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MATRIC NUMBER: 18/SCI05/002

COURSE TILTLE: PHYSIOLOGY

COUESE CODE: PHS 212

1a) The cervix is the lower portion of the uterus. It is approximately two inches long, and it's tubular in shape. It widens during childbirth to allow for the passage of the baby. It also allows for the passage of menstrual fluid from the uterus, and sperm needs to travel through the cervix in order to reach the uterus. Because the life of the ovum is short and spermatozoa cannot survive long in the female genital tract, only coitus close to the time of ovulation can result in conception. Conception does not require only a fertilizable ovum and potent spermatozoa; conditions prevalent in the genital tract must also permit the spermatozoa to pass through the cervical mucus and reach the ovum. During the ovulation phase estrogenic secretion is increased. This increase is associated with characteristic changes in the cervical mucus, which increases in quantity and becomes watery, clear, and translucent. In view of these changes, it results in the cyclic phase "the water phase of the cervical mucus"; it immediately precedes and coincides with the thermal shift, as determined by basal temperature recordings. But the cyclic changes in the cervix are not limited to the function of the glandular structures and to the physicochemical 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.1 • 7. The increase in diameter of the cervical canal and isthmus during the ovulation phase favours migration of the spermatozoa into the uterine cavity.

1c) 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

* **Before birth:** 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. 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.
* **At puberty:** 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. Once ovulation and menstruation begin, the maturing of the breasts begins with the formation of secretory glands at the end of the milk ducts. Estrogen stimulates the growth of milk ducts in the breasts, while the hormone progesterone 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 or child bearing age:** many healthcare providers believe the breasts are not fully mature until a woman has given birth and made milk.  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. 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.
* **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. 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”

2) The menstrual cycle is the monthly series of changes a woman's body goes through in preparation for the possibility of pregnancy. Each month, one of the ovaries releases an egg — a process called ovulation. At the same time, hormonal changes prepare the uterus for pregnancy. If ovulation takes place and the egg isn't fertilized, the lining of the uterus sheds through the vagina. This is a menstrual period.

The cycle is required for the production of [oocytes](https://en.m.wikipedia.org/wiki/Oocyte), and for the preparation of the uterus for pregnancy. The menstrual cycle occurs due to the rise and fall of [estrogen](https://en.m.wikipedia.org/wiki/Estrogen%22%20%5Co%20%22Estrogen). This cycle results in the thickening of the lining of the uterus, and the growth of an [egg](https://en.m.wikipedia.org/wiki/Ovum), (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](https://en.m.wikipedia.org/wiki/Nutrient) to an embryo after [implantation](https://en.m.wikipedia.org/wiki/Implantation_%28human_embryo%29). If pregnancy does not occur, the lining is released in what is known as menstruation. Menstruation stops occurring after [menopause](https://en.m.wikipedia.org/wiki/Menopause) which usually occurs between 45 and 55 years of age. **The menstrual cycle is governed by hormonal changes.**

The menstrual cycle, which is counted from the first day of one period to the first day of the next, isn't the same for every woman. Menstrual flow might occur every 21 to 35 days and last two to seven days. For the first few years after menstruation begins, long cycles are common. However, menstrual cycles tend to shorten and become more regular as women age. The menstrual cycle might be regular about the same length every month or somewhat irregular, and the menstrual flow might be light or heavy, painful or pain-free, long or short.

 **Causes menstrual cycle irregularities**

Menstrual cycle irregularities can have many different causes, including:

* **Pregnancy or breast-feeding.** A missed period can be an early sign of pregnancy. Breast-feeding typically delays the return of menstruation after pregnancy.
* **Eating disorders, extreme weight loss or excessive exercising.** Eating disorders: such as anorexia nervosa — extreme weight loss and increased physical activity can disrupt menstruation.
* **Pelvic inflammatory disease (PID).** This infection of the reproductive organs can cause irregular menstrual bleeding.
* **Uterine fibroids.** Uterine fibroids are noncancerous growths of the uterus. They can cause heavy menstrual periods and prolonged menstrual periods.