

BREASTFEEDING

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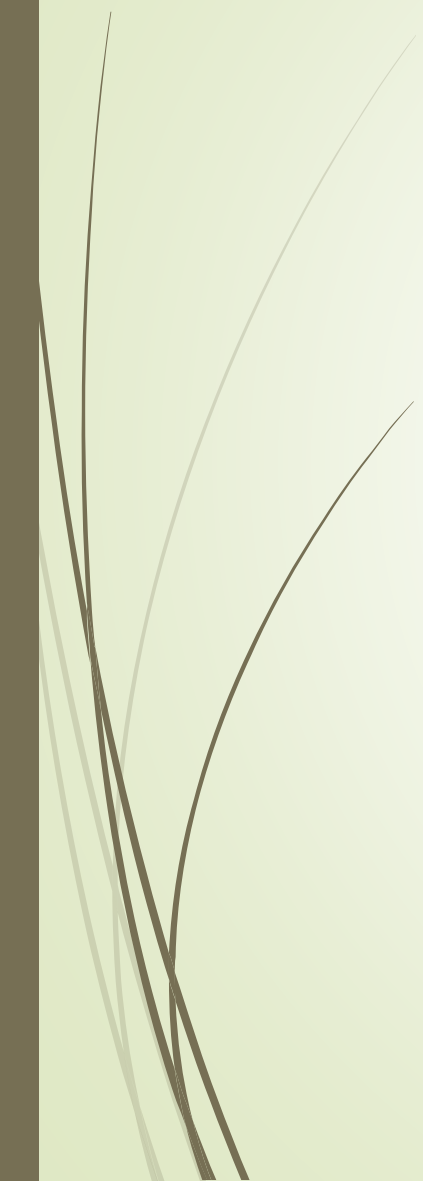
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❁ وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلَادَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَنْ يُتِمَّ الرَّضَاعَةَ وَعَلَى الْمَوْلُودِ لَهُ رِزْقُهُنَّ
وَكَسْوَتُهُنَّ بِالْمَعْرُوفِ لَا تَكْلَفُ نَفْسٌ إِلَّا وُسْعَهَا لَا تُضَارُّ وَالِدَةُ بَوْلِدِهَا وَلَا مَوْلُودٌ لَهُ بِوَالِدِهِ

(233) وعلى الوالدات إرضاع أولادهن مدة سنتين كاملتين لمن أراد إتمام الرضاعة، ويجب على الآباء أن يكفلوا للمرضعات المطلقات طعامهن وكسوتهن، على الوجه المستحسن شرعاً وعرفاً؛ لأن الله لا يكلف نفساً إلا قدر طاقتها، ولا يحل للوالدين أن يجعلوا المولود وسيلة للمضارة بينهما،



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.
- **Bioactive factor** including: cells, anti-infectious and anti-inflammatory agents, growth factors, and prebiotics.
- 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 .



