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**“REVIEW ON COMPLEMENTARY FEEDING IN INFANT -AN  
AYURVEDIC PERSPECTIVE AND ITS CORRELATION WITH  
CURRENT IYCF GUIDELINES”**

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**ABSTRACT:**

Nutrition plays central role in growth and development of child. Initial six month baby nourished with exclusive breast feeding but in later period only breast milk is not sufficient to provide increased nutritional need of baby so complementary feeding (weaning) is necessary to provide adequate and appropriate supplement for proper growth and development of child and to prevent malnutrition. Guidelines for infant feeding mentioned in ayurveda on par with modern infant nutrition practice. *Phalprashan* and *Annaprashn* which marks the ceremonial introduction of fruits and cereals are mentioned in ayurvedic classics along with the various complementary foods and nutritional supplement which can provide enough energy and nutrients to meet requirements of rapidly growing child. An attempt has been made of compilation and evaluation of complementary feeding from classical *Ayurveda Samhita* and to compile similarities between modern and ayurvedic views of complementary feeding.

**Keywords:**-child nutrition, IYCF, complementary feeding *ayurveda*, *stanyaapanayan*, *Phalprasan- Annaprashan*.

## **INTRODUCTION:**

*Ayurveda* considers diet as greatest medicament<sup>1</sup>; so it has given prime significance for nutrition in the treatment. *Ahar* is considered as one among the three pillars of supporting life (*TrayUpstambha*)<sup>2</sup>. In case of young children whose growth and development occurs at rapid pace; selection of proper diet becomes corner stone of health. Optimal feeding of child with adequate nutrients is regarded as the most effective method to attain proper growth and development during first few years of life. As per *Kashyap Samhita*; place, time, digestive capacity should not be transgressed while selecting diet for children.<sup>3</sup> Failure of proper nutrition practice can adversely affects growth and development of child which can lead to irreversible damage in adult life too. The National Family Health Survey (NFHS)-4 indicates that 35.75% children below 5 years are underweight, 38.4% are stunted and 21% wasted in country.

Undernutrition is strongly associated with shorter adult height, less schooling, reduced economic productivity. Low birth weight and Undernutrition in children are risk factor for diabetes, hypertension, and dyslipidemia in adulthood<sup>4</sup>. Similarly; *Phakkaand Parigarbhika* etc. are important nutritional disorders

(*Kuposhanjanya Vyadhis*) described due to improper feeding practices in ayurvedic texts. As per UNICEF; proper breast feeding and complementary feeding are two interventions that are estimated to prevent 1/5<sup>th</sup> of total under- five mortality rate in developing countries<sup>5</sup>.

### **Similarities between modern and ayurvedic considerations in**

**Complementary feeding:** - Guidelines for infant feeding mentioned in *Ayurveda* on par with modern infant nutrition practices in aspects of balanced nutrition, consistency, quantity and frequency of food.

**Balanced Nutrition:**-As per WHO; the energy need for complementary foods for infant with “average” breast milk intake in developing countries are as;<sup>6</sup>

<b>Energy Requirement</b>	<b>Age</b>
200kcal/day	6to8 months
300kcal/day	9to11 months
550kcal/day	12to23 months

(Table no.1)

Child should be fed with balanced diet which offers 55-60% calories from carbohydrates, 10-12% from protein, and 25-30% from fat. Most of our traditional foods are bulky and a child cannot eat large quantities at a time. Hence, it is important to give small energy dense feeds at frequent intervals to ensure adequate

energy intakes by the child. Fat is a concentrated source of energy and increases energy content of food without increasing the bulk. Energy density of foods given to infants and young children can be increased without increasing the bulk by adding *snehadravyas* like oil or ghee in every feed. Amylase rich foods reduce the viscosity of the foods and therefore, the child can eat more quantities at a time<sup>7</sup>. Cereal- pulse mixture can be given in the ratio of 2:1. Fruits and vegetables should be given daily to prevent deficiency of vitamins and minerals in child. *Acharya Kashyap* suggests feeding the child with meat of certain birds. To the child having pitta predominant constitution, *Mrdvika* (grapes) with honey and ghee can be given and to child with Vata predominant constitution, juice of *Matulunga* (Citron fruit) can be given<sup>8</sup>. In *Ashtanga Hridaya* it is suggested that child should be fed with *laghu* (easily digestible) and *brimhana* (nourishing) diet along with milk and with variety of foods to ensure that protein and other nutrient needs are properly met<sup>9</sup>.

