

Learning objectives: By the end of this lecture the students are able to know: -

- What you need to know about breast milk.?
- Why paediatricians prefer breast feeding?
- How to achieve successful breast feeding?
- What are the common Problems may have associated with breast feeding.?
- What are the Contraindication of breast feeding.?

Some terms you need to know: -

Rooting :-Is natural reflex., Baby widely open his mouth, the head moves from side to side searching for the nipple. To start rooting the must lightly touch her nipple to the baby lower lip.

Latching on: The baby grasping the mother nipples with his mouth, a skill that the baby must learn with little help from the mother.

Prolactin reflex: milk production reflex

Prolactin → milk production by the breast

Oxytocin reflex: milk ejection reflex

Oxytocin → milk ejection from the duct to the nipple.

Colostrum: Colostrum, rather than milk, is produced for the first few days. Colostrum differs from mature milk in that the content of protein and immunoglobulin is much higher, low volumes, yellowish, that is:

- Rich in antibodies and growth factors.
- Laxatives.
- Prepare the baby`s gut for digestion and absorption.
- Fore milk: low fat milk produced at the beginning of the feeding.
- Hind milk: higher fat milk produced toward the end of the feeding.
- Exclusive breast feeding: the infant receiving breast milk only, no additional

food, water, or other fluid, with the exception of medicine and vitamin drops.

Predominant breast feeding. the infant receiving breast milk with other food (milk, water, or cereals.)

Bottled feeding: the infant feeds from the bottle, regardless its contents, **even expressed breast milk.**

Artificial feeding: the infant receiving **breast milk substitutes**, and not breast milk at all.

Formula feeding: the infant receiving cow`s milk based formula.

Mixed feeding: breast feeding + formula feeding.

Complementary feeding: the infant is given food in addition to breast milk or infant formula.

Breast feeding:

Human milk and breastfeeding are the ideal food for infant feeding and nutrition. The WHO recommend that infants should be exclusively breastfed or given breast milk for 6 months. Breastfeeding should be continued with the introduction of complementary foods for 1 year or longer, as mutually desired by mother and infant. Feedings should be initiated soon after birth unless medical conditions preclude them. The first 2 days of breastfeeding, and perhaps the first hour of life, may determine the success of

breastfeeding. Mothers should be encouraged to nurse from both breast at each feeding starting with the breast offered second at the last feeding. It is preferable to empty the first breast before offering the second to allow complete emptying of both breasts and therefore better milk production.

Proper technique and position of breastfeeding: -

- ✓ The baby should be held in a semi-setting position to prevent vomiting.
- ✓ Support the breast to prevent nasal obstruction by one hand of the mother and support the baby with the other hand.
- ✓ Skin to skin, eye to eye contact, Infant's back is covered with blankets.
- ✓ Infant's nose and mouth are not covered.
- ✓ Infant's head is turned to one side; Infant's head is in “sniffing” position.
- ✓ Infant's shoulders and chest face mother while infant's legs are flexed.
- ✓ The infant’s lip should engage considerable areola as well as nipple.
- ✓ Complete one breast then shifts to other one.

Recommendations for maintain breast feeding and adequate milk supply

- Initiation of breastfeeding within the first hour of life.
- The infant should only receive breast milk without any additional food or drink.
- Breastfeeding on demand (that is as often as the child wants)
- Feeding at night.
- Ensure 8-12 feedings at the breast every 24 hr
- No use of bottles or pacifiers.
- Mother and infant should sleep in proximity to each other to facilitate breastfeeding (**rooming in**)

Supplements:

- Give no supplements (water, glucose water, commercial formula, etc.) to breastfeeding.
- administration of im vitamin K within 6 hr of birth. (after 1st breastfeeding is completed)
- Begin daily oral vitamin D drops (400 IU) at hospital discharge.
- Since breast milk is poor source of iron, **iron supplements**, starting at 4 months of age.

* Different **position** of mother can achieve the previous goals; **cradle position, football position, and slide lying position.**

Benefits of breast feeding

- Breast feeding decreases the incidence and severity of diarrhoea, respiratory illnesses, otitis media, bacteraemia, bacterial meningitis, septicaemia, necrotizing enterocolitis, UTI, and infant botulism.
- There are beneficial effects of feeding preterm infants with human milk on long term neurodevelopment (IQ) and have a lower readmission rate in the first year of life.

FACTOR	ACTION
ANTIBACTERIAL FACTORS	
Secretory IgA	Specific antigen-targeted antiinfective action
Lactoferrin	Immunomodulation, iron chelation, antimicrobial action, antiadhesive, trophic for intestinal growth
κ-Casein	Antiadhesive, bacterial flora
Oligosaccharides	Prevention of bacterial attachment
Cytokines	Antihflammatory, epithelial barrier function
GROWTH FACTORS	
Epidermal growth factor	Luminal surveillance, repair of intestine
Transforming growth factor (TGF)	Promotes epithelial cell growth (TGF-β) Suppresses lymphocyte function (TGF-β)
Nerve growth factor	Promotes neural growth
ENZYMES	
Platelet-activating factor (PAF)–acetylhydrolase	Blocks action of PAF
Glutathione peroxidase	Prevents lipid oxidation
Nucleotides	Enhance antibody responses, bacterial flora

Adapted from Hamosh M: Bioactive factors in human milk, *Pediatr Clin North Am* 48:69–86, 2001.

