



# BREASTFEDING

IMPORTANT | DOCTORS NOTES | FURTHER EXPLANATION

\*If you don't have time check our <a href="mailto:summary">summary</a>\*

\*Kindly check our **Editing File** before start studying\*





# Objectives:

- √ To increase awareness about breastfeeding.
- √ To educate about the benefits of breastfeeding.
- √ To educate about the basics of breastfeeding.
- ✓ To educate about the harms associated with formula feeding.
- ✓ To advocate for breastfeeding and empower parents to make an informed choice.



### Introduction

This slide is very important! You have to know:

- Words in RED.
- · What does Exclusive breastfed mean.
- **Breastfeeding** is one of the most effective ways to ensure child health and survival and can't be replicated.
  - If every child was breastfed within **an hour of birth**, given **only** breast milk for their **first six months** of life, and **continued** breastfeeding up to the **age of two years**, about 800 000 child lives would be saved every year. (Why we focusing on the first 6 months? Because after first 6 months the baby will start to eat solid food.)
  - Globally, less than 40% of infants under six months of age are <u>exclusively breastfed</u>.
  - Introduce complimentary foods with continued breastfeeding up to 2 years (breastfeeding should not be decreased when starting on solids).
  - bottles or pacifiers should be avoided.
  - breastfeeding should be "on demand", as often as the child wants day and night.
  - Breast milk bring both nutritive & non nutritive signals to the neonate.
  - Both breast should be offered.
  - IT IS NOT ONLY MILK! IT'S ABOUT BREAST FEEDING!! Bounding and mum's touching!!
  - Exclusive breastfeeding: (Breast milk (including milk expressed or from a wet nurse)

ماياخذ أي شيء غير حليب الأم بغض النظر عن المصدر... سواء كان من نفس الأم أو كان من أم متبرعه أو حطته ببوتل!

**Exclusive breastfed** means that the baby will <u>only</u> take breast milk **for at least 6 months (first 6 months)** without water, juice or anything else except for vitamins, because the breast milk is deficient in vitamin D.

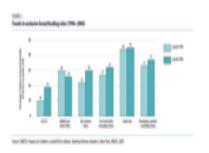
**No** need to give baby under 1 year water (breast milk contains water)!

مانقص عن السنتين نقص المفعول ومازاد فهو زاد بالمفعول

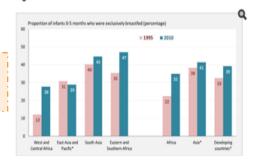


### Introduction

- 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. (First → breast milk, Then → nutrition according to the baby's requirement! (Something else with the breast milk + breast milk)
- Predominant breast milk: Breast milk (including milk expressed or from a wet nurse) as the predominant source of nourishment. Predominant but NOT the only source.
- ❖ 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.
- Sub-optimal Breastfeeding: Breast milk decrease both mortality and morbidity
  - Around 32% of children less than 5 years of age in developing countries are stunted and 10% are wasted (Low body weight).
  - It is estimated that sub-optimal breastfeeding, especially non-exclusive breastfeeding in the first 6 months of life, results in 1.4 million deaths and 10% of the disease burden in children younger than 5 years.



What I want you to know from these figures is that Sub-Sahara Africa shows significant response unlike South Asia. **WHY?** Because of Poverty in these area. Remember that the breast milk is FREE!





### Common Questions in breastfeeding moms

How often should I breastfeed and how long should a feeding last?

A woman should breastfeed when her baby shows signs of being hungry. A baby can show that he or she is hungry by:

- Waking up from sleep.
- Moving the head around as if he or she is looking for the breast.
- Sucking on his or her hands, lips, or tongue.
- How do I know if my baby is getting enough breast milk?

