BREASTFEEDING

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قال الحق تبارك وتعالى: (وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَادَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَنْ يُتِمَّ الرَّضَاعَةَ) [البقرة :233].

introduction

- Breastfeeding is the normal feeding for infants during the first months of life which can ‘t be replicated .
- It contains over 200 known component.
- Breast milk bring both nutritive& non nutritive signals to the neonate .

HUMAN MILK UNIQUE COMPOSITION

Exclusive human milk feeding for the first 6 mon. of life, with continued breastfeeding for 2 years of life is the normative standard for infant feeding because of Its unique nutritive composition and non nutritive bioactive factors that promote survival and healthy development.

CONT.

- Human milk composition is **dynamic**, and varies within a feeding, diurnally, over lactation, and between mothers and populations.
- **Influences on compositional differences** include maternal and environmental factors and the expression and management of milk (e.g. Storage and pasteurization)

Nutritional component of human milk

- **Macronutrients** :varies within mothers and across lactation but is remarkably conserved across populations despite variations in maternal nutritional status.

differs between preterm and term milk, with preterm milk tending to be higher in protein and fat .

- It contain fat ,carbohydrate, proteins
- menirals,

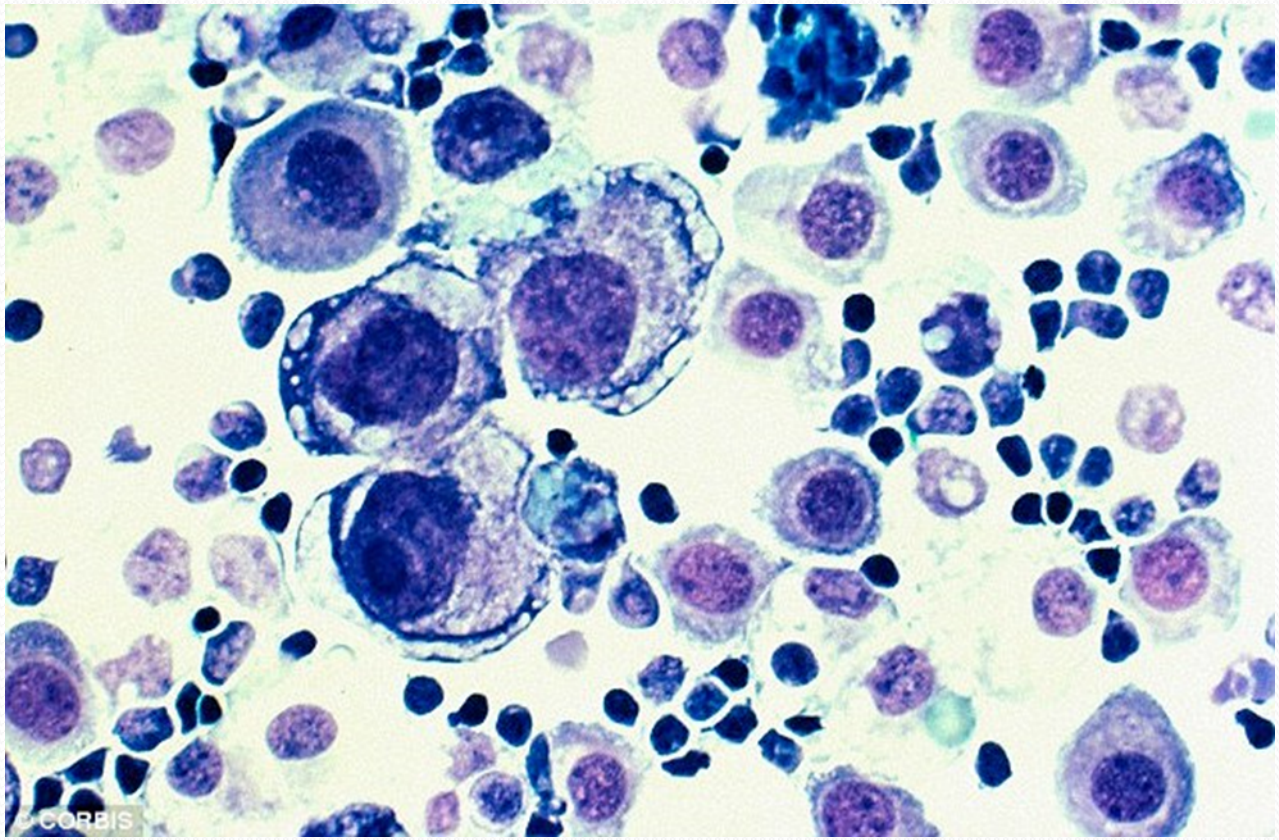
Micronutrients

- many micronutrients vary in human milk depending on maternal diet and body stores .
- including vitamins A, B1, B2, B6, B12, D, and iodine.
- . Regardless of maternal diet, Vitamin K is extremely low in human milk and thus, the American Academy of Pediatrics recommends an injection of this vitamin to avoid hemorrhagic disease of the newborn
- . Vitamin D also occurs in low quantity in human milk, particularly with low maternal exposure to sunshine.

