

Home-Based Weaning Foods For Bahrain

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ABSTRACT

Home-based weaning foods for six month, nine month and twelve month old infants were formulated. The foods mentioned here were prepared according to the food habits in Bahrain and the recommended daily allowances for infants. It was found that many Bahraini family foods can be used as weaning foods after some modification. Nutrition education, therefore, should emphasise the correct method of preparing nutritious and hygienic weaning foods.

It is generally agreed that the problem of Protein Energy Malnutrition (PEM) can only be solved by educating communities, especially poor ones, to effectively utilise inexpensive locally available foods within their economic reach. To achieve this goal, health workers should possess practical information as to the most suitable recipes based on foods available in the local market. Those foods already available in the local market and home in Bahrain — i.e. rice, wheat, mung beans, lentils, semolina, fish, meat and chicken — are adequate to provide a nutritious diet. However, the mother still has to learn how to prepare a nutritious diet for her children from the foods available to her.

The period of weaning is a transitional phase during which foods, other than mother's milk, supply an increasing proportion of the child's nutritional requirements and finally replace the milk altogether. This transition can take place without any risk only if foodstuffs are available that are nutritionally adequate, hygienically safe and easily consumed and digested by the child¹. Berggren² reported that in many developing countries, in which breast-milk is not supplemented when necessary, it was shown that by six to nine months infants are likely to become malnourished, vulnerable to common childhood diseases, to suffer growth problems that may be irreversible and sometimes to die. High mortality rate, impaired growth, retarded physical and mental development and a high incidence of infectious diseases among children occur during and immediately after this critical weaning period.

WHO/UNICEF³ reported that the use of industrially prepared weaning foods is generally a convenience rather than a necessity. The cost of industrial processing, packaging, transport and commercial distribution makes the retail price several times higher than the cost of home-prepared weaning foods and apart from cost, problems of misuse of these foods may arise. Some weaning foods have been widely used as complete baby foods and have created serious problems of malnutrition.

Few studies have been published on weaning practices in Bahrain. Amine⁴ found that 15.9% of the infants in Bahrain were weaned (from breastfeeding) when they were less than three months old and another 18.8% were weaned before they reached the age of six months. He indicated that the main reasons for weaning were: new pregnancy, infant reached weaning age, lack of milk secretion and infants refusal of breast-milk.

Another survey by Mobayed et al.⁵ showed that the application of abrupt weaning was more common in rural (85.3%) than urban (76.7%) areas of Bahrain.

A recent study by Musaiger⁶ has shown that 13.5% of mothers introduced supplementary foods to their children at less than three months of age, while the majority (61.9%) introduced these between three and six months of age. Commercial baby foods were the main foods used in supplementary feeding (74.2%), followed by rice and boiled eggs.

The aim of this paper is to suggest home-based weaning foods which may be used in Bahrain. It is interesting to note that the foods suggested here should be tested on a few children in one or two meals daily in order to establish whether the children like the recipe and how much food can be given at one time.

METHODS

The preparation of the weaning foods was based on the local foods available in the market of Bahrain, food habits and the recommended daily allowances for infants at different age groups. The formulation of these weaning foods was obtained by calculating the proportion of the ingredients to meet the recommended daily allowances for infants. Since rice is a staple food, it was used as a major meal ingredient.

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It is important to note that all the foods suggested here and the methods of cooking them are familiar to Bahraini mothers.

RESULTS

A suggested meal plan for a six month old infant is shown in Table 1. It was assumed that the mother continues breast-feeding and the amount of breast-milk over twenty-four hours is approximately 600 ml. Three meals were suggested for a child of this age, in addition to breast-milk.

TABLE 1			
A suggested meal plan for a six month old infant weighing almost 7.5 Kg.			
Foods	Weight (g)	Approximate Household Measures	
Breast-milk assumed amount over 24 hours (600 ml)			
<i>Morning meal</i>			
<i>Smeed:</i>			
Semolina	5	1 teaspoon	
Milk	200ml	1 teacup	
Sugar	10	2 teaspoons	
Egg	50	1 egg	
Corn oil	5	1 teaspoon	
<i>Midday meal</i>			
Rice	15	1 table-spoon	
Chicken	15	1 table-spoon	
Parsley	15	½ teacup	
Corn oil	5	1 teaspoon	
Orange Juice (fresh)	100 ml	½ teacup	
<i>Evening meal</i>			
Lentils	15	1 table-spoon	
Oats	45	3 table-spoons	
Dark green vegetables (spinach, parsley, coriander)	15	½ teacup	
Corn oil	5	1 teaspoon	

Table 2 illustrates a suggested meal plan for a nine month old infant and indicates that the amount of breast-milk over twenty-four hours has decreased to about 500 ml. At this age, food from the family pot was recommended (Saloonah and rice) but without spices.