**Consistency:** Infants can eat pureed, mashed and semisolid foods beginning at six months. *Kashyapa* has suggested feeding of various fruits in the 6th month (*Phalprashan*) which can be given as

puree or in mashed form. By 8 months, most infants can also eat finger foods. And by 12 months, most children can eat the same types of foods as consumed by the rest of the family. For small children, the food should not contain particulate matter that may trigger gag reflex or vomiting. Thin gruels do not provide enough energy; young infant particularly during 6-9 months requires thick but smooth mixtures<sup>10</sup>. Food that sticks on to spoon is the right consistency. *Kashyapa* suggests that after eruption of teeth or in 10th month, feeding of cereals (*Annaprashan*) should be done after making food soft in consistency by mashing (*sumrdidam*)<sup>11</sup>.

**Quantity:** At 6 months of age, feed should be started with small amount as much as 1-2 teaspoons and the quantity is increased gradually as the child gets older and starts to accept food better. *Kashyapa* suggests that quantity of food to be given to the child should be equal to size of thumb in the beginning and should be fortified effectively<sup>12</sup>. Child should be given time to adapt gradually from smaller quantity to larger quantity.

**Frequency:** An average healthy breastfed infant needs complementary foods 2-3 times per day at 6-8 months of age and 3-4 times per day at 9-24 months. For children of 12-24 months of age, additional nutritious snacks such as a piece of fruit

should also be offered 1-2 times per day. If energy density or amount of food per meal is low, or the child is no longer breastfed, more frequent meals should be provided<sup>13</sup>. As per ayurvedic aspect diet should be given according to *agnibal* child. When semisolid foods are being introduced, *Kashyapa* has suggested feeding the infant 3 to 5 times daily and after that congenial diet should be given to the child with a gap of one or two periods giving consideration to place of living, metabolism, strength and time factor<sup>14</sup>.

#### **Age to introduce complementary diet:-**

According to IYCF Guidelines; Timely introduction of complementary feeds when the need of energy exceed what can be provided through exclusive breast feeding. From 6 months of age with introduction of solid and semisolid to complement breast feed which should be continue till minimum 2 years of age<sup>15</sup>. Breast milk output of mother increases till 6 months and later plateaus off. Birth weight of the baby doubles by 5 months of age and needs around 600-700 kcal/day. But daily breast milk output of 600 ml provides only 400 kcal which will be insufficient for the baby. Intestinal amylase matures and gut of the baby becomes ready to accept cereals and pulses. Thus 6 months seems to be the best time to introduce semisolid foods to baby. Early weaning is often due

to ignorance and leads to contamination and infection due to the unhygienic preparation. Late weaning leads to stunted growth and malnutrition. In India, at the age of 6-8 months only 54 % of breast fed and 75 % of non-breast fed infants are initiated into complimentary feeds<sup>16</sup>.

Ayurvedic classics have mentioned gradual withdrawal of breast feeding as *sthanya-apananyana vidhi* and introduction of fruits or semisolid food as *Phalprasan-Annaprashanvidhi*. It is considered as an important milestone in the growth and development of the child. Ayurvedic way of age classification of children is also based on their main diet viz; *Ksheerapa*- child up to 1 year of age whose main diet continues to be breast milk, *Ksheerannada*- child up to 2 years who feeds on milk and semisolid foods and *Annada*- child above 2 years who takes foods other than milk as main diet<sup>17</sup>. As per opinion of *Vagbhata*, gradual withdrawal from breastfeeding should be done when teething starts and child should be gradually accustomed with suitable nourishing food which are easily digestible<sup>18</sup>. Acharya *Kashyapa* has instructed *Phalprasan* during 6th month of life, which indicates feeding the child with fruits and fruit juices. Introduction of cereals as semisolids i.e., *Annaprashan* has

been explained by Kashyapa in the 10<sup>th</sup> month or after eruption of teeth<sup>19</sup>.

**Weaning practices as ceremonial introduction as per ayurveda:-**

Weaning practices as ceremonial introduction as (sanskar) *Phalprashan* and *Annaprashn* ceremony is mentioned in Ayurvedic samhita. *Kashyapa Samhita* mentioned distinctive Sanskara namely *Phalprashan*. *Phalprashan* is the formal procedure of introducing fruits to an infant before introduction of any dietary preparation (*Annaprashan*). It is subsequent to *Upaveshana Sanskara* (rituals performed when an infant is prepared to seat for the first time) which is performed during sixth month. *Annaprashan* is the ceremony or ritual performed on first introduction of food preparation to the baby, which is described by almost all *Acharyas* at 6th month age or after eruption of teeth. Thus views of different *Acharyas* about the time of introduction of complimentary food after a period of 6 month of exclusive breastfeeding is very clear. In addition to this, *Acharya Kashyapa* opines his view on introduction of fruit earlier and food afterwards on either eruption of teeth or at the age of 10 months<sup>20</sup>.