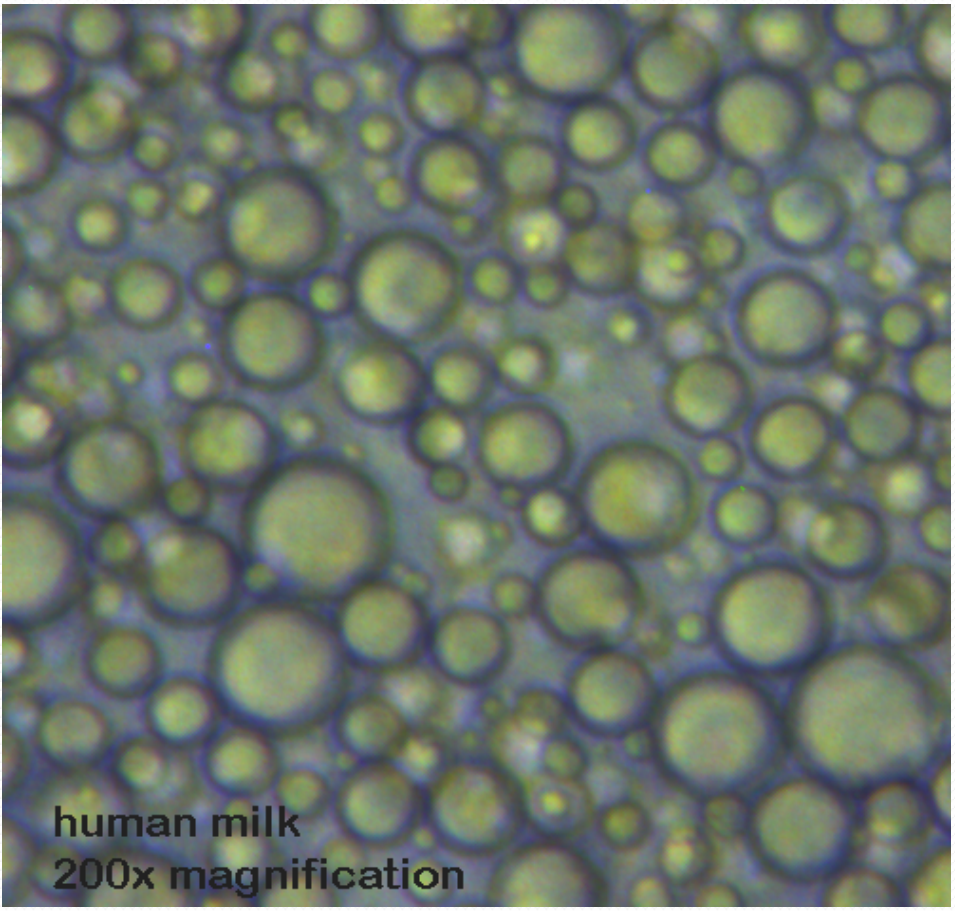
Bioactive factors

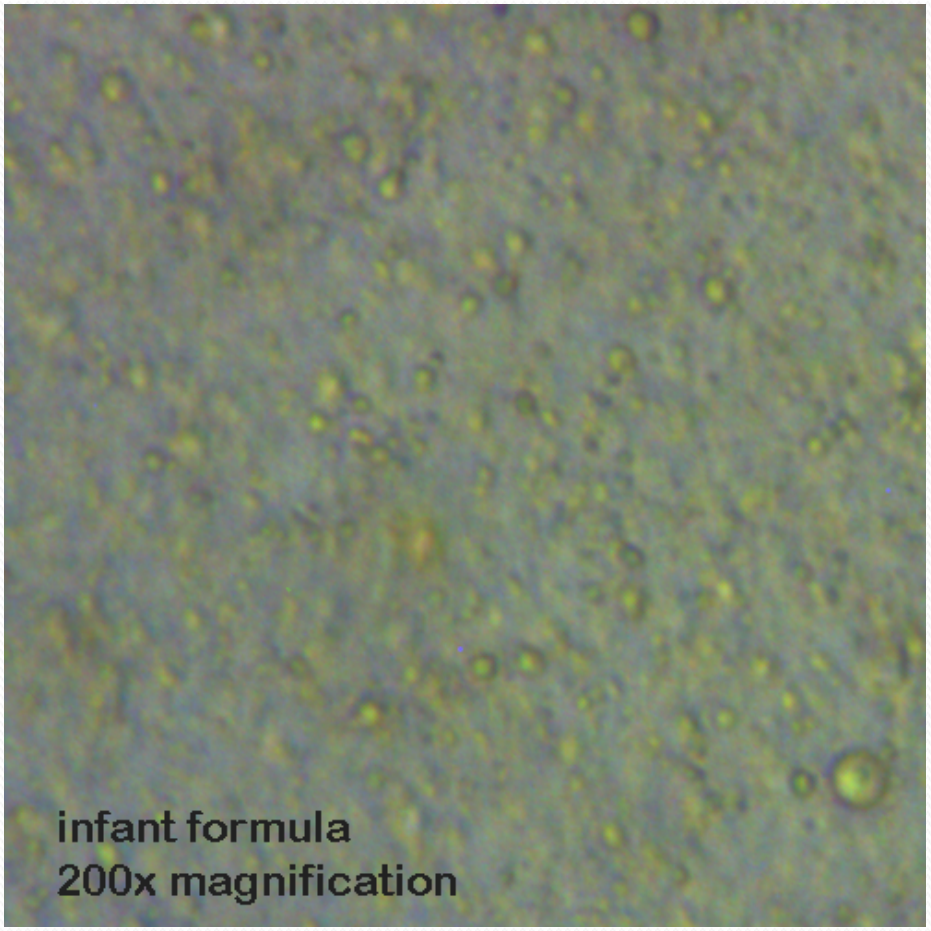
- including:
- living cells (macrophages and stem cells)
- anti-infectious
- anti-inflammatory agents, and antioxidants
- growth factors
- Prebiotics
- Probiotics
- vitamins,hormons, enzymes complements,
- lysozymes , immunoglobulins
- cytokines
- mucins

Breast milk under microscopy



Comparison of microscopic picture





Colostrum vs. mature breast milk

colostrum

- Colostrum, the yellowish, sticky breast milk produced at the end of pregnancy, is recommended by WHO as the perfect food for the newborn, and feeding should be initiated within the first hour after birth.

colostrum

- **Colostrum**
  The often **yellow** and sometimes clear fluid that is released by a new mother's breasts before her breast milk comes in.
- This fluid has often been referred to as **"liquid gold"** and it resembles blood more than it does milk as it **contains** protective white blood cells capable of attacking harmful bacteria. and it also acts to "seal" the inside of the baby's intestines thus preventing the invasion of bacteria.
  Colostrum is an ideal first food for baby as it is high in protein and low in sugar and fat, thus making it easy to digest.

colostrum

- Is the first fluid produced after delivery up to 3-5 days and some times longer in premature delivery and with maternal obesity.
- The colostrum
- ----**primary functions is immunological and trophic**

Basic nutritional info on Breast milk

	Colostrum	Breast milk	Cows milk
Calories	58	70	65
Protein	3.7gm	1.3gm	3.4gm
Carbohy	5.3gm	7.4gm	4.8gm
Fats	2.9gms	4.2gms	3.7gm

