

# The Breast Is An Accessory Organ Of The Female Reproductive System

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## Abstract

The breast is the largest skin gland, characteristic of the female sex. It is located on the ventral side of the chest at the border of the bone and cartilage of the fourth rib. The breast is a genetically apocrine skin gland. The breast of a female newborn is no different from the breast of a male newborn. Both secrete secretions under the influence of the hormone prolactin immediately after birth. Until the onset of puberty, male and female breasts develop equally, and then the male breast usually does not develop further, while the female under the influence of female sex hormones develops and its development ends only during pregnancy and lactation. A woman's breast is a complex tubuloalveolar gland, made up of 20 to 25 individual glands. Each of them, together with connective and adipose tissue, builds one lobe. The lobes are separated from each other by denser connective tissue, and each lobe of the breast has one main drainage channel that ends in a funnel-shaped extension on the nipple. The breast of a sexually mature woman changes cyclically depending on the menstrual cycle.

**Keywords:** Breast, Mother's Milk, Sexual Response, Cancer, Health

## 1. Introduction

The breast is each a milk-producing organ and an organ of sexual stimulation [1]. It includes ductal tissue, glandular lobules, and fatty tissue. The tissues of the breast reply to stimuli from the ovarian hormones estrogen and progesterone and the hormones from different endocrine glands. These responses stimulate milk manufacturing within the postpartum period, motivate swelling and tenderness at some point in the premenstrual period, and may motivate aberrations in increased patterns, including the ones visible in a few malignancies. The brown, pink, or reddish location surrounding the nipple is the areola. The Montgomery glands (or areolar glands) are sebaceous glands that resemble small lumps. Their secretions lubricate the nipple and the areola and thereby prevent cracking at some point of lactation.

### Breast

The mammary glands, or breasts, are accessory organs of the female reproductive system that can be specialized to secrete milk following pregnancy [2]. They overlie the pectoralis principal muscular tissues and increase from the second one to the 6th ribs and from the sternum to the axilla. Each breast has a nipple positioned close to the tip, that is surrounded via way of means of a round location of pigmented

pores and skin known as the areola. Each breast consists of about nine lobes (the wide variety can range from 4 and 18), which incorporate glands (alveolar) and a duct (lactiferous) that ends in the nipple and opens to the outside. The lobes are separated via way of means of dense connective and adipose tissues, which additionally assist help the burden of the breasts.

During pregnancy, placental estrogen and progesterone stimulate the development of the mammary glands. Because of this hormonal activity, the breasts can also additionally double in length at some point in pregnancy. At the same time, glandular tissue replaces the adipose tissue of the breasts.

Following childbirth and the expulsion of the placenta, ranges of placental hormones (progesterone and lactogen) fall unexpectedly, and the action of prolactin (milk-producing hormone) is now no longer inhibited. Prolactin stimulates the production of milk some days after childbirth, however, within the interim, a darkish yellow fluid known as colostrum is secreted. Colostrum carries more minerals and protein, but much less sugar and fats, than mature breast milk. Colostrum secretion can also additionally hold for

about every week after childbirth, with slow conversion to mature milk. Colostrum is rich in maternal antibodies, especially immunoglobulin A (IgA), which gives safety to the newborn against enteric pathogens.

### Sexual Response

With sexual stimulation, tissues within the clitoris and breasts and across the vaginal orifice fill with blood and the erectile tissues swell [2]. At the same time, the vagina starts to enlarge and elongate to accommodate the penis. As a part of the entire vasocongestive reaction, the labia majora and minor swell and darken. As sexual stimulation intensifies, the vestibular glands secrete mucus to moisten and lubricate the tissues to facilitate the insertion of the penis.

Hormones play a necessary function within the female sexual response as well. Adequate estrogen and testosterone have to be had for the mind to experience incoming arousal stimuli. Research shows that estrogen preserves the vascular characteristic of female sex organs and impacts genital sensation. It is also believed to promote blood flow to those regions at some point of stimulation. Testosterone is notion to be the hormone of sexual preference in women.

The zenith of excessive stimulation is orgasm, the spasmodic and involuntary contractions of the muscular tissues within the location of the vulva, the uterus, and the vagina that produce a pleasing sensation to the woman. Typically the woman feels heat and comfortable after an orgasm. Within a brief time after orgasm, the two physiologic mechanisms that created the sexual response, vasocongestion, and muscle contraction, rapidly dissipate.