You can tell if your baby is getting enough breast milk by:

- Checking his or her diapers By day 4 or 5 **after birth**, <u>babies should have at least 6</u> wet diapers a day.
- Checking his or her bowel movements By day 4 after birth, <u>babies should have 4 or more bowel movements a day</u>. By day 5, their bowel movements should be <u>yellow</u>.
- Having your doctor or nurse check to see if your baby is gaining weight.
- Can moms still use her milk, even if she decides not to breastfeed? Yes.
  - Use a breast pump (electric), efficient to produce milk.
  - Cup or bowl feeding.
  - Spoon feeding.

- Eyedropper or feeding syringe.
- Nursing supplementer.



### Common Questions in breastfeeding moms

### When can I start breastfeeding?

من اول المحاضرة وذن فرست اور! وذن فرست اور! وذن فرست اور!

- Most women can start breastfeeding within a **few hours** (30-60 min) **after giving birth**. (as soon after delivery as the condition of the mother and the baby permits, preferably within the first hour.)
- For the first few days, most women make only a small amount of yellowish milk called "colostrum." colostrum has all of the nutrition a newborn needs.
- Most women start making more milk after 2 or 3 days.
- Breast Feeding should be given for 5-15 minutes.
- With-in 4-6 weeks baby goes into routine.

### ❖ How Can I Prepare myself?

طريقة الرضاعة: تعطي من صدر ثمن الصدر الثاني "لحد مايخلص" بعدين المره الثانية تبدأ من الصدر اللي انتهت فيه ثمن اللي بدت فيه. ليش؟ علشان مايكون فيه صدر أكبر من الثاني أو تجف قنوات الحليب

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.

First hour of life baby should receive mumy's milk.. No formula at all for 6 months. بيانا الأم تعتقد ان البيبي جوعان وتعطيه فورملا أو تعطيه كل 3 ساعات. مثلا تعطيه الساعه 3 وبعدين الساعة 6 ولمن جت الساعة 6 قالت بريح بعطيه فورملا "او اعتقدت ان حليب بيتجمع" فيترسل اشارات للدماغ انه مايستخدم



# Properties of breast milk

- Biologic specificity: Long-chain omega-3 Fatty Acids.
- Important for: brain and retinal development.
- Higher IQs (a meta-analysis of 20 studies showed scores of cognitive function on average 3.2 points higher among children who were breastfed compared with those who were formula fed).

Baby who taking breast milk have good growth process.

Lactating woman should eat very healthy food and high amount of fluid (more than normal).

#### Milk Volume:

- Healthy exclusively breastfeeding women produce approximately 750 to 800
   mL per day of milk when lactation is fully established.
- However, milk volume varies among individuals and can range from 450 to 1200 mL per day.
- Milk volume is low on the first two days postpartum, increases markedly on days three and four, then gradually increases to levels seen in full lactation.
- 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.



# **Breast Milk Composition**

- Differs between **preterm** and **term** milk, with **preterm** milk tending to be <u>higher in protein and fat. (Content is different in term than in pre-term)</u>
- 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).
- ❖ Macronutrients varies within mothers and across lactation but is remarkably conserved across populations despite variations in maternal nutritional status. (Not that much of difference!)

  - Fat: (3.5 g per 100ml) provides up to 50% of caloric needs, cholesterol levels constant, lipolytic enzymes aid in fat digestion) (is lower than animal milks.)
  - Carbohydrates: (lactose = milk sugar) predominantly in human milk (7 g per 100 ml) provides up to 40% caloric needs, essential for development of CNS, enhances calcium & iron absorption).



# **Breast Milk Composition**

الأم اثناء الحمل تاخذ ملتى فايتمن وينصحونها انها تكمل عليه بعد الولادة علشان مكونات الحليب تختلف بإختلاف دايت الأم!!

- Bioactive factor: 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:
    - o produced and secreted by the mammary epithelium,
    - o produced by cells carried within the milk,
    - o drawn from maternal serum and carried across the mammary epithelium by receptormediated transport.
  - including: cells ,anti-infectious and anti-inflammatory agents, growth factors, and prebiotics. (What is a pre-biotic? أشياء تمنع البكتيرا الضارة انها تاخذ الحديد Prevents harmful bacteria from taking baby's iron. Pro-biotic? Bacteria!)
  - 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**. (Right formula, Right volume, Right time!)
- Vitamins and minerals: "many micronutrients vary in human milk depending on maternal diet and body stores."

