



## Review Article

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## A REVIEW ON TRADITIONAL WEANING: A COMPLETE FOOD TO FILL NUTRITIONAL GAP IN CHILDREN

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**ABSTRACT**

Childhood period is the foundation of better future life and every incidence has influence on the further life. The nutritional requirements of growing children are more since their energy requirements is high due to the fast tissue growth in early age. The term undernutrition may be correlated with Karshya (emaciation) in Ayurveda caused by Alpashana (reduced intake of food) and Vishamashana (consuming less or more quantity of food). Childhood Karshya (emaciation) is widely recognized as major health problem in developing countries due to its disastrous consequences on development of child both physically and psychologically. Better management of Karshya (emaciation) can be done by holistic approach of Ayurveda. As Karshya (emaciation) is Aptarpanjanya vyadhi it can be prevented and managed by Santarpana chikitsa in Ayurveda. According to Ayurveda Santarpana chikitsa includes correction of Agni and nourishment of dhatu. Acharya Vagbhata has described in the context of undernutrition that fulfil the various nutritional requirements of body which are essential for proper growth and development of children. This review article highlights effectiveness of Preenanamodaka in the management of undernutrition in children through Ayurveda.

**Keywords:** Karshya, Preenanamodaka, under nutrition, Santarpan**INTRODUCTION**

The term 'under nutrition' - includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals).<sup>1</sup> Undernutrition can be defined in children aged 6-59 months, as moderate wasting and/or mid-upper-arm circumference (MUAC) less than 125 mm.<sup>2</sup> Acharya Charaka has been described the undernourished has Shushka-sphik, udara, greeva (Dried up buttocks, abdomen, neck), Dhamanijalasantataha (Prominent vascular network) Twagasthishesho (Remnant of skin and bone), Atikrisha (Excessive emaciation), Sthoola parva ( Large joints ), Vyayama Atisauhityam (unable to tolerate physical exercise, over

saturation), Kshutpipasamay-aushadham (dose not tolerate high in toxicity of hunger, thirst, disease, drugs), Ati-shitoshna-maithunam (Too much of cold, hot and sexual intercourse).<sup>3</sup> One of the Balagraha known as Sushka Revati in children manifests as progressive emaciation of all body parts, diarrhoea, anorexia, skin changes, abdominal nodular swellings and geographic tongue.<sup>4</sup>

National Family Health Survey-4 provides important information regarding various health and nutrition indicators.<sup>5</sup> According to the National Family Health Survey 38.4% children under 5 year of age were found stunted and 35.8% were underweight which are shown in Table 1.

**Table 1: National Family Health Survey – 4**

S. No.	Nutritional Status of Children	Urban	Rural	Total
1.	Children under 5 years who are stunted (height-for-age) (%)	31.0	41.2	38.4
2.	Children under 5 years who are wasted (weight-for-height) (%)	20.0	21.5	21.0
3.	Children under 5 years who are severely wasted (weight-for-height) (%)	7.5	7.4	7.5
4.	Children under 5 years who are underweight (weight-for-age) (%)	29.1	38.3	35.8

In Ayurveda undernutrition condition is due to reduce food intake of baby resulting from less intake or mother use vata vardhaka ahara - vihara and baby take vatadushit stanya (Vata vitiated breast milk), ultimately babies become malnourished. In Ayurveda classics the Alpashana (reduced intake of food) and Vishamashana (false habit of intake) are two important predisposing factors which play a major role in pathogenesis of Karshya disease.

According to the latest guidelines of WHO for the dietary management of children with undernutrition is based on the optimal use of foods which are locally available to improve

nutritional status and prevent the condition from worsening to severe undernutrition. In circumstances of food unavailability, or where some nutrients are not sufficiently available for treatment of children with moderate acute malnutrition local foods, supplementary foods have been used.<sup>6</sup> Under-nutrition in children poses greatest burden on a developing country. It is not only a burden but also a hurdle in the development of country. Government of India is taking lots of initiatives to solve the problem by implementing various national nutrition programmes and by supplying free food to the underprivileged children. Despite much efforts of the government, the problem of undernutrition remains stable. Providing only diet may not be

sufficient to manage the condition because an under-nourished child requires more than a mere diet. Furthermore, the diet that reaches to the child is also not good in quality and sufficient quantity. At this point, if a formulation having anabolic effect is introduced and distributed to the children may help in improving the nutritional status of a child. Ayurveda, the Indian traditional system of medicine, describes a group of drugs having anabolic property and helps in building the tissues known as "Preenanamodaka." These drugs can help in improvement of nutritional status in malnourished children.

Ayurveda not only deals with the undernutrition in child, but it also provides a description of healthy daily regimen for child and for mothers during pregnancy as mentioned in Masanumaski paricharya (Month wise dietary regimen) in various Ayurveda texts.

Children with a history of low birth weight, or acute or chronic undernutrition, are at increased risk of morbidity and mortality during childhood. Currently there are no evidence-informed recommendations on the composition of supplementary foods used to treat children with moderate acute malnutrition. <sup>7</sup>Ayurveda suggest balance (Daily diet should include all components of diet; protein, fat, carbohydrates and minerals.)

intake of Ahara (Diet) to fulfil the various nutritional requirements of body. In different Ayurvedic texts so much description is found regarding Karshya especially in Children with Apatarpana Janya Vyadhi (nutritional deficiency disorders) like brimhana dravya which promotes healthy growth of dhatus, particularly kapha, Mamsa (muscles) and Meda (fat) leading to proper development and enhancement of different body parts. Present work aimed to review the efficacy and probable mode of action of Preenana modaka<sup>8</sup> in Karshya (underweight children).