**Ayurvedic complementary food:-**

*Acharya Kashyapa* has mentioned that after 12th month, child should be fed with

gruels prepared with husk free *Sali* and *Shashtika* rice mixed with oleaginous substances and salt. Rice rich in carbohydrate and also contains vitamins and minerals like Iron, Zinc, Calcium etc. It is a good promoter of nourishment and is easily digestible. *Godhuma* (Wheat) and *Yava* (Barley) powders can be cooked and given to the child according to congeniality. *Godhuma* (*Triticum aestivum*) contains carbohydrates, proteins, fatty acids, minerals etc. and has body nourishing and immunomodulatory actions. *Yava* (*Hordeum vulgare*) contains starch, sugars, fats, proteins and glycosides. It imparts strength of body. Gruels prepared out of these cereals can be given to the child with proper fortification of nutrients. *Vidanga* (*Embelia ribes*) cooked with salt and oleaginous substances is also beneficial to the child and in one having diarrhea, *Kodrava* (*Paspalum scrobiculatum* Linn.) should be mixed<sup>21</sup>. *Vidanga* is beneficial in treat helminthic and other gastrointestinal disorders. *Kodrava* or Kodo millet is a good substitute for wheat or rice and is rich in fiber content. It has good antioxidant activity which helps in managing persistent gastrointestinal disturbances. Adding *lavana* to food improves palatability, kindles digestive fire and increases bioavailability. Energy

density of the food is increased by adding snehadravayas. AcharyaVagbhata has prescribed various nutritional supplements in the form of *Modaka* (sweet balls) to cope up with the nutritional deficiencies and other gastrointestinal related disorders arising during weaning period. These are preparations specially developed to meet the nutritional needs of the infant as the usual family diets in our country are often inadequate for proper growth of the child.

*PriyalaMajjadiModaka*- This weaning food can be used for improving infant’s nutritional status and is prepared by using powders of *priyalamajja*(*Buchanania* *alanzan*), *yasthima dhu*(*Glycyrrhizaglabra*, *laja*(*rice pops*), *sitopala*(*sugarcandy*) and *madhu*(*honey*). It is easily palatable and is rich in nutrients. Both *Priyala* and *Yashti* are sweet in taste and pacify vata-pitta. They have nourishing properties of all tissues and promotes strength. It is called as *Preenana Modaka*. Like *Dhatakyadimodak*, *Balabilwadi modak*, *Deepan modak* preparation also mentioned.

		<p>b) Modak made from Dhatakipushap, Sharkara, and Lajatarpan.</p> <p>c) Modak prepared with Bala, Bilwa, Sharkara, laj saktu (Floor of laja)<sup>22</sup></p>
2	<i>Kashyap Samhita</i>	<p>a) Cooked liquid made with husk free well washed Sali or Shasti Rice especially old rice mixed with oleaginous substances and salt.</p> <p>b) The powders of Wheat and Barley can also give according to congeniality</p> <p>c) Hot electuary cooked with Vidanga salt, oleaginous substances plus Kodrava.</p>
3	<i>According to Doshaavस्था</i> <i>-Pittadikya</i> <i>-Vatadikya</i>	<p>a) Mrdvika with ghrita and honey.</p> <p>b) Matulunga juice and salt.</p>

(Table no.2)

**Food supplements according to different Acharya:-**

	Name of samhita	Food supplement
1	<i>Ashtang Sangrah and Ashtang Hridaya</i>	a) Modak made from marrow of priyal, madhuk, madhu, laja, sitopala.

**CONCLUSION:**

Complementary feeding or weaning is an important intervention in preventing malnutrition in children. After exclusive breastfeeding for 6 months, child should be gradually accustomed to semisolid

foods to meet the increasing nutritional requirements of the body. In weaning period more chances of malnutrition to avoid it proper and timely introduction of weaning is very important. Complementary and supplementary foods mentioned in classical texts are well enough to provide balanced nutrition for the growing child. Infant feeding practices mentioned in Ayurveda correlates with the current Infant and Young child feeding (IYCF) guidelines. Based on the principles of complementary feeding mentioned in Ayurveda, infant foods have to be formulated considering current availability, acceptability, nutritional status and cost effectiveness of ingredients thus can bring out a solution for bridging the nutritional crisis commonly occurring during weaning period through proper diet as diet is greatest medicament (*ahar-mahabhaishjya*) mentioned in classics.

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