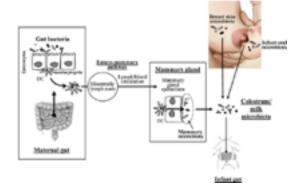
Breast milk normally contains sufficient vitamins for an infant, unless the mother herself is deficient. The <u>exception is vitamin D</u>. The infant needs exposure to <u>sunlight</u> to generate endogenous vitamin D or, if this is not possible, a supplement. The minerals iron and zinc are present in relatively low concentration, but their bioavailability and absorption is high. vitamins A, B1, B2, B6, B12, D, and iodine. Regardless of maternal diet, Vitamin K is extremely low in human milk and thus, it recommends an injection of this vitamin to avoid hemorrhagic disease of the newborn.



# **Breast Milk Composition**

### Immunological factors:

- <u>Transfer</u> 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.



Don't wash your breast after feeding baby! Microbiota!!

الأم تبوس البيبي وبتدخل البكتيريا حقته لجسمها وبيروح للجي أي وبعدين بنكون انتي بوديز اقينست ات وبتروح له عن طريق الحليب وبعدين ماراح يكون عنده انفكشن! قانروا كاير بوزشن!!

### **Others:**

hormones, enzymes, complements and mucins.

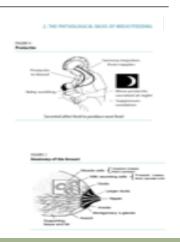


# Anti-microbial Activity of Breast Milk

- Breast milk contains many factors that help to protect an infant against infection including:
  - Immunoglobulin, principally (IgA), which coats the intestinal mucosa and prevents bacteria from entering the cells.
  - White blood cells: which can kill micro-organisms.
  - Whey proteins (lysozyme and lactoferrin): which can kill bacteria, viruses and fungi.
  - Oligosaccharides: which prevent bacteria from attaching to mucosal surfaces.
  - Carbohydrates (Bifidus factor = growth factor present only in human milk required for establishing an acidic environment in the gut to inhibit growth of bacteria, fungi and parasites).

### Hormonal Control Of Milk Production

- There are two hormones that directly affect breastfeeding:
  - prolactin and oxytocin.
  - The prolactin level is highest about 30 minutes after the beginning of the feed, so its most important effect is to make milk for the next Feed. More prolactin is produced at night, so breastfeeding at night is especially helpful for keeping up the milk supply.





### colostrum

#### ❖ What is Colostrum? Colostrum vs. breast milk

- Colostrum, the yellowish (Because it is full of IgA), 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.
- secreted in the first 2–3 days after delivery (before her breast milk comes in).
- It is produced in small amounts, about 40–50 ml on the first day, but is all that an
  infant normally needs at this time.
- 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.
- 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 <u>high in protein</u> and <u>low in sugar</u> and fat, thus making it easy to digest.
- Colostrum is rich in: white cells and antibodies, especially slgA, and it contains a larger percentage of protein, minerals and fat-soluble vitamins (A, E and K) than later milk.
- It is Baby's first vaccination.

Obese mothers produce colostrum for long time وجدوا ان اللمسة الأولى تؤثّر على البرست فيدنق!

He won't develop hypoglycemia if didn't take mother's mum.



### colostrum

#### ❖ What is the benefit of Colostrum?

Colostrum provides a new baby **high levels of antibodies** from his/her mother and it also acts to "seal" the inside of the baby's intestines thus preventing the invasion of bacteria.

- Colostrum in comparison to transitional and mature milk: "IMOPRTANT in MCQs"
  - Higher in: immunological components(s. IgA, lactoferrin,leukocytes, developmental factors such as epidermal growth factors, Na, Cl and Mg.
  - Lower in: Low volume, lactose,
     Potassium and calcium.