- **Colostrum->** Thin , yellow , Low on fat & carbs.
- **Breast milk ->** White,thin,watery & sweet.
- **Foremilk->** Watery, low fat & high carbs.
- **Hindmilk->** Creamier, thick, high fat

Colostrum in comparison to transitional and mature milk

Higher in

- Rich in **immunological** components(s. IgA, lactoferrin,leukocytes, developmental factors such as epidermal growth factors.
- **Na**
- **Cl**
- **Mg**

Lower in

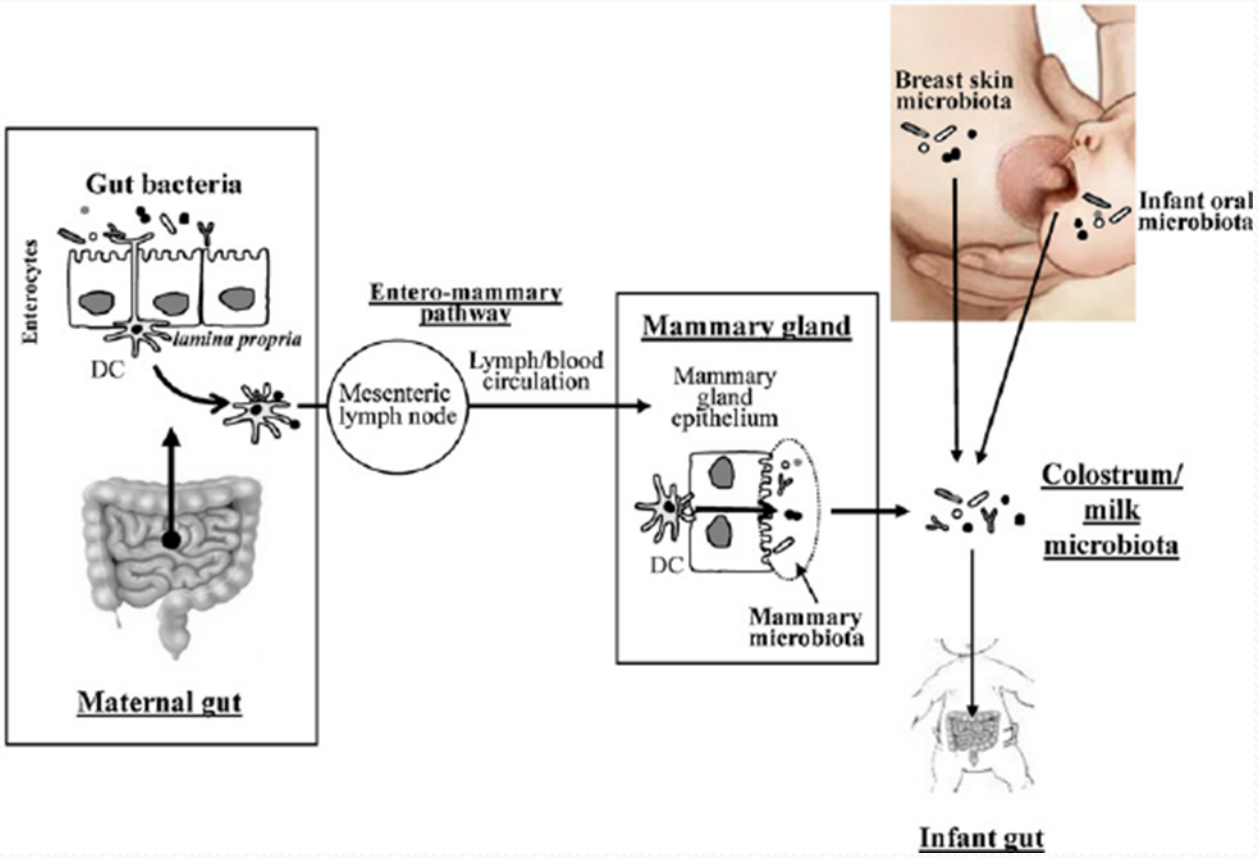
- Low volume
- lactose
- Potassium
- calcium

BIOACTIVE COMPONENTS AND THEIR SOURCES

- **defined as** elements that "affect biological processes or substrates and hence have an impact on body function or condition and ultimately health".
- Bioactive components in human milk come from a variety of **sources;**

1. produced and secreted by the mammary epithelium,
2. produced by cells carried within the milk,
3. drawn from maternal serum and carried across the mammary epithelium by receptor-mediated transport.