TABLE 2			
A suggested meal plan for a nine month old infant weighing almost 9 Kg.			
Foods	Weight (g)	Approximate Household Measures	
Breast-milk assumed amount over 24 hours (500ml)			
<i>Morning meal</i>			
<i>Custard:</i>			
Corn flour	15	1 table-spoon	
Fresh milk	200ml	1 teacup	
Sugar	15	1 table-spoon	
<i>Midday meal from family pot</i>			
<i>Fish Saloonah with Rice:</i>			
Rice (cooked)	100	1 teacup	
Fish	15	1 table-spoon	
Sauce from stew with vegetables	50	½ teacup	
Oil	5	1 teaspoon	
Orange juice (fresh)	100ml	½ teacup	
<i>Evening meal</i>			
Rice	30	2 table-spoons	
Mung beans	15	1 table-spoon	
Pumpkin	15	1 table-spoon	
Dark green vegetables	15	½ teacup	
Butter	5	1 teaspoon	

As is shown in Table 3, for a twelve month old infant the number of meals per day was increased to four. It was also expected that the mother continues breast-feeding, the amount of breast-milk over twenty-four hours being approximately 400 ml.

TABLE 3
A suggested meal plan for a twelve month old infant weighing almost 10 Kg.

Foods	Weight (g)	Approximate Household Measures
Breast-milk assumed amount over 24 hours (400ml)		
<i>Morning meal</i>		
<i>Elbeh</i> : Egg	50	1 egg
Fresh milk	200 ml	1 teacup
Sugar	30	2 table-spoons
<i>Midday meal from family pot</i>		
<i>Alharees</i> : Meat	30	2 table-spoons
Wheat	60	4 table-spoons
Oil	5	1 teaspoon
Orange juice (fresh)	100 ml	½ teacup
<i>Afternoon meal</i>		
<i>Mahalabia</i> : Rice	15	1 table-spoon
Fresh milk	100ml	½ teacup
Sugar	15	1 table-spoon
<i>Evening meal</i>		
Rice	30	2 table-spoons
Lentils	15	1 table-spoon
Dark green vegetables	15	½ teacup
Corn oil	5	1 teaspoon

the proteins of a cereal and a legume can supplement each other. To make a complete meal other foods should be added to this mix, the result being called multi-mix and more suitable for the weaning period and feeding young children ¹.

Making separate food for the child is sometimes difficult for the mother, therefore, it is more convenient to use the foods already cooked for the family meal. These foods can be taken from the cooking pot in the amounts needed to make a suitable multi-mix for young children ¹.

An example within Bahrain is *Elbeh* which consists of milk, eggs and sugar (Table 3). Eggs have a good variety of nutrients (vitamin A and iron); milk contains B vitamins, calcium and vitamin A; eggs and milk have protein of high biological value; sugar helps in increasing the energy concentration of the dish.

When the family food is given to the child, it should be given before adding any spices and without frying the ingredients. The nutrient value of the meal depends on the method of cooking and it will be different from that of raw foods. Cooking for a long time reduces nutrient values (especially water soluble vitamins such as vitamin C and B) therefore, some allowances should be made for changes in nutrient value ¹.

The mother can be taught to cook simple weaning foods which take less time, for example, custard, *Elbeh*, *Mahalabia* and *Smeed*. Where the constraints are stronger the family food can be satisfactorily modified, for instance by cooking wheat with meat but without spices (*Alharees*), or by cooking rice with shrimps without spices and beating them together (*Madrobah*).

Many fruits such as banana, mango, papaya and melon are suitable for infants and do not require cooking. Dark green leafy vegetables such as spinach, *Salg* or *Mulukhiyah* are useful for their mineral and vitamin supplement, particularly iron and vitamin A. These fruits and vegetables should be added to the weaning diet whenever possible. Fat in the form of butter or vegetable oils is a good source of energy and bulk reduction. Ghosh⁷ reported that unsaturated fatty acids are essential to the basic metabolism and are vehicles of fat soluble vitamins A, D and E, a breast-fed baby receives 50-60% of its energy from fat but when weaned, the energy intake drops unless fat is added to the diet.

DISCUSSION

Foods available for infants and young children vary from one country to another. The type of foods used as a supplement depend on the food habits, culture, food availability and cost within the country.

A good weaning diet must provide enough calories, protein, essential vitamins and minerals. If caloric needs are not met, growth will be retarded and the body will break down its own protein to supply energy, with resultant Protein Energy Malnutrition ².

The simplest recipe for weaning food is that which contains two ingredients, for example, a cereal mixed with a legume. This is called basic mix and in this way

CONCLUSION

Home prepared food mixtures and modifications of the Bahraini family food are suitable as weaning foods. However, the mother should be taught how to prepare these foods for her baby. Nutrition education should emphasise the correct way of preparing weaning foods, the quantity of food to be given to the baby according to his age and weight, the hygienic aspect of food preparation and the child's requirements for different nutrients.

Note: Information concerning nutrients composition of weaning foods given in Tables 1, 2 and 3 is available on request from Dr. A.O. Musaiger.

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