Type of Milk	Characteristic
Colostrum	Thin, yellow, low on fats & carbs.  little in amount
Breast Milk	White, thin, watery & sweet. Large amount.
Foremilk	Watery, low fat & high carbs.
Hindmilk	Creamier, thick, high fat.

First milk  $\rightarrow$  formilk  $\rightarrow$  thin + more water + CHO. When he's about to finish  $\rightarrow$  hindmilk  $\rightarrow$  dark white in color + HIGH FAT + GIVE SATIATY + WEGHT GAIN.

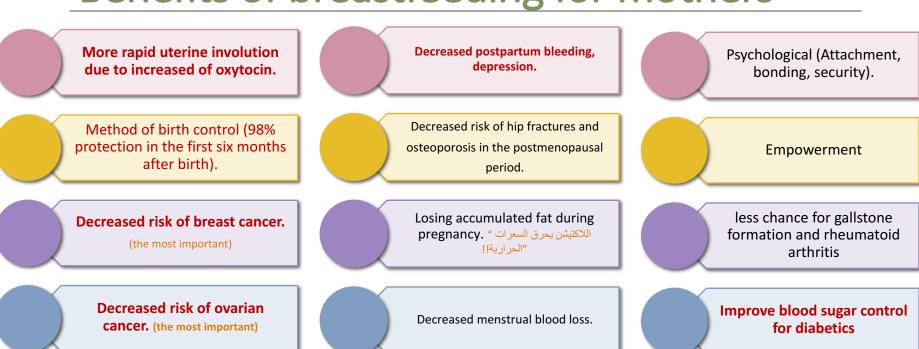
	Colostrum	Breast Milk	Cows Milk
Calories	58	70	65
Protein	3.7 gm	1.3 gm	3.4 gm
Carbohydrate	5.3 gm	7.4 gm	4.8 gm
Fats	2.9 gm	4.2 gm	3.7 gm



# Benefits of Breastfeeding

Ecological	For Society	To Families	Benefits to baby
-Saves resourcesLess wasteNo refrigerationNo manufacturingNo bottles, cansNo truckingNo handling.	-SmarterHealthierLess cost to healthcare systemStronger families.	-Less trips to doctors, hospitalsLess prescriptionsLess stressLess illnessMore bondingInexpensive.	-Better dental healthIncreased visual acuityDecreased duration and intensity of illnessesLess allergiesBetter health & less risk of illnesses.

# Benefits of breastfeeding for mothers



# Advantages of breastfeeding المروا الجدول اذا كان الوقت تأخر

Celiac disease

**Growth faltering** 

Visual acuity

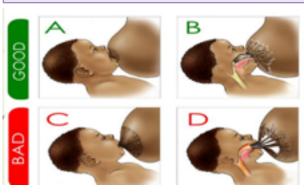
### Superior health outcomes in breastfed infant

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		



### WHO/UNICEF Ten Steps to Successful Breastfeeding

- 1. Have a written breastfeeding policy communicated to all health care staff.
- 2. Train all health care staff to implement this policy.
- 3. Inform all pregnant women about benefits of breastfeeding.
- 4. Initiate the breastfeeding within the first hour.
- 5. Show mothers how to breastfeed and how to maintain lactation.
- 6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
- 7. Allow mothers and infants to remain together 24 hour a day.
- 8. Encourage breast feeding on demand.
- 9. Give no artificial nipples or pacifiers to breastfeeding infants.
- 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospital.



Perfect way of feeding → Direct feeding!

Not Important Slide!



Kangaroo Care for Term Baby

**Correct latching** 



# Breast feeding and UTI "IMPORTANT"

- The risk of UTI was 2-3 times **higher** in non-breastfed children when compared with exclusively breastfed children.
- The protective effect of breastfeeding was <u>dependent on</u> the duration of breastfeeding as well as the gender of the child or infant.
- A longer duration of breastfeeding was associated with a lower risk of infection after weaning and the effect was stronger in girls.