Sources of mother milk immune factors



BIOACTIVE FACTORS

- **recognition of potent, bioactive human milk factors indicates the importance of preserving their biologic activity, to the extent possible, through the process of milk collection, storage, and pasteurization.**

IMMUNOLOGICAL FACTORS

- **Transfer of living protection and programming: Cells of human milk**
- Human milk contains a variety of cells, including macrophages, T cells, stem cells, and lymphocytes.
- **Communication between cells: Cytokines and chemokines**
- Cytokines are multi-functional peptides that act in autocrine/paracrine fashion.
- Chemokines are a special class of chemotactic cytokines that induce movement of other cells.

Cont.

- **Finally, recognition of the unique** mechanisms by which human milk protects and enhances development provides models for new preventive and therapeutic approaches in medicine.

- Many of these factors act synergistically, such that consumption of human milk is superior to supplementation with individual factors or their combinations.

Breastfeeding Definitions

- Exclusive breastfeeding (Breast milk (including milk expressed or from a wet nurse)

- Predominant breast milk :Breast milk (including milk expressed or from a wet nurse) as the predominant source of nourishment

- Complementary feeding; Breast milk (including milk expressed or from a wet nurse) and solid or semi-solid foods

May include anything else: any food or liquid including non-human milk and formula

Cont.

- Breastfeeding: Breast milk (including milk expressed or from a wet nurse) and solid or semi-solid foods ,may include anything else: any food or liquid including non-human milk and formula
- Bottle-feeding: Any liquid (including breast milk) or semi-solid food from a bottle with nipple/teat may include anything else: any food or liquid including non-human milk and formula

WHO recommendation

- Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development. Virtually all mothers can breastfeed, provided they have accurate information, and the support of their family, the health care system and society at large.
- Exclusive breastfeeding is recommended up to 6 months of age, with continued breastfeeding along with appropriate complementary foods up to two years of age or beyond.

The Breastfed Baby

Immune system.
Responds better to vaccinations. Human milk helps to mature immune system. Decreased risk of childhood cancer.

Skin.
Less allergic eczema in breastfed infants.

Eyes.
Visual acuity is higher in babies fed human milk.

Higher IQ.
Cholesterol and other types of fat in human milk support the growth of nerve tissue.

Endocrine system.
Reduced risk of getting diabetes.

Ears.
Breastfed babies get fewer ear infections.

Mouth.
Less need for orthodontics in children breastfed more than a year. Improved muscle development of face from suckling at the breast. Subtle changes in the taste of human milk prepare babies to accept a variety of solid foods.

Joints and muscles.
Juvenile rheumatoid arthritis is less common in children who were breastfed.

Throat.
Children who are breastfed are less likely to require tonsillectomies.

Bowels.
Less constipation.

Urinary tract.
Fewer infections in breastfed infants.

Appendix.
Children with acute appendicitis are less likely to have been breastfed.

Kidneys.
With less salt and less protein, human milk is easier on a baby's kidneys.

Respiratory system.
Breastfed babies have fewer and less severe upper respiratory infections, less wheezing, less pneumonia and less influenza.

Digestive system.
Less diarrhea, fewer gastrointestinal infections in babies who are breastfeeding. Six months or more of exclusive breastfeeding reduces risk of food allergies. Also, less risk of Crohn's disease and ulcerative colitis in adulthood.

Heart and circulatory system.
Breastfed children have lower cholesterol as adults. Heart rates are lower in breastfed infants.

