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 **CYCLIC CHANGES IN BREASTS**

The breast is one of the two prominences located on the upper ventral region of the torso of primates. In females, it serves as the mammary gland, which produces and secretes milk to infants. Both females and males develop breasts from the same embryological tissues. At puberty, estrogens, in conjunction with growth hormone, cause breast development in females and to a much lesser extent in other primates. Breast development in other primate females generally only occurs with pregnancy. Subcutaneous fat covers and envelops a network of ducts that converge on the nipple, and these tissues give the breast its size and shape. At the ends of the ducts are the lobules, clusters of alveoli, where milk is produced and stored in response to hormonal signals. During pregnancy, the breast responds to a complex interaction of hormones, including estrogens, progesterone and prolactin that mediate the completion of its development, namely lobuloalveolar maturation, in preparation of lactation and breast feeding. 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 divisions of breast tissue. Mammary glands develop next and consist of 15 to 24 lobes. Mammary glands are influenced by hormones activated in puberty. Shrinkage of the milk ducts is the final major change that happens in the breast tissue. The mammary glands slowly starts to shrink and this often starts at 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 estrogen, fat in the connective tissue starts to collect. This causes the breasts to enlarge. The duct system also starts to grow. 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. 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 breast may feel lumpy, this is because the glands in the breast are enlarging to get ready for possible pregnancy. If pregnancy does not happen, the breast will go back to its normal size. Once menstruation starts, the cycle begins again.

 **STAGES OF BREAST DEVELOPMENT**

* In preadolescence, the breasts are flat and only the tip of the nipple is raised.
* Buds appear, breast and nipple are raised, fat tissue begins to form and the areola(dark area of the skin that surrounds the nipple enlarges).
* Breasts are slightly larger with glandular breast tissue present. Initially this happens in a conical shape and later in a rounder shape. The areola begins to darken.
* The nipple and areola become raised and form a second mound above the rest of the breast. Menstruation typically starts within two years of reaching this stage and some girls completely skip this stage.
* Mature adult breast is rounded and only the nipple is raised.

 **CYCLIC CHANGES IN CERVIX**

Cervical mucus at midcycle is increased in amount, acellularity, water content and fluidity. Furthermore, cervical mucus at this time is well supplied with carbohydrate and presumably amino acids. The cervix is a cylinder shaped neck of tissue that connects the vagina and uterus. Located at the lowermost portion of the uterus, the cervix is composed primarily of fibromuscular tissue. There are two main portions of the cervix:

* The part of the cervix that can be seen from inside the vagina during a gynecologic examination is known as the ectocervix. An opening in the center of the ectocervix, known as the external os, opens to allow passage between the uterus and vagina.
* The endocervix, or endocervical camal, is a tunnel through ythe cervix, from the external os into the uterus. The overlapping border between the endocervix and ectocervix is called the transformation zone. The cervix produces cervical mucus that changes in consistency during the menstrual cycle to prevent or promote pregnancy. During childbirth, the cervix dilates widely to allow the baby to pass through. During menstruation, the cervix opens a small amount to permit passage of menstrual flow. The cervical canal is a passage through which sperm must travel to fertilize an egg cell after sexual intercourse. Several methods of contraception include cervical caps and cervical diaphragms which aim to block or prevent the passage of sperm through the cervical canal. Cervical mucus is used in several methods of fertility awareness due to its changes in consistency throughout the menstrual period. The cervix must flatten and dilate to allow the foetus to progress and doctors use the extent of the dilation of the cervix to assist decision making during childbirth. Cervical cytology tests can often detect cervical cancer and its precursors and enable early successful treatment.

 Having regular pap smears is imperative to detect early changes to the cervical cells which may lead to cervical cancer. You should know however, that the majority of abnormal pap smears are due to inflammation and infection.

 **MENSTRUAL CYCLE**

Menstruation (also termed period or bleeding) is the process in which a woman discharges blood and other materials from the lining of the uterus at about one monthly interval from puberty until menopause(ceasing of regular menstrual cycles), except during pregnancy. This discharging process lasts about 3-5days.

  **SIGNS AND SYMPTOMS**

* Headache
* Acne
* Bloating
* Pains in the lower abdomen
* Tiredness
* Mood changes
* Food cravings
* Breast soreness
* Diarrhea

The menstrual cycle is the hormonal driven cycle. Day 1 is the first day of your period(bleeding) while day 14 is the approximate day you ovulate and if an egg is not fertilized, hormone levels eventually drop and at about day 25, the egg begins to dissolve and the cycle begins again with the period at about 30 day. Menstruation begins day 1 and normally ends days 3-5 of the menstrual cycle. Most periods vary somewhat, the flow may be light, moderate or heavy and can vary in length from about 3 to 7 days, with age, the cycle usually shortens and becomes more regular. The average age for a girl to get her first period is age 12, but the range of age is about 8 to 15 years old. Women usually have periods until about ages 45 to 55. Treatment for the causes of menstrual pain depend on what the cause is and may include birth control pills, heavy or prolonged periods, IUDS, non-inflammatory steroid drugs(NSAIDs), for example, Ibuprofen, Buscopan, Aspirin, Naproxen, and other counter pain medications to relive pain and cramping such as putting hot cereal or rice in a socks or cloth and placing it on your stomach, lying down on your stomach, drinking of hot or warm water.

 Toxic shock syndrome is rare, life threatening complication of certain types of bacterial infections. Toxic shock syndrome affects menstruating women, especially those who use super absorbent tampons. Toxic shock syndrome starts suddenly, often with:

* A high fever
* A rapid drop in blood pressure with light headedness or fainting
* Diarrhea when menstruating
* Headache
* Sunburn like rash on any part of the body, including the palms of the hands and the soles of the feet
* Muscle aches
* Vomiting
* Confusion
* Weakness
* Tiredness
* Peeing less than usual
* Being thirsty

A person might also have blood shot eyes and an unusual redness under the eyelids or inside the mouth and in the vagina. The area around the infected place can become swollen, red and tender. Toxic shock syndrome is caused by Staphylococcus aureus and Streptococcus pyogenes. Toxic shock syndrome is an infection that is caused by wearing a pad or tampon for more than 8 hours without changing it or using some contraceptive devices and it can cause the liver and kidney to fail, problems such as seizures, bleeding and heart failure can happen if not treated. Washing hands well and often and washing the vagina with hot water can help prevent the bacteria that causes toxic shock syndrome. Girls can reduce the risk of toxic shock syndrome by:

* Washing their hands well before and after inserting a tampon
* Not using tampons or alternating them with sanitary napkins
* If using tampons, choose ones with the lowest absorbency that will handle menstrual flow, and change the tampons often
* On flow days, using pads instead of tampons
* If tampon must be used it should be stored away from heat and moisture where bacteria can grow.