### Anatomy

The female breasts are each composed of approximately twenty lobes of glandular tissue embedded in fibrous and adipose tissue [3]. The lobes are organized circumferentially much like petals on a flower. Each lobe includes clusters of glands (terminal ductules or acini) wherein the milk is made at some point of pregnancy, and a chain of intralobular ducts connecting the acini and the stromal tissue wherein the acini and ducts are positioned. Taken collectively those 3 additives are known as the terminal duct lobular unit (TDLU). The ducts of the TDLU converge to shape big ducts that increase to the nipple. The ductules and ducts of the lobular system are bi-layered. The luminal epithelial cells lining the ducts are the source of milk at some point of lactation and additionally of much breast pathology, the most important being carcinoma. The outer layer is myoepithelial and commonly is misplaced in invasive breast cancer. Preservation as opposed to lack of the bilayered nature of the lobular system is a crucial diagnostic criterion in separating benign from malignant breast disease.

The breasts are changed sweat glands which have to emerge as specialized to secrete milk. Before puberty, breast tissue in each sex is composed most effectively of branching ducts and fibrous tissue without glandular tissue or fats. In the female, the breasts extend at puberty in reaction to estrogen and progesterone produced via way of means of the ovaries, while the unstimulated male breasts retain their prepubertal form. Postpubertal adjustments within the female consists of the proliferation of glandular and fibrous tissue

and the accumulation of adipose tissue in the breasts. Variations within the length of the postpubertal breasts of nonpregnant women are frequently the result of variations in the number of fats and fibrous tissue within the breasts as opposed to variations in the quantity of glandular tissue.

The breasts are fixed to the chest wall via way of means of bands of fibrous tissue known as suspensory ligaments, which increase from the pores and skin of the breast to the connective tissue protecting the muscular tissues of the chest wall. The breasts have ample blood delivery and wealthy lymphatic drainage. Lymphatic channels drain from every breast into corporations of lymph nodes positioned within the armpit, or axilla (axillary lymph nodes), above the clavicle (supraclavicular lymph nodes), and beneath the sternum (mediastinal lymph nodes).

### Mother's Milk

All mothers should be strongly encouraged to breastfeed their infants [4]. An extensively universal aim is exceptional breastfeeding for at least the first 6 months of life. Vitamin D supplement (400 U/d) is indicated for breastfed children. Parents who choose to bottle-feed their newborn have several choices in formulation, however, must keep away from cow's milk, due to risks like anemia. The commercial formulation is commonly fortified with iron and vitamin D, and some contain fatty acids including docosahexaenoic acid (DHA) and arachidonic acid (ARA) which aren't as but validated to sell anxious system development. The soy-based or lactose-free formulation may be used for infants intolerant of cow's milk formulas.

Suitable weight advantage is 1 oz/d at some point in the primary 6 months of life and 0.5 oz/d at some point in the subsequent 6 months. This weight advantage calls for a day-by-day caloric consumption of ~120 kcal/kg during the first 6 months and 100 kcal/kg thereafter. Breast milk and maximum formulation incorporate 20 cal/oz. Initially, newborns must be consumed demand or in some cases twins on a partial schedule. Caregivers want to be questioned approximately the quantity and period of the child's feedings and vitamin D and fluoride consumption at each visit.

Healthy snacks and ordinary own circle of relatives meal-times can also additionally assist reduce the risk of obesity. Fruit juice is high-quality prevented altogether; water is favored for hydration. Ideal calorie consumption is extremely impartial to weight however does alternate consistently with interest level. Children aged 1 year must take in approximately 900 kcal/d; for ages 2–3 years, 1000; for ages 4–8 years, 1200 for girls and 1400 for boys; age 9–13 years, 1600 for girls and 1800 for boys; and age 14–18, 1800 for girls and 2200 for boys.