Benefits of breastfeeding for mothers

- Helps the uterus to regress to its size before pregnancy.
- Losing accumulated fat during pregnancy.
- Empowerment
- Decrease risk of osteoporosis
- Improve blood sugar control for diabetics
- Decrease the incidence of high cholesterol ,diabetes ,breast, cervical,ovarian,uterine cancers, less chance for gallstone formation and rheumatoid arthritis
- Bonding ,decrease post partum depression

Advantages of breastfeeding

Superior health outcomes in breastfed infant		
Protection during breastfeeding	Protection after weaning in early childhood	Protection later in childhood
Gastrointestinal and respiratory infections	Gastrointestinal and respiratory infections	Obesity
Urinary infections	Wheezing	Types I and II diabetes
Sepsis and meningitis	Celiac disease	Leukemia/lyphomas
Atopic dermatitis	Growth faltering	Crohn disease
Food allergies	Cognition	Cognition
Wheezing	Visual acuity	Strong, secured personality
Necrotizing entero colitis		
Celiac disease		
Growth faltering		
Visual acuity		

Preparation of the prospective mother

- Most women are physically capable of breastfeeding, provided the receive sufficient encouragement and are protected from discouraging experiences and comments while the secretion of breast milk is becoming established.
- Physical Factors: leading to a good breastfeeding include: good health, having enough rest, freedom of worry, treatment of any disease, and adequate nutrition.
- Retracted & inverted nipples.

Flat nipples

- .
- Flat nipples don't stand out much from the surrounding area (called the areola) and don't protrude when stimulated. That sometimes can make it difficult for the baby to latch on and breastfeed.
- shouldn't pose a problem unless the baby isn’t latching on well or the breasts are overly full or engorged.

Cont.

- Inverted nipples retract or pull inward when stimulated. They may look flat, or their appearance may range from slightly dimpled and indented to very clearly indented in the center.
- briefly use a breast pump to draw out the nipple before nursing and pull back on the breast tissue while your baby is latching on to help the nipple protrude

management

- ***Stimulating your nipple***. Unless it retracts completely, grasp the nipple and roll it between your thumb and index finger for 30 seconds, then touch it with a moist, cold cloth immediately before offering it to your baby. A disposable nursing pad that is dampened and put in the freezer makes a great ice pack to help the nipple evert immediately before nursing.

- ***Pulling back on the areola before you latch the baby on***. Support your breast with your thumb on top and your other fingers underneath, and pull back on the breast toward the chest wall. This will help the nipple protrude. : Draw The Nipple Out Before Feeding You can try manually expressing milk for a short while before feeding or you might use a breast pump to get the nipple to stand out. A couple of companies sell a syringe-like device especially for everting the nipple before feeding.
- ***Using a nipple shield.*** This is a thin, flexible silicone nipple with holes in the end that fits over your nipple during feedings.

Cont.

- **Use a breast pump** to gently draw out the nipple and to make it easier for your baby to latch on. Most nipples will extend out with only a minute or two of pumping. Once you see the nipple lengthen, remove the pump, and quickly place your baby on your breast.
- **Keep your breasts from getting engorged.** It is harder to draw out a flat or inverted nipple when your breast is overly full. To keep your breasts from becoming engorged, be sure to breastfeed at least 8 times in each 24-hour period.

Cont.

- **Pay particular attention to your baby's position and latch.** Your baby's mouth should be opened wide and filled with breast tissue. When your baby is positioned well, your nipple will be at the back of your baby's mouth, near the junction of the hard and soft palate.

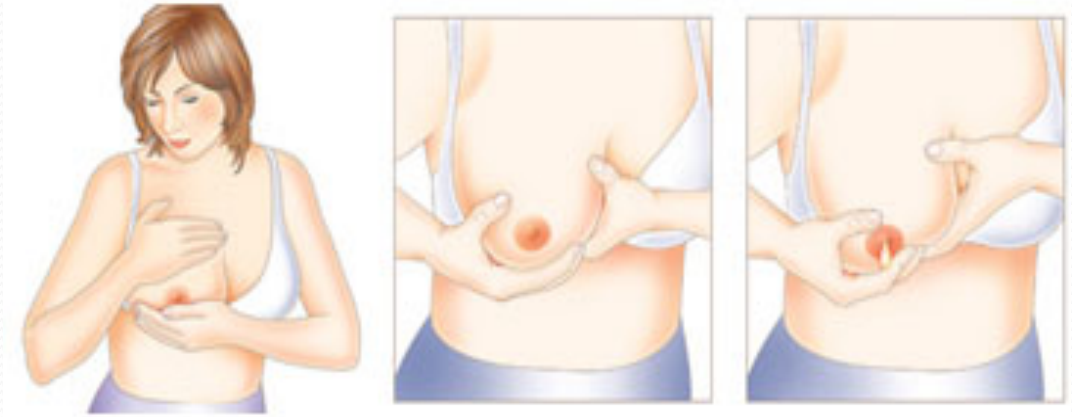
Establishing and maintaining the milk supply

- The most satisfactory stimulus to the secretion of human milk is regular and complete emptying of the breast; milk production is reduced when the secreted milk is not drained.

