



الكلية : الطب

القسم او الفرع :طب الاطفال وحديثي الولادة

المرحلة: الخامسة

أستاذ المادة : أ.م.د.سعد فواز مخلف

اسم المادة باللغة العربية : طب الاطفال وحديثي الولادة

اسم المادة باللغة الإنكليزية : طب الاطفال وحديثي الولادة

اسم المحاضرة الأولى باللغة العربية: الرضاعة والتغذية عند الاطفال

اسم المحاضرة الأولى باللغة الإنكليزية : Feeding

## FEEDING

Proper nutrition in infancy is essential for normal growth, resistance to infections, long-term adult health, and optimal neurologic and cognitive development.

Healthy nutrition is especially important during the first 6 months, **a period of exceptionally accelerated growth and high nutrient requirements relative to body weight**. Breastfeeding is associated with a reduced risk of many diseases in infants, children, and mothers .

## BREAST FEEDING :

Human milk is the ideal standard for infant feeding and nutrition. Early initiation of breastfeeding within 1 hour of birth; exclusive breastfeeding for the first 6 months of life; and. introduction of nutritionally-adequate and safe complementary foods at 6 months together with continued breastfeeding up to 2 years of age .

The first 2 days of breastfeeding, and perhaps the first hour of life, may determine the success of breastfeeding .

## Advantages ;

### regarding the baby ;

# Breastfeeding has short- and long-term advantages for **infant neurodevelopment**.

# Human milk feeding decreases the incidence and severity of diarrhea, respiratory illnesses, otitis media, bacteremia, bacterial meningitis, and necrotizing enterocolitis.

# There are beneficial effects of feeding preterm infants with human milk on long-term neurodevelopment (IQ) in **preterm** infants.

# Preterm breastfed infants also have a lower re-admission rate in the first year of life.

# Breastfed babies have a lower risk of asthma, obesity, type 1 diabetes, and sudden infant death syndrome (SIDS). Breastfed babies are also less likely to have ear infections and stomach bugs

### Regarding the mother ;

Mothers who breastfeed experience both short- and long- term health benefits.

# Decreased risk of postpartum hemorrhages,

# more rapid uterine involution,

# longer period of amenorrhea,

# decreased postpartum depression .

# Cumulative lactation of more than 12 months also correlates with reduced risk of ovarian and breast cancer.

**Adequacy of milk intake can be assessed by;**

# A well-hydrated infant voids six to eight times a day. Each voiding should soak, not merely moisten the diaper, and urine should be colorless.

# 5 to 7 , loose yellow stools should be passed a day.

# Rate of weight gain provides the most objective indicator of adequate milk intake. (Total weight loss after birth should not exceed 7%, and birth weight should be regained by 10 days.) The mean feeding frequency during the early weeks postpartum is 8 to 12 times per day.

Note/ Feeding frequency during the first 3 days of life of breastfed infants is inversely related to the level of bilirubin; frequent feedings stimulate meconium passage and excretion of bilirubin in the stool. Infants who have insufficient milk intake and poor weight gain in the first week of life may have an increase in unconjugated bilirubin secondary to an exaggerated enterohepatic circulation of bilirubin. This is known as (**breastfeeding jaundice**). Attention should be directed toward improved milk production and intake.

After the first week of life in a breastfed infant, prolonged elevated serum bilirubin may be due to presence of an unknown factor in milk that enhances intestinal absorption of bilirubin. This is termed (**breast milk**

**jaundice**) which is a diagnosis of exclusion and should be made only if an infant who is otherwise thriving, with normal growth and no evidence of hemolysis, infection, biliary atresia, or metabolic disease .

# vitamin D supplementation (400 IU/day starting soon after birth) is recommended , and, when needed, fluoride after 6 months for breastfed infant .

### **Precautions;**

\_\_\_ Maternal infection with human immunodeficiency virus (HIV) is considered a contraindication for breastfeeding in developed countries.

\_\_\_ When the mother has active tuberculosis, syphilis, or varicella, restarting breastfeeding may be considered after therapy is initiated.

\_\_\_ If a woman has herpetic lesions on her breast, nursing and contact with the infant on that breast should be avoided.

\_\_\_ Women with genital herpes can breastfeed.

\_\_\_ There are limited numbers of medical contraindications for breastfeeding, including pediatric metabolic disorders such as galactosemia, and infants with phenylketonuria, so ,alternate breastfeeding with special formulas.

## FORMULA FEEDING:

Cow's milk-based formulas are the vast majority of commercial formulas.

### Types of Formula Feeding

1. **Cow's Milk Protein-Based Formulas:** depend on increase concentration of Cows milk protein
2. **Soy Formulas:** plant-based products (free of cow's milk protein and lactose) where provided by sucrose and corn syrup solids
3. **Lactose free formulas:** is Cow's milk formula minus lactose for lactose intolerance.
4. **Protein Hydrolysate Formulas:** may be partially hydrolyzed , or extensively hydrolyzed , used in patient with Cow's milk protein allergy
5. **Amino Acid Formulas:** peptide-free formulas. They are designed for infants with cow's milk-based protein allergy who failed to thrive on extensively hydrolyzed protein formulas.
6. **premature formula;** Special formulas are designed for premature, low birth weight babies . have more calories, protein, vitamins, and minerals than regular infant formula .
7. **Anti-reflux formula;** This type of formula is thickened with the aim of preventing reflux in babies (when babies bring up milk during or after a feed).

## Formula feeding calculation

Always remember:

➤ Calculate the requirement depending on the **expected** weight not on the **actual** weight.

➤ Each one scoop adds to each one ounce of water.

➤ Each one ounce of milk equal:

- 30 ml
- 20 kcal
- 4 gm

➤ For full term infant:

- 1st 10 kg require 100 kcal/kg.
- 2nd 10 kg require 50 kcal/kg.
- 3rd 10 kg require 20 kcal/kg..

\*The caloric density of formulas is 20 kcal/oz (0.67 kcal/mL), similar to that of human milk .

\*Formula-fed infants are at higher risk for obesity later in childhood .

### **Difference between breast and bottle feeding**

<b>breast feeding</b>	<b>bottle feeding</b>
free	Expensive
Ready when baby need	Need preparation, sterilization
Increase IQ	No
Have antibodies	No
Give protection effect to list of disease	No
Easily digested and less constipated	Harder to digestion
Deficient with fluoride, vit K and vit D	Provided with required vit
Deficient with iron but well absorption	Rich with iron but bad absorption
Less of protein but easy to absorb	high of protein but hard to absorb
High Psychological advantages	less Psychological advantages