Weaning food is the first introduction of appropriate food at the right time in addition to mother's milk in order to provide desirable nutrients to the baby. It should be concentrated, energy dense complementary food which maintain velocity of growth in infants. Drugs present in Preenanamodaka are reviewed and re-evaluated for their activity in various Ayurveda texts and literature. Several clinical and experimental studies have proved that these drugs of Preenanamodaka having potential to fulfil the various nutritional requirements of body which are essential for proper growth and development of children. The present paper presents a review of Preenanamodaka from clinical and experimental evidences for their activity to correct undernutrition in children.

**Table 2: Ingredients of Preenanamodaka**

Name	Part Used	Guna	Virya	Vipaka	Rasa	Dosha Karma
<b>Priyala (<i>Buchanania lanzan</i>)</b>	Fruit	Guru Snigdha	Sheeta	Madhura	Madhura	Vatapitta Shamaka
<b>Yashtimadhu (<i>Glycyrrhiza glabra</i>)</b>	root	Guru Snigdha	Sheeta	Madhura	Madhura	Vatapitta Shamaka
<b>Laja (<i>Oryza sativa</i>)</b>	-	Laghu, Snigdha	Sheeta	Madhura	Madhura	Tridosha Shamaka
<b>Madhu (Honey)</b>	-	Ruksha	Sheeta	Madhura	Madhura, kashaya	Tridosha Shamaka
<b>Sita (Sugar)</b>	-	Guru, Sara, Snigdha	Sheeta	Madhura	Madhura	Vatapitta Shamaka

Preenanamodaka is a well-balanced preparation including the drugs having properties of Balya, brimhana, rasayana which are supposed to increase all the Sharir dhatus, both quantitatively and qualitatively. It is in modaka (sweet bolus) form which is palatable for children and a combination of protein, carbohydrate with high calories which are essential in a child with Karshya. Further, the activity of these drugs as nutritional supplement from various studies published in various papers are as follows-

#### **Priyala (*Buchanania lanzan*)**

- *Buchanania lanzan* seeds are potential source of protein, fat, dietary fibre and energy. They were found to be very good source of Phosphorus, Calcium, Magnesium and Iron. The extracted oil of seeds by cold pressing revealed the presence of polyunsaturated fatty acid such as Linolenic Acid ( $\omega$ -3) and Linoleic Acid ( $\omega$ -6) monounsaturated fatty acid such as Oleic Acid ( $\omega$ -9).<sup>9</sup>
- The alcoholic fruit extract of *B. lanzan* and *Buchanania angustifolia* produced significant diuretic effect at a dose of 500 mg/kg when compared with standard drug furosemide.<sup>10</sup>
- The ethanolic extract of *B. lanzan* roots shows anti diarrheal activity due to tannins present in *B. lanzan*.<sup>11</sup>
- A phytochemical study of methanolic extract of *B. lanzan* exhibits significant antioxidant activity. Presence of phytochemicals such as triterpenoids, saponins, and tannins in the extract may contribute to the observed antioxidant activity.<sup>12</sup>

#### **Yashtimadhu (*Glycyrrhiza glabra*)**

- A phytochemical study reveals that the roots of *Glycyrrhiza glabra* is a potential source of antioxidants and urease inhibitors.<sup>13</sup>
- According to a study liquorice improved cognitive function, suppressed pro-inflammatory proteins and enhanced the expression of BDNF. This study suggest a beneficial role for the protection and therapeutic effect of liquorice on cognitive loss, for example in AD or neuroinflammation.<sup>14</sup>

#### **Laja (*Oryza sativa*)**

Paddy rice is an excellent food source and rich in vitamins and fibre. Freshly harvested rice is called paddy grain or rough rice. Underneath the hull, bran, germ, and endosperm are present. It has high content of vitamin B while polished rice has little or none and that the iodine value of polished rice is 11.5 as compared with (3.6%) in husked rice and 85.16% in rice polishing.

- Whole-grain rice, whether consumed intact or pulverised into flour. There is a significant corpus of research describing components in whole-grain rice which have potential for nutritional impact.<sup>15-17</sup>
- The bran constituents with potential nutritional value comprise the vitamin E complex of unpolished rice, which is unusually high, ranging from 179-389 mg/kg bran, with an average of 72.5% of the isomers being tocotrienols.<sup>18</sup>
- Other cereals have much lower average amounts of Vitamin E than rice: wheat 23 mg/kg, barley 8 mg/kg, spelt 18.1 mg/kg, and rye 11.9 mg/kg.<sup>19</sup>

## Madhu (Honey)

- Honey contains monosaccharides (fructose and glucose) which contributes the most of the nutritional and physical effects of honey.<sup>20</sup>
- According to a study honey promotes rehydration, easily digestible, stimulates immunity and is beneficial for all types of skins diseases.<sup>21</sup>
- Some of the studies reveals the antibacterial activity of honey and also found that natural unheated honey has some broad-spectrum antibacterial activity when tested against pathogenic bacteria, oral bacteria as well as food spoilage bacteria.<sup>22,23</sup>
- A research proved that Manuka, jelly bush and pasture honeys are capable of stimulating the monocytes, the precursors of macrophages, to secrete TNF- $\alpha$ .<sup>24</sup>

## CONCLUSION

Although nutritional rehabilitation is the mainstay of treatment of undernutrition which include dietary modifications but according to Ayurveda along with the nutritional rehabilitation various drugs like Preenanamodaka provide better recovery as it works at basic metabolism at the level of Agni along with nutrition.

Therefore the present review estimates that along with the mid-day meal policies of India distribution of Preenanamodaka will be much more feasible and better option to prevent undernutrition in children.

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