

## **INFANTS AND YOUNG CHILD FEEDING (UPTO 2 YEARS)**

Breastfeeding is the best way to satisfy the nutritional and psychological needs of the baby. Mother's milk (breast milk, human milk) contains all nutrients in correct proportions necessary for the growth and development of the baby. The human milk has inherent anti-infective properties which no other milk has, this protective function of human milk is particularly important in India where exposure to infections is common.

Early initiation of breastfeeding is extremely important for establishing successful lactation as well as for providing colostrum (mothers' first milk) to the baby. Ideally, the baby should receive the first breastfeed as soon as possible and preferably within half an hour of birth. It is essential that the baby gets the first breast-milk called colostrum which is thicker and yellowish than later milk and comes only in small amount in the first few days. Colostrum is good for the baby; it will take care of the first hunger. Colostrum is all the food and fluid needed at this time –no supplements are necessary, not even water.

The amount of milk secreted increases gradually in the first few days after delivery, reaching the peak during the second month, at which level it is maintained until about 6 months of age. Many essential components are in concentrated amounts in colostrum as compared to mature milk, compensating for the low output during early lactation. Breast-milk provides good quality proteins, fat, vitamins, calcium, iron and other minerals even beyond four months. In fact, quality of some of the nutrients can be improved by supplementing the diet of the mother with nutrients. Growth performance of majority of the breast-fed infants is satisfactory up to 6 months of age. Breast feeding is associated with better cognitive development possibly due to the high content of docosahexaenoic acid (DHA) which plays an important role in brain development.

### **What are the advantages of breast-milk?**

- Breast-milk contains all essential nutrients needed for the infant; it provides the best nutrition and protects the infant from infections.
- Breast-milk is a natural food and is more easily digested and absorbed by the infant as compared to formula milk prepared from other sources.

- Colostrum, which is the milk secreted during the first 3- 4 days after child birth, is rich in proteins, minerals, vitamins especially vitamin A and antibodies. In addition, it has a laxative effect as well.
- Breast-feeding helps in reducing fertility and facilitates spacing of children. Lactation provides emotional satisfaction to the mother and the infant. Recent evidence suggests that human milk may confer some long term benefits such as lower risk of certain autoimmune diseases, inflammatory bowel disease, obesity and related disorders and probably some cancers. Therefore, breast milk is the best milk for the new born and growing infant.
- It establishes mother-infant contact and promotes mother-child bonding.
- Breast-feeding helps in retraction of the uterus.
- Incidence of breast cancer is lower in mothers who breast feed their children.
- Breast feeding is associated with better cognitive development of children and may provide some long-term health benefits.

### **Are drugs secreted in breast-milk?**

Since some drugs (e.g. antibiotics, caffeine, hormones and alcohol) taken by the mother are secreted into the breast-milk and could be harmful to the breast-fed infant, caution should be exercised by the lactating mother while taking medicines.

### **Important points to remember**

- Start breast-feeding within half an hour after delivery and do not discard colostrum.
- Breast-feed exclusively (not even water) up to six months if the growth of the infant is adequate.
- Continue breast-feeding after six months upto 2 years and beyond, in addition to nutrient-rich complementary foods (weaning foods), .
- Breast-feed the infant frequently and on demand to establish and maintain good milk supply.
- Take a nutritionally adequate diet both during pregnancy and lactation.
- Avoid tobacco (smoking and chewing), alcohol and drugs during lactation.
- Ensure active family support for breast-feeding.

### **Food supplements should be introduced for Infants after six months**

- Breast-milk alone is not adequate for the infant beyond 6 months of age.
- Introduction of food supplements (semi-solid complementary foods) along with breast-feeding is necessary for infants after 6 months of age.
- Provision of adequate and appropriate supplements to young children prevents malnutrition.
- Hygienic practices should be observed while preparing and feeding the complementary food to the child; otherwise, it may lead to diarrhoea\*.
- For the average healthy **breastfed infant**, meals of complementary foods should be provided 2-3 times per day at 6-8 months of age and 3-4 times per day at 9-11 and 12-24 months of age, with additional nutritious snacks (such as a piece of fruit or chapatti with nut paste) offered 1-2 times per day, as desired by the child
- For the average healthy **non-breastfed infant**, meals should be provided 4-5 times per day, with additional nutritious snacks (such as a piece of fruit or chapatti with nut paste) offered 1-2 times per day, as desired. Meals include milk-only feeds, other foods, and combinations of milk feeds and other foods. If adequate amounts of other animal source foods are consumed regularly, the amount of milk needed is ~200-400 mL/d; otherwise, the amount of milk needed is ~300-500 mL/d

**Guidelines for weaning processes in Breastfed:**

Age	Supplementary foods (Breastfeeding continued )	Frequency of supplement
First food ( after 6 months)	Ripe banana, sweet potato - These are soft, sweet, more nutritionally dense than commercial cereals, low in allergenicity and can easily be mashed to a smooth consistency.	1 feed/ day
Next food started after 1 week of starting the first food	continue the above feed and include - porridge from wheat flour or ground rice (start with only one cereal).	1 feed /day in addition to the above (total 2 feeds per day
7 <sup>th</sup> to 8 <sup>th</sup> month	Continue the above two feeds and in addition- foods such as mashed dhal (High iron and protein rich) can be started. Ragi or ground millet etc , mixed with oil	Start with 1 feed /day gradually increase the frequency to 3 feeds/days (cereal and pulses) by 8 months of age
9 <sup>th</sup> to 12 <sup>th</sup> month	chapatti softened in milk , green leafy vegetables can be added to dhal or kichri (add little oil to all the above preparations ), idli, upma, curd rice, variety of vegetables . Fruits variety (but apple ,apricot or peer should be given only after stewing) Egg, (boiled) minced meat ,fish	4-6 feeds day

Source: NIN, ICMR, book Nutrition for Mother and Child

Note: from introduction of one food to next -- There needs to be a gap of 2 weeks.