Micronutrients



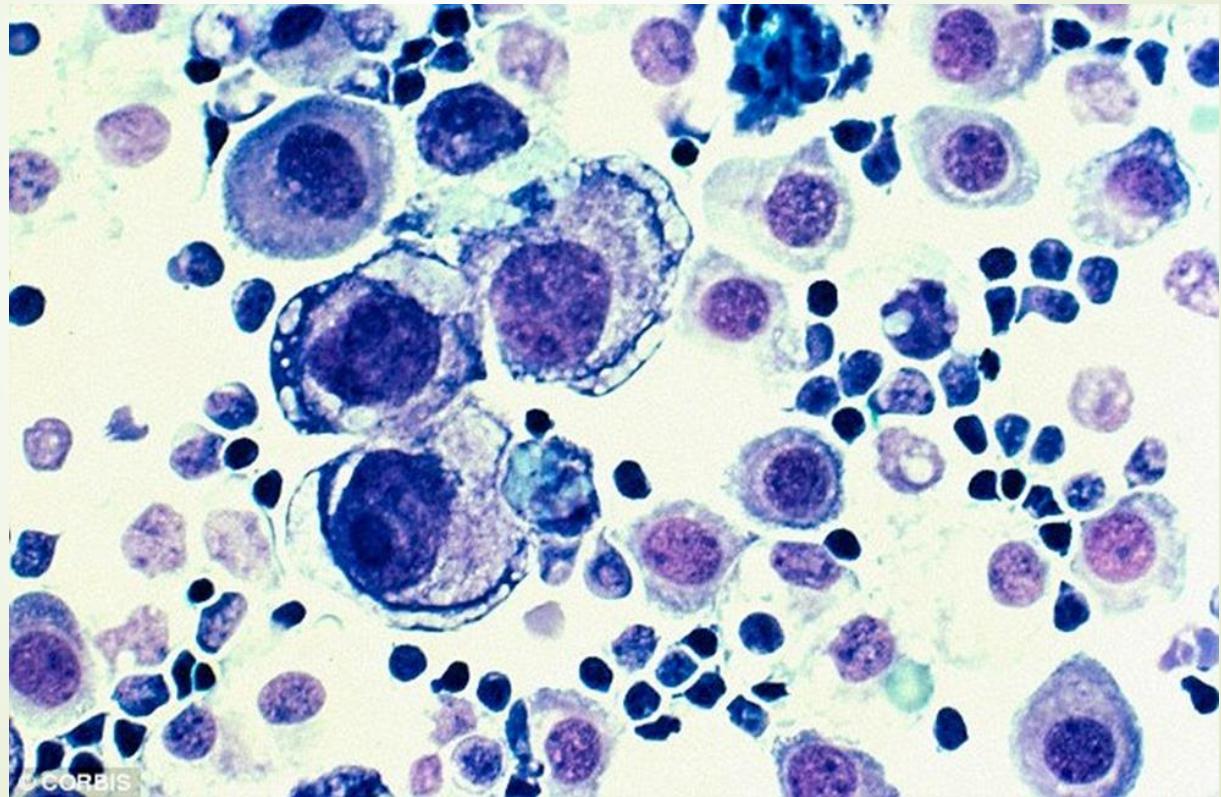
- ▶ many micronutrients vary in human milk depending on maternal diet and body stores .
- ▶ including **vitamins A, B1, B2, B6, B12, D, and iodine**.
- ▶ . Regardless of maternal diet, **Vitamin K** is extremely low in human milk and thus, the American Academy of Pediatrics recommends an injection of 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.



