



## Importance of the Appropriate Complementary Feeding Practices

### Introduction

*Adequate nutrition in the first 2 years of life is of prime importance in achieving optimal health outcomes later in life. Poor complementary feeding practices can lead to the increased risk of malnutrition in this critical period of life.<sup>1</sup> Complementary feeding practices may be defined as the introduction of semi-solid food along with breastmilk when breast milk alone is no longer sufficient to meet the increased nutritional needs of the child. This period begins around 6 months of age up to 2 years, along with the continuation of breastfeeding.<sup>2,3</sup>*

Early dietary behaviour, right from complementary feeding period, influences the food preferences and health outcomes later in life. Complementary feeding practices are important to ensure an adequate nutrition for a child from 6 to 24 months of life, which is a critical window for optimal nutrition. Understanding the frequency of feeds, consistency of food, the need for nutrients, and the eating behaviour not only helps in providing the required nutrition, but also mould healthy eating habits in later life. Unhealthy eating habits, on the other hand, can not only increase the risk for non-communicable diseases in adulthood but can also have adverse long-term consequences on IQ and cognitive development.

### Infant and Young Child Feeding Guiding Principles

Optimal infant and young child feeding (IYCF) is considered to be one of the most effective guidelines for ideal complementary feeding practices to be followed. The IYCF practices drafted by the World Health Organization (WHO) have the following guiding principles for complementary feeding.<sup>4</sup>

### An Ideal Complementary Feed

Appropriate complementary feeding practices should consider age-appropriate feeding, frequency of feeding, food texture, quantity, nutrient needs, and how receptive the child is to the feed. The food should also be prepared hygienically, free of contamination, easy to eat, liked by the child, and without excessive salt, sugar or spices.<sup>5</sup>

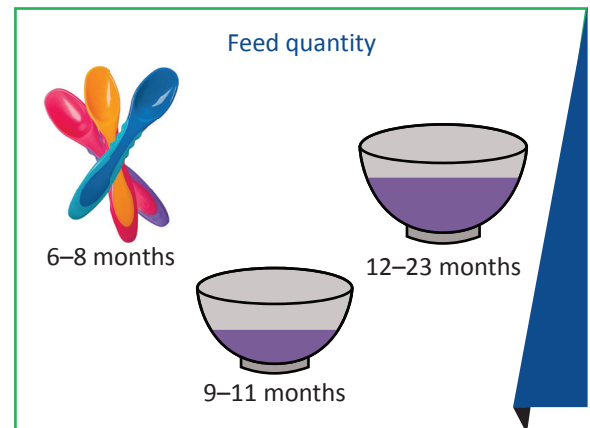
#### Food Texture

Ideally, the first food that the baby has at 6 months must be in a mashed, pureed, or semi-solid form. The consistency of the feed should be such that it does not fall off a spoon. By the age of 8 months the infant can eat finger foods (which are given to the child to chew on; finger foods are often self-fed and include piece of bread, fruit or boiled carrots) meant only for infants, and other foods such as chapatis soaked in milk, water, or dal; porridge made with semolina; wheat; rice; millet; and so on. As the infant grows further, at about 9–11 months of age, lumpy foods can be introduced. These include food that children can pick up, such as boiled vegetables and small pieces of fruit. By the age of 12–23 months, the child can be fed family food, keeping in mind the nutrition and energy requirements.<sup>4,6</sup>

It is also important to understand that the period of complementary feeding is a window of opportunity for the children to experience new tastes and textures. It is also the period for the development of healthy eating habits that can ensure appropriate growth and development in later life. Therefore, it is imperative that the texture is gradually adapted to the baby's stage of development and mastication skills and therefore introduced at optimal times.<sup>7,8</sup>