Supplementary feeding from 6 months – 1 year it is recommended that feeding is organized in 3stages on the basis of physical quality of the supplementary food used

- a) Liquid supplements

- b) Solid supplements –sieved or mashed well before feeding
- c) Solid supplements –chopped or lumpy

## COMPLEMENTARY FOODS

### 1. **Kichidi**

Rice ... 35 g

Green gram dhal ... 10 g

Leafy vegetables ... 2 t. sp

Fat ... 2 t. sp

Cumin (jeera)

**Method:** - Clean rice and dhal and cook them in water till the grains are soft add very little to taste. Leafy vegetables can be added when the cereal/pulse is 3/4th done. Cumin is fried in fat and added towards the end

### **Malted Ragi Porridge :-**

Malted Ragi ... 30 g

Roasted Groundnut ... 15 g

Jaggery ... 20 g

Method :-

Malted ragi, roasted groundnuts and jaggery are powdered. Sufficient water is added and cooked.

### **3. Wheat Payasam**

Wheat ... 30 g

Roasted Bengal gram flour ... 15 g

Roasted & crushed Groundnut ... 5 g

Sugar ... 10 g

**Method**

Roast whole wheat and powder. Add roasted Bengal gram flour, groundnut and sugar. Cook with sufficient water

### 4. **Kheer**

Vermicelli/Rice ... 30 g

Milk ... 100 ml.

Water ... As required

Jaggery ... 20 g

**Method :-** Boil rice/vermicelli in water till half done. Add milk and bring to boil. Add jaggery and cook well.

**Note:** 1. All these recipes provide approximately 250 Kcals. and 5 g proteins and amounts given are for 2 servings.

2. Recipes Nos.2 and 3 can be prepared and stored in airtight containers to be used whenever required.

3. Non-vegetarian foods such as soft boiled egg, minced meat may be introduced at the age of 6 months.

### **HEIGHT / WEIGHT CHART WHO 2005**

Median height and weight of boys at different ages

AGE	WEIGHT (kg)	HEIGHT (cm)
Birth	3.3	49.9
3 months	6.4	61.4
6 months	7.9	67.6
9 months	8.9	72.0
1 year	9.6	75.7
2 years	12.2	87.8

Median height and weight of girls at different ages

AGE	WEIGHT (kg)	HEIGHT (cm)
Birth	3.2	49.1
3 months	5.8	59.8

6 months	7.3	65.7
9 months	8.2	70.1
1 year	8.9	74.0
2 years	11.5	86.4

(SOURCE: WHO MGRS GROWTH STANDARDS, 2005)

### Height & Weight Pattern in the Growing Baby

#### Expected weight gain

You need to understand the importance of the role of weight gain, and therefore of your baby's expected or ideal weight. The baby's birth weight is the starting point for growth. Whatever be the birth weight, the growth rate in all the babies is approximately the same. The overall growth pattern depends on the proper food and adequate care of the baby. However illness, starvation, serious neglect or emotional disturbances would make his weight gain dip downwards.

#### Height or length of the baby matters too

Weight gain is not the only way to assess a baby's growth. Children are not meant to get fatter and fatter, but bigger overall. Getting taller is also included in the growth pattern of the baby. The baby's length will change much more slowly than the weight. Whatever be the baby's length at birth, approximately 2 cm (3/4") will be gained each month or just over 5 cm (2") in 3 months.

Just as there is expected weight gain for a baby of any age, related to the birth weight, so there is a expected length at any age, related to the birth-length. There is a consistent relationship of weight and height in the normal growth pattern of the child.

#### **Exception to normal growth patterns**

- a. Pre-term babies: They are very slow to get started on their feeding, and therefore their growing. The weight tends to remain in low position for a

long time

- b. Small - for date babies : They make startling growth during their earlier weeks, but on the whole they tend to occupy still a low position on the normal growth graph
- c. Babies who are ill immediately after birth or in the first weeks:  
These babies fail to start gaining weight or may actually lose some. Excellent care may lead to a spurt of "catch-up growth", so that the baby's personal growth curve shifts upwards towards the normal
- d. Babies who are bottle-fed from birth : These babies may lose no weight in the first days. They may gain very fast in the first days. They may gain very fast from the beginning, which also depends upon the formula food given. An even greater rise occurs in the babies weight when solids are added in addition to the over-concentrated milk. A baby who is gaining weight faster than nature intended, will not gain length to match it. There is a obvious disparity in the height gain compared to the weight. This cue should make you realise that the baby is starting to get obese rather than simply growing larger

#### References

- 1) Content source: Centers for Disease Control and Prevention,  
National Center for Health Statistics  
Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
- 2) Dietary guidelines for Indians-Final draft
- 3) Nutrition for mother and child (National institute of nutrition) (ICMR) publication
- 4) Source: Nutrient Requirements and Recommended Dietary Allowances for Indians, ICMR 1990.