Solid foods such as cereals or pureed baby foods are introduced at 4–6 months of age whilst the infant can support her or his head and the tongue extrusion reflex has been extinguished. Delaying the advent of strong ingredients till this time seems to restrict the occurrence of meal sensitivities. The child also can continue breast- or bottle-feeding, restricted to 30 oz/d, due to the fact the solids now offer extra calories. Around 1 year of age, whilst the infant can drink from a cup, bottle-feeding must be discontinued to protect

the tooth from caries. No specified optimum age exists for weaning an infant from breastfeeding. After weaning, ingestion of entire or 2% cow's milk can also additionally promote nervous system development.

Older infants can tolerate gentle person ingredients including yogurt and mashed potatoes. A well-developed pincer grasp allows children to self-feed finger foods. With the eruption of the number one tooth at 8–12 months of age, children can also additionally strive for foods including soft rice or pasta.

With infants, mealtimes may be a source of each pleasure and anxiety as children become “finicky.” The normal infant can also additionally show off precise food preferences or be disinterested in eating. A suitable increase rate and normal developmental milestones must reassure the annoyed mother and father. Coping techniques consist of presenting small quantities of favored objects first and presenting restricted food choices. Eating as an own circle of relatives offers infants a role model for healthy eating and suitable social behaviors at some point during mealtimes.

It is sometimes now and then stated that mother's milk is nature's best meal. If it isn't the best, it's by far impressive [5]. It may be synthesized successfully from the mother's primary energy reserves. It presents critical nutrients in a without problems digestible form, each macronutrient (calories, proteins, fats) and micronutrient (vitamins and minerals). Ingestion of breast milk does now no longer expose the infant to outside pathogens the manner of ingestion of different foods or water can also add. But more than that, breast milk additionally consists of immunologically active substances that assist to guard the infant's gastrointestinal tract from pathogens that it would ingest at different times. Some of those substances are nonspecific, which means they confer restricted safety in opposition to an extensive type of pathogens. An instance is a lactoferrin, an iron-binding protein that makes it tough for microorganisms within the gastrointestinal tract to get maintain the iron that their metabolic methods require. Other substances are greater precise and greater potent, including the antibodies a mother secretes directly into her milk. These cornerstone molecules of the vertebrate immune system recognize and bind to precise pathogens, activating mechanisms for their elimination. The immune system “remembers” pathogens it's been uncovered to within the beyond and may unexpectedly mount powerful protection whilst reexposed. An infant's immune system is underdeveloped and does now no longer have the reservoir of acquired “experience” that the mother's immune system has. However, given that mothers are usually exposed to the same pathogens as their infants, the efficiency of the mother's immune system can hold to offer protection to the infant thru breast milk.

## Breastfeeding

Women can produce milk once they reach childbearing age [6]. There isn't any proof that breast function, breast milk production, or composition differs amongst younger women. The essential outside structures of the mature human female breast are the nipple, areola, and Montgomery tubercles. The areola is the darker part of the breast, and the nipple is the relevant maximum shape thru which milk ducts open and

milk is expressed. The areola carries the Montgomery tubercles, thru which sebaceous and sweat glands (Montgomery glands) open, producing lubricating substances for the nipple.

Underlying structures consist of adipose tissue, mammary gland cells, and contractile myoepithelial cells surrounding the gland cells (allowing for milk ejection). Milk produced in the alveoli is ejected into the milk ducts, which open out at once to the nipple. It changed into formerly assumed that milk changed into saved in lactiferous sinuses; however, greater latest studies have revealed that those sinuses do now no longer exist.

Infant breastfeeding draws the nipple and areola into the mouth, causing elongation of the nipple. The elongated nipple is compressed among the palate and the tongue, and milk is expressed much less than 0.05 seconds after the nipple has elongated. Stimulation of the areola is essential for the oxytocin-mediated hormonal cascade that controls milk ejection.

While the health benefits of breastfeeding for each woman and her child are nicely-known, the wide variety of UK infants who're nonetheless completely breastfed at 6 months vintage stays extraordinarily low at around 1% [7]. The choice of whether or not or now no longer to breastfeed can be a complicated one for plenty of women and studies shows that myriad influencing elements affect the initiation and continuation of breastfeeding. Women who choose to breastfeed can also additionally face discrimination in an environment that also positions bottle-feeding because of the socio-cultural ‘norm’, and people who choose to feed formula milk to their infants can also additionally stumble upon problems negotiating a health service culture wherein ‘alternatives to breastfeeding are automatically portrayed as inferior’. The myth of ‘the good mother’ is in detail linked to infant feeding practices, with women who both pick now no longer to breastfeed or who're not able to hold breastfeeding past some days or weeks, reporting emotions of inadequacy, disgrace, and guilt. In mild of this, a few commentators have known for a shift in training around breastfeeding closer to a greater reality, the family-centered conceptualization of infant feeding choices.