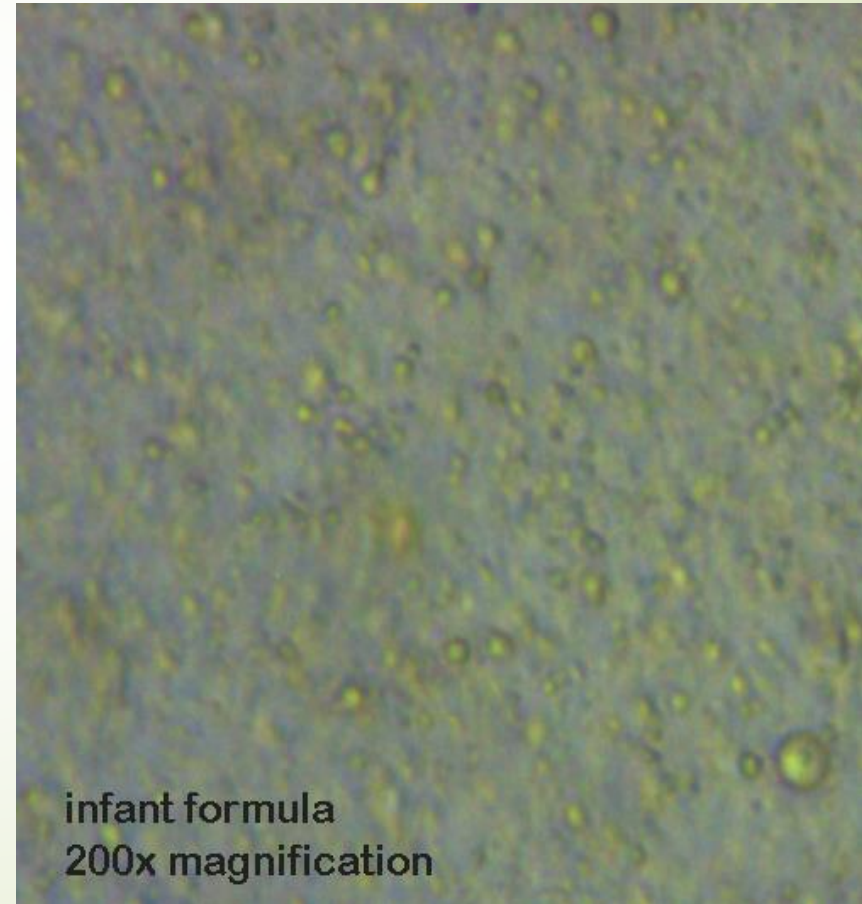
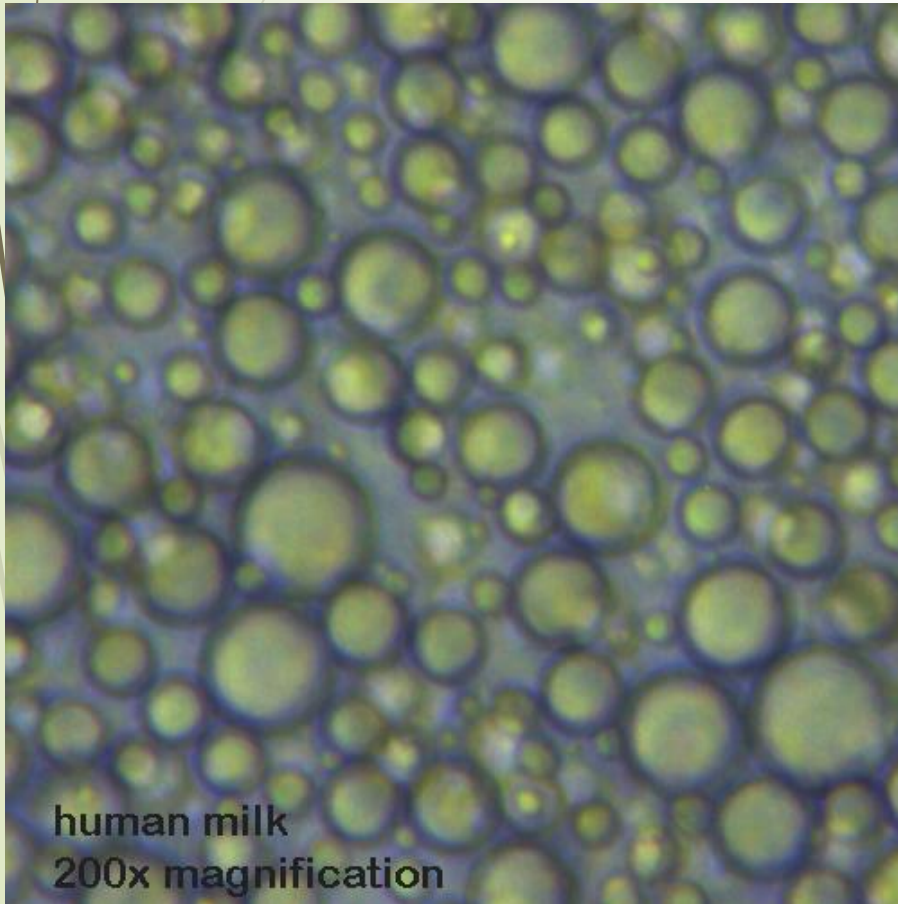
Breast milk contents

- ▶ It contain fat ,carbohydrate, proteins
- ▶ menirals,vitamins,hormons, enzymes living cells (macrophages and stem cells)
- ▶ complements,
- ▶ lysozymes , immunoglobulins
- ▶ , cytokines
- ▶ , growth factors
- ▶ ,lactoferrin,
- ▶ mucins

