infiltrated with leukocytes. These two changes increase the resistance of vagina for infection.

MENSTRUAL CYCLE

The menstrual cycle is the regular natural change that occurs in the female reproductive system (specifically the uterus and ovaries) that makes pregnancy possible. The cycle is required for the production of oocytes, and for the preparation of the uterus for pregnancy. The menstrual cycle occurs due to the rise and fall of estrogen. This cycle results in the thickening of the lining of the uterus, and the growth of an egg, (which is required for pregnancy).

This cycle results in the thickening of the lining of the uterus, and the growth of an egg, (which is required for pregnancy). The egg is released from an ovary around day fourteen in the cycle; the thickened lining of the uterus provides nutrients to an embryo after implantation. If pregnancy does not occur, the lining is released in what is known as menstruation.

The menstrual cycle is governed by hormonal changes. These changes can be altered by using hormonal birth control to prevent pregnancy.

Each cycle can be divided into three phases based on events in the ovary (ovarian cycle) or in the uterus (uterine cycle). The ovarian cycle consists of the:

- Follicular phase
- Ovulation, and:
- Luteal phase whereas the uterine cycle is divided into menstruation, proliferative phase, and secretory phase.

Stimulated by gradually increasing amounts of estrogen in the follicular phase, discharges of blood (menses) flow stop, and the lining of the uterus thickens. Follicles in the ovary begin developing under the influence of a complex interplay of hormones, and after several days one or occasionally two become dominant (non-dominant follicles shrink and die). Approximately mid-cycle, 24 – 36 hours after the luteinizing hormone (LH) surges, the dominant follicle releases an ovocyte, in an event called ovulation. After ovulation, the ovocyte only lives for 24 hours or less without fertilization while the remains of the dominant follicle in the ovary become a corpus luteum; this body has a primary function of producing large amounts of progesterone. Under the influence of progesterone, the uterine lining changes to prepare for potential implantation of an embryo to establish a pregnancy. If implantation does not occur within approximately two weeks, the corpus luteum will involute, causing a sharp drop in levels of both progesterone and estrogen. The hormone drop causes the uterus to shed its lining in a process termed menstruation.

STAGES OF MENSTRUAL CYCLE

- Menstrual phase

- Follicular phase
- Ovulation phase
- Luteal Phase

MENSTRUAL PHASE: The menstrual phase is the first stage of the menstrual cycle. This phase starts 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 thickened lining of your uterus, which would support a pregnancy, is no longer needed, so it sheds through your vagina. During your period, you release a combination of blood, mucus, and tissue from your uterus.

FOLLICULAR PHASE: 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 into your body.

The maturing follicle sets off a surge in estrogen that thickens the lining of your uterus. This creates a nutrient-rich environment for an embryo to grow. The average follicular phase Trusted Source 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.

LUTEAL PHASE: After the follicle releases its egg, it changes into the corpus luteum. This structure releases hormones, mainly progesterone and some estrogen. The rise in hormones keeps your uterine lining thick and ready for a fertilized egg to implant. If you do get pregnant, your body will produce human chorionic 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).