- Mothers who breastfeed experience both short- and long-term health benefits like decreased risk of postpartum haemorrhages, more rapid uterine involution, longer period of amenorrhea, and decreased postpartum depression have been observed.
- On long term, there is an association between a long lactation and a significant reduction of hypertension, hyperlipidemia, cardiovascular disease, and diabetes in the mother. Cumulative lactation of more than 12 months also correlates with reduced risk of ovarian and breast cancer.

Problem associated with breast feeding:

Nipple Pain: is one of the most common complaints of breastfeeding mothers. *Poor infant positioning and improper latch are the most common reasons*, If the problem persists and the infant refuses to feed, evaluation for nipple candidiasis is indicated and the mother should be treated with an antifungal cream that is wiped off of the breast before feeding, and the infant treated with an oral antifungal medication.

Tongue-tie (ankyloglossia) has been associated with nipple pain, poor latching, and poor weight gain in breastfed and bottle-fed infants, about 50% of infants with ankyloglossia have no feeding problems, a **frenotomy:** minor surgical procedure, to release tongue better post pond for 2-3 week together with provide lactation management, during that time many feeding issues resolve, thus avoiding frenotomy.

Breast Engorgement: Breasts may become engorged, firm, overfilled, and painful as a result of incomplete removal of milk due poor breastfeeding technique or infant illness, to reduce engorgement, breasts should be softened prior to infant feeding with a combination of hot compresses and expression of milk. Breastfeeding immediately at signs of infant hunger will eventually prevent engorgement.

Cracked nipple: Severe nipple pain and cracking usually indicate improper latch on, try to improve the baby's latch, temporary pumping may be the all needed.

Plugged ducts: A plugged milk duct can cause a tender or painful lump to form on the breast. If the nipple itself is plugged, a white dot or bleb can form at the end of the nipple, causes include: poor feeding technique, wearing tight clothing or an abrupt decrease in feeding, and infections. Improve the position the baby so that the baby can latch on properly, make sure to vary the position during feedings so every part of the breast gets emptied, pumping or manually expressing after feedings to improve drainage. Never stop breastfeeding, as this could lead to engorgement and worsen the problem. Try using warm compresses or taking a warm shower and then manually massaging the breast.

Mastitis: Mastitis occurs in 2-3% of lactating women and is usually unilateral, manifesting with localized warmth, tenderness, edema, and erythema after the second post-delivery week. Sudden onset of breast pain, myalgia, and fever with fatigue, nausea, vomiting, and headache can also occur. Diagnosis is confirmed by physical examination. Oral antibiotics and analgesics, while promoting breastfeeding or emptying of the affected breast, usually resolve the infection. A breast abscess is a less common complication of mastitis, but it is a more serious infection that requires intravenous antibiotics, incision, and drainage, along with temporary cessation of feeding from that breast.

Flat and Inverted Nipples: Both flat and inverted nipples can make it difficult for an infant to grasp the breast correctly. They also are more prone to trauma from early breastfeeding efforts, breast pump to draw the nipple out immediately before breastfeeding can help.

Breast pumps: Different types of pumps is available, ranging from inexpensive hand pumps to electric pumps. If the baby is not nursing well or if the breasts remain uncomfortably full after breastfeeding, pump after feedings to express any remaining milk and reduce breast firmness. 10-15 minutes of pumping with an electric pump is usually sufficient at one session. Removing milk is essential to reduce the pressure in the breasts and the backup of milk to be used on need however breast milk should never be microwaved.

Inadequate Milk Intake: Insufficient milk intake and dehydration in the infant can become evident within the first week of life. **Signs of insufficient milk intake include:** lethargy, delayed stooling, decreased urine output, weight loss >7% of birth weight, hypernatremia dehydration, inconsolable crying and increased hunger.

Insufficient milk intake may be caused by insufficient milk production, failure of established breast-feeding, and health conditions in the infant that prevent proper breast stimulation. Direct observation of breastfeeding can help identify the cause.

Contraindications of breast feeding:

1. HIV and HTLV infection In the United States breastfeeding is Contraindicated. *health risks of not breastfeeding must be weighed against the risk of transmitting virus to the infant.*
2. Tuberculosis infection Breastfeeding is contraindicated until completion of approximately 2 wk of appropriate maternal therapy
3. Varicella-zoster infection: Infant should not have direct contact to active lesions. Infant should receive immune globulin
4. Herpes simplex infection: active herpetic lesions of the breast.
5. CMV infection May be found in milk of mothers who are CMV seropositive, Transmission through human milk causing symptomatic illness in term infants is uncommon.
6. Chemotherapy, radiopharmaceuticals.
7. Metabolic disease of neonate e.g galactosemia

**in Hepatitis B and C Infection of mother, Breastfeeding is not contraindicated.*

Ten steps Hospital Practices to Encourage and Support Breastfeeding:

1. Have a **written** breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all **pregnant** women about the benefits and management of breastfeeding.
4. Help mothers **initiate breastfeeding within half** an hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practice **rooming-in** that is, allow mothers and infants to remain together - 24 hours a day.
8. Encourage breastfeeding **on demand**.
9. Give no artificial teats or pacifiers to breastfeeding infants.
10. Establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

References:

- Nelson Textbook of Pediatrics , 21 edition .
- Nelson essentials Textbook of Pediatrics , 7th edition.
- Illustrated textbook of pediatrics.5th edition
- Protecting, Promoting and Supporting Breastfeeding: The Special Role of Maternity Services, a joint WHO/UNICEF statement published by the World Health Organization.