Breast milk under light microscopy



Comparison of microscopic picture

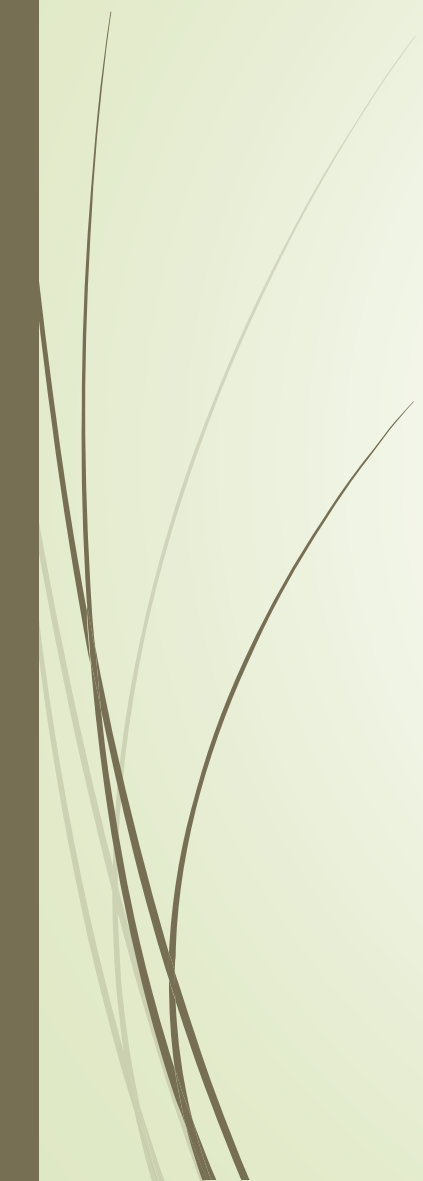


Colostrum vs. breast milk





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.**

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

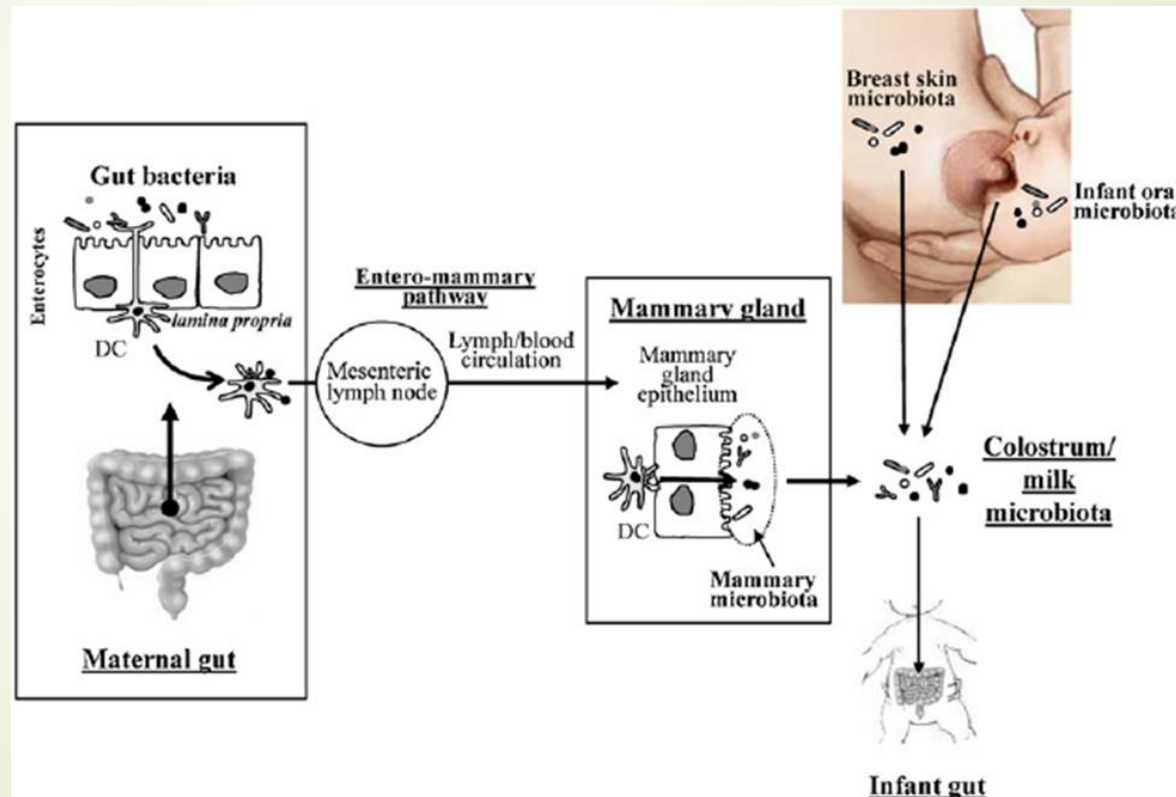
- Low volume
- lactose
- Potassium
- calcium



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.

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.

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.

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.

Heart and circulatory system.

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

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.