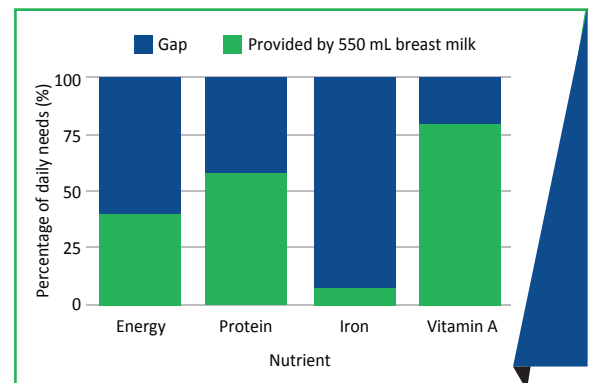
## Quantity and Frequency of Feed

As the child gets older, the need for nutrients increases to support rapid growth and development. However, a smaller stomach size in infants presents a challenge in providing the required nutrition for the child in a meal. In order to ensure appropriate nutrition, complementary food needs to be more energy- and nutrient-dense. Complementary food can be divided into smaller or larger meals depending on the need and quantity required. At the age of 6 months, along with breastfeeding, the child can be fed two to three times a day (two to three tablespoons per feed). For the ages between 9 and 23 months, the child can be fed three to four times a day (one-half of a 250-mL cup for 9–11 months and three-fourth to a full 250-mL cup after 12 months) can be given to infants aged 9–11 months and, after 12 months, can be given. Breastfed children can also be offered one to two nutritious snacks a day, which are foods eaten in between meals, depending on their appetite.<sup>4</sup>

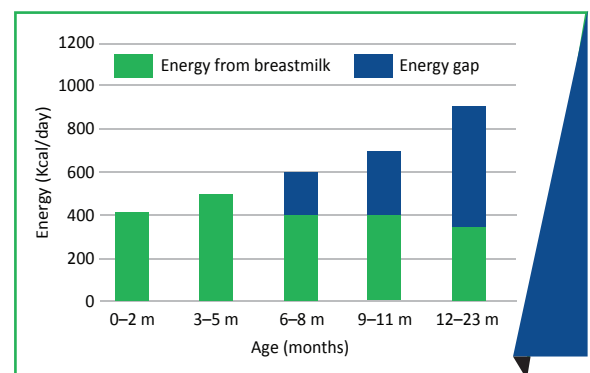


## Nutrient, Energy Needs, and Responsive Feeding

At the age of 6 months, after exclusive breastfeeding, the baby is nearly twice its weight and is becoming more active. Therefore, exclusive breastfeeding can no longer provide the required energy and nutrient requirements for the baby. Hence, there is a need for introducing complementary feeding in this period. A good complementary feed should contain sufficient protein, energy, and micronutrients to meet the child's nutrient needs in addition to what breastfeeding can provide. Energy-, protein-, iron-, and vitamin A-rich foods need to be provided through complementary feeding. In the graph, for infants between 12 and 23 months, the light portion represents the amount of nutrients provided by breast milk (550 mL), and the dark portion represents the need to be filled by complementary feeding.<sup>4</sup>



The child also has energy requirements based on age, growth, breastfeeding, and complementary feeding. The graph represents the energy required by age and the amount of breast milk for children up to 2 years of age. It shows that breastmilk covers all needs for up to 6 months of age, but after 6 months there is an energy gap that needs to be filled by complementary foods. In addition to breast milk, about 200 kcal per day is required in infants (6–8 months). In infants of 9–11 months of age, 300 kcal per day is required and 500 kcal in children of 12–23 months of age. The amount of food needed to cover the energy gap increases as the child grows older.<sup>4</sup> It is important to keep in mind that if a child eats too little or consumes too few meals, then it will not get enough nutrition to meet the energy needs.<sup>1,4</sup> Responsive feeding should also be taken into consideration, where the child is not force-fed, and



older children assisted where required. A minimum diet diversity is also recommended where the child from 6 to 23 months receives food from four or more food groups.<sup>4</sup>

### Development of Child Eating Behaviours

Evidence suggests that eating behaviour develops in the first year of life. Children tend to learn what, when, and how to eat by their direct contact with food and from observing others around them. During this first year of life, other foods or complementary foods are introduced in addition to breast milk that creates a direct contact between the infant and food.<sup>9</sup> If the introduction of food is delayed at this stage, the eating behavioural patterns of children vastly differ in later years of life. For instance, if lumpy food is not introduced at around 9 months of age, the same child at 7 years can end up eating less of the food groups.<sup>7</sup> Similarly, the introduction of various flavours in this stage of life has been deemed important. As flavour is a determinant of food choices and associated behaviours, not introducing several flavours can have detrimental effects to both food preferences and consequently on health.<sup>10</sup> Therefore, unhealthy food habits that may be devoid of the key nutrients from our food groups can lead to many non-communicable diseases such as obesity or other chronic illnesses.<sup>11</sup>

### Conclusion

Adequate nutrition fed at the appropriate age, time, and in a proper consistency can have an impact on several health outcomes in later life. Hence, complementary feeding must be inclusive of all that are necessary influences of a child's health. These include being mindful of the age of introducing foods, food textures, food consistency, dietary diversity, quantity, and the nutritional needs of the child. Failing to imbibe good complementary feeding practices can result in unhealthy eating habits, inadequate nutrition along with an increased risk for non-communicable diseases and other long-term consequences, in later life.

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