- The breastfeeding should begin as soon after delivery as the condition of the mother and the baby permits, preferably within the first hour.

Breastfeeding position

Manual expression of breast milk

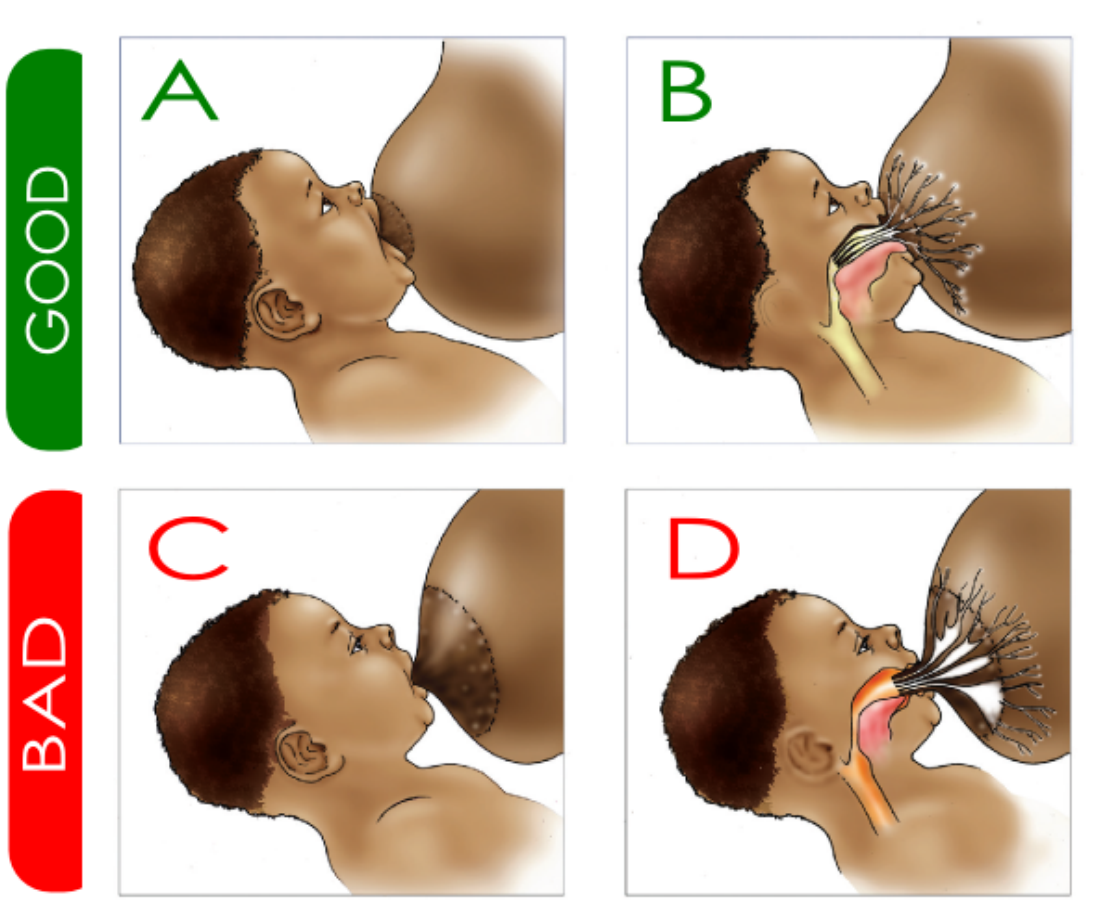


Expression of breast milk

Contraindications

- It is important to look at the entities that put the mother or infant at significant risk and are not remedial.
- Infectious Diseases:
- Life – threatening illnesses in the mother:
- Medications:

Correct latching




thank
you