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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 enterocolitis		
Celiac diseases		
Growth faltering		
Visual acuity		




Preparation of the prospective mother

- Most women are physically capable of breastfeeding, provided they 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.**



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 positions

Breast-Feeding Positions



Cradle hold



Cross-cradle hold



Football hold

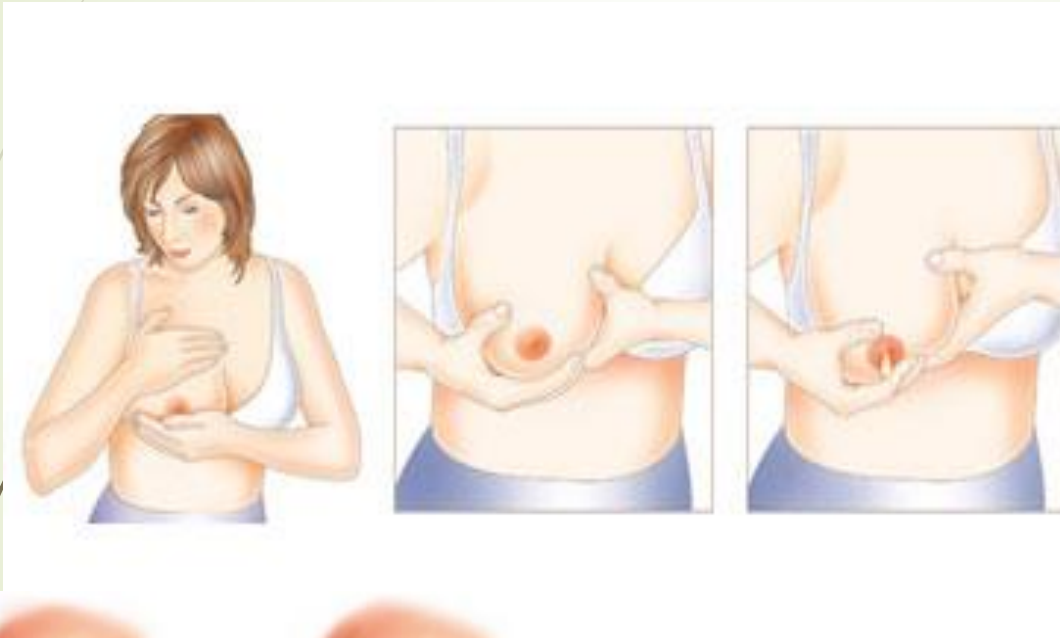


Lying on your side



Laid-back

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:

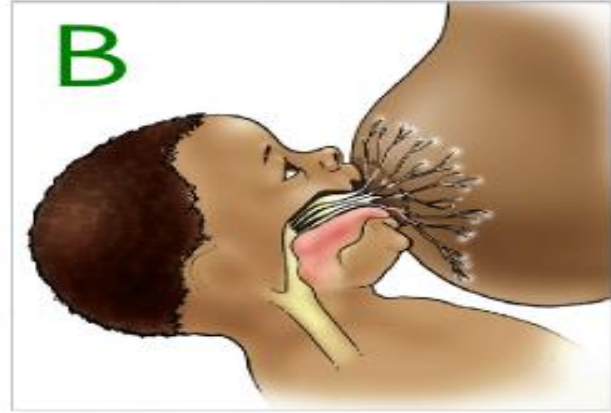
Correct latching

GOOD

A



B

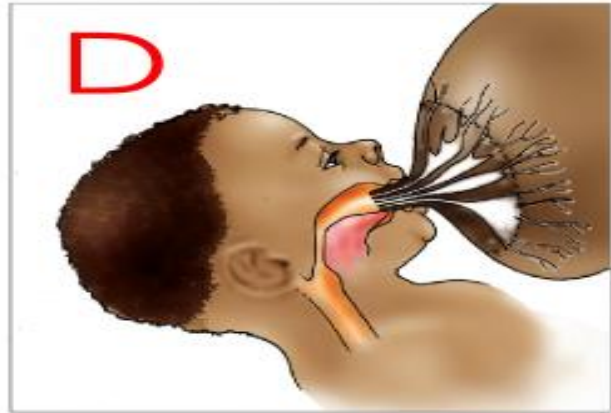


BAD

C



D



Kangaroo Care for Term Baby



Kangaroo Care for Term Baby





Good
luck