## Cancer

The cause of breast cancer is complicated and nonetheless now no longer completely understood, however, is associated with genetic mutations in some of the genes chargeable for controlling molecular increase and repairing damaged DNA [8]. Among those genes, especially obvious among people with inherited sorts of breast cancer, are BRCA1 and BRCA2. A woman's lifetime hazard of growing breast (and/or ovarian) cancer is significantly improved (via way of means of as much as 80 percent) if she inherits (from both parents) a damaging mutation in both of those genes. This hazard is regularly meditated within the wide variety of near-own circles of relatives and individuals who're diagnosed with breast cancer.

However, the presence of a BRCA1 genetic mutation in an embryonic cell isn't like that of a delta F508 mutation due to the fact the latter will motivate deadly ailment, even as the

previous May now no longer. Breast cancer isn't inevitable for a woman carrying a BRCA1 mutation; cystic fibrosis is for the child derived from an embryo with copies of the delta F508 deletion. It's the distinction among probability, susceptibility, and inevitability—and that is why PGD (preimplantation genetic diagnosis) trying out for breast cancer genes in embryos has to emerge as so controversial. An embryo 'diagnosed' as a carrier of the BRCA1 or 2 mutations may have evolved into a wonderfully healthful baby and adult. Moreover, even the transfer of an unaffected embryo does now no longer put off the hazard entirely—just being female confers a one-in-nine hazard of breast cancer, and the hazard is likewise depending on age, environmental elements, and hormones. Similarly, the disease won't be fatal, so there's the actual opportunity that PGD can be done for future 'illness' as opposed to doing away with the hazard of a positive fatal disease.

Breast disorders account for a big wide variety of consultations [9]. It is predicted that 30 consistent with a thousand women consult their general practitioner approximately a breast problem each year. In general surgical units, breast problems can occupy some 25% of the workload. Breast disease presents as a painless lump in 35% of women, a painful lump in 33%, and diffuse or generalized pain within the breast in 18%. Nipple discharge is the imparting symptom in approximately 5% of patients and a smaller percentage is present as breast or nipple distortion, inflammation or eczema, or alternate in look within the breast or the nipple. The bedrock of analysis is the so-called 'triple assessment' or a combination of (1) breast exam; (2) imaging (mammography, ultrasound); and (three) biopsy or cyst aspiration. It is crucial to reach an analysis as quickly as viable due to the fact women with breast signs are normally afraid that they've breast cancer. It needs to be emphasized that almost all women who present with breast signs do now no longer have breast cancer. About half of all women who attend breast clinics are located to don't have any abnormality on exam and investigation, and a further 40% have benign disease.

## Parents

Falling in love is an important part of the relationship between the parental couple and their new infant [10]. As we know, a few mothers and fathers immediately fall in love with their babies however for others it takes a little longer. Babies who're born following a perinatal loss are often in a vulnerable position. When the mom or the parents look at their new baby, it's far tough for them now no longer to recollect their hopes and expectancies for the infant they have got lost. It is as though the shadow of the dead baby comes among the mother and father and their live infant.

Many moms who've shared their emotions with me at the moment have talked of the pain related to loving the brand new child however of still feeling overwhelmed via way of means of memories of the loss. As a result, the child sees grief, distress, and now and then anger within the mother's eyes, in addition to emotions of love. They are conscious that there's any other child in the mother's mind, a child who takes her interest and approach that she isn't always emotionally available. That is, the child is at the center of the mother's interest, and it's far more difficult for her to reflect

on consideration on everyone or whatever else.

On another level, as soon as a mother and father have lost a child it can be difficult for them to feel confident that they can keep the next infant alive. This can result in the hyper-vigilance that evolved at some point of pregnancy continuing after birth. Separation, feeding, and sleep can emerge as principal reasserts of anxiety. Some mothers describe locating it tough to allow everyone else appearance after the child in case something dreadful happens. Sometimes this tension extends to the father and this will then motivate issues within the couple's relationship.