## **Breast Engorgement**

Engorgement refers to <u>swelling within the breast tissue</u>, which can be **painful**. In some women with engorgement, the breasts become firm, <u>flushed</u>, <u>warm</u> to the touch, and feel as if they are throbbing. Some women develop a slight fever.

- The best treatment for engorgement is to:
  - Empty the breasts frequently and completely by breastfeeding. The most important one!!!
  - Expressing milk by hand or breast pump can help to soften the areola and allow the baby to latch on more easily.
  - Use of a cold compress or ice pack can be helpful in relieving the discomfort of engorgement.
  - Pain medications: Paracetamol / Ibuprofen are safe .



### Why some mothers choose formula over breast milk?

- Distressed by physical discomfort of early breastfeeding problems.
- Convenience issues.
- Pressures of employment/school.
- Worries that breast shape will change.
- Formula manufacturers manipulate.
- people through their advantages.
- Lack of confidence in self.

Working moms.

- Doctors and nurses need more
- lactation training.
- Moms given very little time to adjust to changes of postpartum.
- Family demands.
- Non-supportive family/health professionals.
- Embarrassment.
- Feeling that one cannot produce enough milk.

### Risk Reduction of Breast Milk

#### Diabetes:

Up to a **30**% reduction in the incidence of type 1 dm is reported for infants who exclusively breastfed for at least 3 months.

#### Childhood leukemia:

A reduction of **20%** in the risk of acute lymphocytic leukemia and **15%** in the risk of acute myeloid leukemia in infants breastfed <u>for 6</u> months or longer.

Sudden infant death syndrome (SIDS):

A **36%** reduction in risk of SIDS.



### FORMULA MILK ILLNESS "RELATIVE RISK":

- ✓ Allergies, eczema 2 to 7 times
- ✓ Urinary tract infections 2.6 to 5.5 times
- ✓ Inflammatory bowel disease 1.5 to 1.9 times
- ✓ Diabetes, type 1 2.4 times
- ✓ Gastroenteritis 3 
  times
- ✓ Hodgkin's lymphoma1.8 to 6.7 times

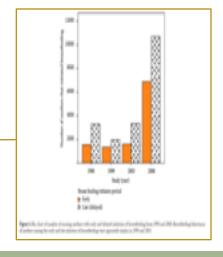
- ✓ Otitis media 2.4 times
- ✓ Haemophilus influenzae meningitis3.8 times
- ✓ Necrotizing enterocolitis 6 to 10 times
- ✓ Pneumonia/lower respiratory tract infection 1.7 to 5 times
- ✓ Respiratory syncytial virus infection 3.9

- times
- ✓ **Sepsis** 2.1 times
- ✓ Sudden infant death syndrome 2.0 times
- ✓ Industrialized-world hospitalization 3 times.

The doctor doesn't mention the numbers!

Timing of breastfeeding initiation:

**Early breastfeeding:** if initiated to baby within the first one hour of birth. **Delayed breastfeeding:** if the time of the first breastfeeding initiation is more than one hour after birth).





# Contraindication of breast feeding

- It is important to look at the entities that put the mother or infant at significant risk and are not remedial.
- Infectious Diseases:
  - Untreated brucellosis
  - Active or untreated tuberculosis (use expressed milk). (Doesn't transmit through breastfeeding BUT through air.)
  - Active herpes simplex on her breast (use expressed milk).
  - Mothers with H1N1 influenza, temporarily be isolated until become afebrile.
- ❖ Life threatening illnesses in the mother.
- Medications:
  - Mothers who are receiving diagnostic or therapeutic radioactive isotopes.
- Infant with galactosaemia. (Galactose can't be metabolite in body (rare) /we give them specific type of milk.)
- Mothers with: Hepatitis B & hepatitis C are NOT contraindications.

