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DEPARTMENT NURSING

COLLEGE MHS

Physiology assignment

**C) BREAST**

WHAT IS THE NORMAL CYCLIC CHANGE IN BREAST?

These hormones 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 breast may feel very lumpy.

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.

Female breast developmental stages Description

**Stage 1** Preteen. Only the tip of the nipple is raised.

**Stage 2** Buds appear, and breast and nipple are raised. The dark area of skin around the nipple (the areola) gets larger.

**Stage 3** Breasts are slightly larger, with glandular breast tissue present.

**Stage 4** The areola and nipple become raised and form a second mound above the rest of the breast.

**Stage 5** Mature adult breast. The breast becomes rounded and only the nipple is raised

**What cyclical changes happen to the breasts during the 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.

**What happens to the breasts 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.

**What happens to the breasts 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.

**B) CYCLICAL CHANGES IN VAGINA**

**How the vagina changes with age**

The vagina can change a lot throughout a person's life.An average adult vagina is slightly curved, and can range between 7 to 12 cm in length but every body is different, and there’s no such thing as a too small or too large vagina.

The vagina is strongly influenced by hormonal changes throughout the body. During the reproductive years after menarche (the first menstrual period) and before menopause, more layers of tissue are present lining the vagina, due to stimulation from higher estrogen levels in the body.

The vagina is also influenced by changing hormone levels during pregnancy. Increased blood flow is directed to the pelvis, causing a deeper color change to the vulva and vagina. Throughout a pregnancy, the connective tissue of the vaginal walls progressively relaxes, in preparation for the delivery of a baby. After delivery, the vagina and vaginal opening temporarily widen, but 6-12 weeks post-delivery, the vagina returns to its pre-pregnancy size.

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**Pregnancy, Birth & Postpartum**

Postpartum: Sex, fertility, and contraception

After giving birth, most healthcare providers advise waiting 6 weeks before resuming...

As people age, the walls of the vagina of the vagina become more relaxed, and the diameter of the vagina becomes wider. When it comes to sexual satisfaction, vaginal size does not affect sexual function.The perception of vaginal tightness during sex is primarily related to the pelvic floor muscles, which are present around the base of the vagina and not actually how wide the vaginal canal is.

After menopause, when estrogen is lower, the walls of the vagina become thinner and frailer, which can cause symptoms of vaginal dryness and decreased vaginal secretions. This may result in discomfort during sex and increase the chances of vaginal irritation or infection.

**How the vagina changes during the menstrual cycle**

The vagina also changes in response to hormonal fluctuations of the menstrual cycle. Around mid-cycle, when estrogen is highest, vaginal tissue becomes thicker and fuller.

The cervix, at the top of the vagina, moves and changes shape throughout the cycle. Before and after the fertile window, the cervix is low and can be felt in the vagina, with a firm texture, and the hole in the center of the cervix is closed. During the fertile window, the hole in the cervix opens to facilitate the entrance of sperm into the uterus, the cervix rises higher in the vagina, and is softer when touched.

**How the vagina changes during sex**

The vagina can also undergo more rapid changes, such as during sexual activity. When a person with a vagina is sexually aroused, increased blood flow is directed towards the genitals, causing the vaginal tissue to become engorged with blood, and additional lubrication to be produced. This fluid is called arousal fluid.

During sexual excitement, the vagina expands by lengthening and widening in shape. This is called vaginal tenting and ballooning. This shape change happens as the uterus and cervix are drawn higher into the pelvis, which creates more space and moves the cervix farther away from any semen that is ejaculated into the vagina. This allows time for the semen to mix with female genital fluids, stimulating the sperm to undergo the physical changes necessary for fertilizing an egg.

The vagina is an incredible organ which changes in response to hormones, life stages, and physical responses. So show your vagina some love, and feel free to tell anyone you want just how amazing your vagina really is.

**2) THE MENSTRUAL CYCLE**

The menstrual cycle is the scientific term for the physiological changes that occur in fertile women for the purpose of sexual reproduction. The menstrual cycle is controlled by the endocrine system and commonly divided into three phases: the follicular phase, ovulation, and the luteal phase.

The menstrual cycle begins with the maturation of oocytes through the process of oogenesis, as well as concurrent follicle development that stimulates ovulation. Oogenesis starts with the process of developing oogonia via the transformation of primordial follicles into primary oocytes, a process called oocytogenesis. Oocytogenesis is complete either before or shortly after birth in humans. During the menstrual cycle primary oocytes complete maturation through further meiotic divisions.

Follicle development signals the beginning of the menstrual cycle. At the start of the menstrual cycle, some 12-20 primary follicles begin to develop under the influence of elevated levels of follicle-stimulating hormone (FSH) to form secondary follicles. The primary follicles form from primordial follicles, which develop in the ovary as a fetus during conception and are arrested in the prophase state of the cellular cycle.

By around day 9 of the menstrual cycle, only one healthy secondary follicle remain. The rest are reabsorbed into the ovary. The remaining follicle, called the dominant follicle, is responsible for producing large amounts of estrogen during the late follicular phase.

On day 14 of the cycle, a luteinizing hormone surge is triggered by the positive feedback of estrogen. This causes the secondary follicle to develop into a tertiary follicle, which then leaves the ovary 24–36 hours later. An important event in the development of the tertiary follicle occurs when the primary oocyte completes the first meiotic division, resulting in the formation of a polar body and a secondary oocyte. The empty follicle then forms a corpus luteum which later releases progesterone to maintain a potential pregnancy.

Immediately after meiosis I, the haploid secondary oocyte initiates meiosis II. However, this process is also halted at the metaphase II stage until fertilization occurs. When meiosis II has completed, an ootid and another polar body is created.

Both polar bodies disintegrate at the end of meiosis II, leaving only the ootid, which eventually develops into a mature ovum. The formation of polar bodies serves to discard the extra haploid sets of chromosomes that have resulted as a consequence of meiosis.