Parents can sense concern approximately feeding their infants, making sure they have got sufficient nourishment to keep them alive. This can lead to anxiety approximately breastfeeding, as it's far tough to measure the amount of milk taken from the breast in contrast to understanding how much milk the child has taken from a bottle. If the mother stops breastfeeding due to this anxiety, the child loses the breast and all the great things related to breastfeeding, each emotionally and nutritionally. Similarly, whilst the child is sleeping, mothers talk about worrying that the child is dead and not just asleep. They describe anxiously checking, to reassure themselves that the child is still breathing.

Assessment of infant nutrients starts at some point in pregnancy with the assessment of the mother's and father's attitudes and choices approximately infant feeding [11]. Breastfeeding is extensively universal because of the favored technique of human newborn nutrients. However, if a mother chooses now no longer to breastfeed due to her circumstances, it's far crucial that she now no longer be made to sense responsible for her choice, due to the fact formulation feeding may be substituted. Most crucial, the mother and father want to feel comfortable with and assured approximately the feeding technique they choose.

Teach mother and father a way to understand signs of hunger in a newborn including restlessness, tense body posture, smacking lips, and tongue thrusting. Otherwise, they will look ahead to their infant to cry, and that is an overdue signal of newborn hunger. Once infant feeding starts, educate mother and father to evaluate whether or not the quantity the infant is receiving is adequate—now no longer via way of means of how long the newborn breastfeeds at a time or via way of means of how a good deal formulation is taken at a feeding, however via way of means of a bigger measure, including whether or not the newborn is voiding, growing, and alert. A formulation-fed new child regains delivery weight at approximately 10 days, and a breastfed infant at approximately 14 days.

## Male Breast

Gynecomastia refers to a benign expansion of the male breast because of a relative decrease in the androgen effect or an increase in the estrogen effect [12]. Breast expansion because of adipose tissue is known as pseudo-gynecomastia. Physiologic gynecomastia takes place in maximum neonates, secondary to circulating maternal and placental estrogen and progesterone. Transient gynecomastia additionally impacts over half of all boys at some point of puberty due to the fact estrogen production peaks earlier than that tes-

tosterone. Nonphysiologic gynecomastia outcomes from (1) drugs or disorders related to low testosterone levels, (2) excessive conversion of testosterone to estrogens, and (3) excessive estrogen ranges and excessive sex hormone-binding globulin ranges, resulting in low free testosterone. It can also additionally arise in sufferers with hyperthyroidism, cirrhosis, renal failure, chronic lung disease, and certain hormone-producing tumors, such as Leydig and Sertoli cell tumors, testicular germ cell tumors, and cancers of the liver and lung. Drugs implicated in gynecomastia consist of digoxin, cimetidine, spironolactone, marijuana, and tricyclic antidepressants. There isn't any proof that gynecomastia is related to an improved hazard of cancer. Unilateral or focal male breast expansion isn't gynecomastia and is a common cause for a biopsy.

Male breast cancers make up 1% of breast cancers within the United States. The mean age at presentation is 65 years. The hazard of breast cancer is extra in high-estrogen states. Men with Klinefelter syndrome have a 60-fold higher hazard than normal. Male-female transsexuals following castration and high-dose estrogen and men handled with estrogen for prostate cancer also are at extra hazard. Men with inherited germline mutations in BRCA2 display a cumulative hazard of 7% for breast cancer via way of means of age 80 years. The hazard in male BRCA1 carriers is much less.

Most male breast cancers are ductal, and NST; however, papillary carcinoma is disproportionately represented in men. Lobular carcinoma is rare. Ninety percent of cancers are ER and PR-positive. Androgen receptor positivity is regularly visible. Management of men with breast cancer in large part displays outcomes of medical research accomplished in women.

## 2. Conclusion

The breast is a symmetrically paired organ, located on the front of the chest. It reaches normal size between the ages of sixteen and nineteen. The breast is shaped by the glandular tissue of the mammary gland inserted into the connective stroma and lined with adipose tissue. The mammary gland consists of 10 to 20 alveotubulous glands, each of which has

an excretory duct that opens separately on the nipple. The lobes are divided into lobes, separated by connective septa. That is why the mammary gland is felt like a granular formation.

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