# HIV and breastfeeding

Before HIV mother should not breastfeed her baby b/c HIV can appear in milk but in 2016 they said if the mother under antiretroviral medication and in stable condition (CD4 in accepted level) then she can breastfeed her baby.

An HIV-infected mother can pass the infection to her infant <u>during pregnancy</u>, <u>delivery</u> and through <u>breastfeeding</u>. However, <u>antiretroviral (ARV)</u> drugs given to either the mother or HIV-exposed infant reduces the risk of transmission.

WHO recommends that when HIV-infected mothers breastfeed, they should receive ARVs and follow who guidance for infant feeding.

#### Table 1. The 2016 WHO recommendations on HIV and infant feeding

RECOMMENDATIONS		Strength of the recommendation	Quality of the evidence
1.	The duration of breastfeeding by mothers living with HIV <sup>a</sup> For how long should a mother living with HIV breastfeed if she is receiving ART and there is no evidence of clinical, immune or viral failure?		
	Mothers living with HIV should breastfeed for at least 12 months and may continue breastfeeding for up to 24 months or longer (similar to the general population) while being fully supported for ART adherence (see the WHO consolidated guidelines on ARV drugs for interventions to optimize adherence).	Strong	12 months: low 24 months: very low

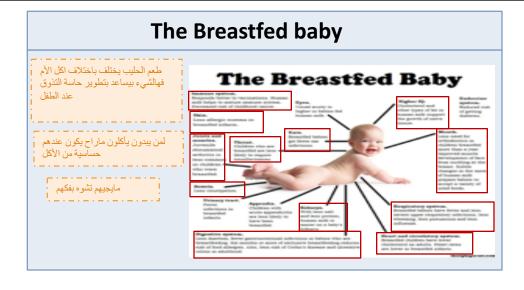
#### **GUIDING PRACTICE STATEMENTS**

When mothers living with HIV do not exclusively breastfeed

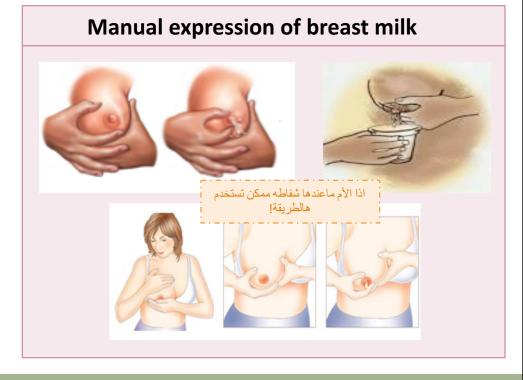
If a mother living with HIV does not exclusively breastfeed, is mixed feeding with ART better than no breastfeeding at all?

Mothers living with HIV and health-care workers can be reassured that ART reduces the risk of postnatal HIV transmission in the context of mixed feeding. Although exclusive breastfeeding is recommended, practising mixed feeding is not a reason to stop breastfeeding in the presence of ARV drugs.









### L.C - 2.D - 3.A - 4.A - 5-A - 6.A

#### 1-the protective effect of breastfeeding dependent on:

A. duration of breastfeeding

B. gender of the child or infant

C. A AND B

D. Psychology of the mother

#### 2-signs of adequate breastfeeding:

A. weight gain

B.baby looks well

C.passes normal stool

D.all of the above

#### 3-which of these countries who were exclusively breastfed:

A. Africa

B. asia

C. devoloping countries

D. middle east

#### 4- breast feeding should be given:

A. on demand

B. every one hour

C. with constipation

D. all of the above

#### 5-protein in the breast milk comparing to animal milk is:

A. lower

**B.Higher** 

C. both are equal

D. depending on the mother nutrition

#### 6-Colostrum is rich in:

A. slgA

B. IgE

C. HORMONS

D. Cytokine

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435's slides. & 434's team.



(وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلاَدَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَنْ يُتِمَّ الرَّضناعَة)

# Thank you for checking our team work!

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