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DEPARTMENT: PHARMACOLOGY

ASSIGNMENT TITLE: FEMAL REPRODUCTIVE PHYSIOLOGY

COURSE PHS 212- RENAL PHYSIOLOGY, BODY FLUID AND TEMPERATURE REGULATION AND AUTONOMIC NERVOURS SYSTEM.

Briefly discuss the cyclic changes in any two of the following

## BREAST: Breast development is a vital part of a woman’s reproduction. Breast development happens in certain stages during a woman's life: first before birth, again at puberty, and later during the childbearing years. Changes also happen to the breasts during the menstrual cycle and when a woman reaches menopause. Breasts begin to form while the unborn baby is still growing in the mother’s uterus. This starts with a thickening in the chest area called the mammary ridge or milk line. By the time a baby girl is born, nipples and the beginnings of the milk-duct system have formed.Breast changes continue to happen over a woman’s life. The first thing to develop are lobes, or small subdivisions of breast tissue. Mammary glands develop next and consist of 15 to 24 lobes. Mammary glands are influenced by hormones activated in puberty. Shrinkage (involution) of the milk ducts is the final major change that happens in the breast tissue. The mammary glands slowly start to shrink. This often starts around age 35. As a girl approaches her teen years, the first visible signs of breast development begin. When the ovaries start to produce and release (secrete) estrogen, fat in the connective tissue starts to collect. This causes the breasts to enlarge. The duct system also starts to grow. Often these breast changes happen at the same that pubic hair and armpit hair appear. Once ovulation and menstruation begin, the maturing of the breasts begins with the formation of secretory glands at the end of the milk ducts. The breasts and duct system continue to grow and mature, with the development of many glands and lobules. The rate at which breasts grow is different for each young woman.

Duringthe menstrual cycle: 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.

During pregnancy and milk production: 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 skin around the nipples (the areolas) begin to swell. This is followed by the rapid swelling of the breasts themselves. Most pregnant women feel soreness down the sides of the breasts, and nipple tingling or soreness. This is because of the growth of the milk duct system and the 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 include 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 in the breast becoming more visible and the areola getting larger and darker. All of these changes are in preparation for breastfeeding the baby after birth.

At menopause: 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 estrogen 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 breasts were saggy before menopause, this will not change with hormone therapy.

CERVIX: As a component of the female [reproductive system](https://en.wikipedia.org/wiki/Reproductive_system), the cervix is derived from the two [paramesonephric ducts](https://en.wikipedia.org/wiki/Paramesonephric_duct) (also called Müllerian ducts), which develop around the sixth week of [embryogenesis](https://en.wikipedia.org/wiki/Human_embryogenesis). During development, the outer parts of the two ducts fuse, forming a single [urogenital](https://en.wikipedia.org/wiki/Urogenital) canal that will become the [vagina](https://en.wikipedia.org/wiki/Vagina), cervix and [uterus](https://en.wikipedia.org/wiki/Uterus). The cervix grows in size at a smaller rate than the body of the uterus, so the relative size of the cervix over time decreases, decreasing from being much larger than the body of the uterus in [fetal life](https://en.wikipedia.org/wiki/Fetus), twice as large during childhood, and decreasing to its adult size, smaller than the uterus, after puberty. Previously it was thought that during fetal development, the original squamous epithelium of the cervix is derived from the [urogenital sinus](https://en.wikipedia.org/wiki/Urogenital_sinus) and the original columnar epithelium is derived from the paramesonephric duct. The point at which these two original epithelia meet is called the original squamocolumnar junction. New studies show, however, that all the cervical as well as large part of the [vaginal epithelium](https://en.wikipedia.org/wiki/Vaginal_epithelium) are derived from Müllerian duct tissue and that phenotypic differences might be due to other causes.

Explicate any one of the following

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.  woman’s menstrual cycle is divided into four phases:

* menstrual phase
* follicular phase
* ovulation phase
* luteal phase

The length of each phase can differ from woman to woman, and it can change over time.

**MENSTRUAL PHASE:** The menstrual phase is the first stage of the menstrual cycle. It’s also when you get your period. 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. You may have period symptoms like these: cramps (try these [home remedies](https://www.healthline.com/health/womens-health/menstrual-cramp-remedies)), tender breasts, bloating, mood swings, irritability, headaches, tiredness, low back pain. On [average](http://www.soc.ucsb.edu/sexinfo/article/menstrual-cycle), women are in the menstrual phase of their cycle for 3 to 7 days. [Some women have longer periods than others.](https://www.healthline.com/health/how-long-does-your-period-last)

**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)](https://www.healthline.com/health/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 phaseTrusted Source](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2834565/) lasts for about 16 days. It can range from 11 to 27 days, depending on your cycle.Top of Form

**OVULATION PHASE:** Rising estrogen levels during the follicular phase trigger your pituitary gland to release [luteinizing hormone (LH)](https://www.healthline.com/health/lh-blood-test). This is what starts the process of [ovulation](https://www.healthline.com/health/womens-health/what-is-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](https://www.healthline.com/health/pregnancy/basal-body-temperature)
* thicker discharge that has the texture of egg whites

Ovulation happens at around day 14 if you have a 28-day 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](https://www.healthline.com/health/womens-health/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](https://www.healthline.com/health/hcg-in-urine) 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)](https://www.healthline.com/health/premenstrual-syndrome). These include: bloating, breast swelling, pain, or tenderness, mood changes, headache, weight gain, changes in sexual desire, food craving, trouble sleeping. The luteal phase lasts for 11 to 17 days. The [average length Trusted Source](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4436586/) is 14 days.

**Identifying common issues:** Every woman’s menstrual cycle is different. Some women get their period at the same time each month. Others are more [irregular](https://www.healthline.com/symptom/menstrual-irregularity). Some women bleed more [heavily](https://www.healthline.com/health/why-is-my-period-heavy) 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](https://www.healthline.com/health/menopause). One way to find out if you’re having any issues with your menstrual cycle is to track your periods. Write down when they start and end. Also record any changes to the amount or number of days you bleed, and whether you have [spotting between periods](https://www.healthline.com/health/vaginal-bleeding-between-periods).Any of these things can alter your menstrual cycle:

* [**Birth control**](https://www.healthline.com/health/birth-control-pills)**.** The birth control pill may make your periods shorter and lighter. While on some pills, you won’t get a period at all.
* [**Pregnancy**](https://www.healthline.com/health/pregnancy)**.**Your periods should stop during pregnancy. Missed periods are one of the most obvious [first signs](https://www.healthline.com/health/pregnancy/early-symptoms-timeline) that you’re pregnant.
* [**Polycystic ovary syndrome (PCOS)**](https://www.healthline.com/health/polycystic-ovary-disease)**.** This hormonal imbalance prevents an egg from developing normally in the ovaries. PCOS causes irregular menstrual cycles and missed periods.
* [**Uterine fibroids**](https://www.healthline.com/health/uterine-fibroids)**.** These noncancerous growths in your uterus can make your periods longer and heavier than usual.
* [**Eating disorders**](https://www.healthline.com/nutrition/common-eating-disorders)**.**Anorexia, bulimia, and other eating disorders can disrupt your menstrual cycle and make your periods stop.