

CLINICAL AND LITERATURE-BASED REVIEW ON BAL KARSHYA IN PEDIATRICS AND ITS INTEGRATION WITH MODERN NUTRITIONAL REHABILITATION

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ABSTRACT

Bal Karshya represents a classical Ayurvedic pediatric disorder characterized by progressive emaciation, inadequate body weight, poor muscle development, and diminished physical strength. Grounded in the principles of Kaumarbhritya, this condition is primarily attributed to Apatarpana (insufficient nourishment) and the pathological predominance of Vata Dosha, which collectively arrest normal growth, tissue formation, and metabolic stability. The physiological integrity of childhood development relies heavily on the proper functioning of Agni (digestive and metabolic capacity). Any disturbance in Agni leads to Agnimandya (impaired digestion), which results in the formation of Ama (undigested toxic metabolites) and the subsequent starvation of the Dhatus (tissues), particularly Rasa Dhatu (nutrient plasma) and Mamsa Dhatu (muscle tissue). The etiology of Bal Karshya is

multifactorial, encompassing inadequate dietary intake, improper feeding practices, maternal dietary errors during lactation, chronic recurrent infections, and psychological influences such as neglect or anxiety. Clinically, affected children present with a lean body frame, reduced subcutaneous fat, dry skin, prominent vascular networks, and compromised Ojas (immunity), rendering them highly susceptible to recurrent infections. Traditional

management focuses on correcting the root metabolic cause through a structured, sequential regimen starting with Agnideepana (metabolic kindling) and Pachana (carminative therapy) to clear the bodily channels, followed by Brimhana (nutritive) and Santarpana Chikitsa (rehabilitative therapy) to facilitate tissue growth. This review provides a comprehensive analysis of Bal Karshya, establishes differential diagnoses from related wasting syndromes such as Phakka, Balashosha, and Parigarbhika, and presents clinical evidence evaluating classical formulations like Samvardhana Ghrita, Vachadi Churna, and Preenana Modaka.

KEYWORDS: Bal Karshya, Underweight, Pediatrics, Apatarpana, Brimhana Chikitsa, Agni, Kaumarbhritya, Protein-Energy Malnutrition.

INTRODUCTION

In Kaumarbhritya, the specialized branch of Ayurveda dedicated to pediatric care, maintaining optimal nutrition and developmental progression is recognized as the cornerstone of lifelong health. Globally, childhood undernutrition remains one of the most pressing public health challenges, contributing significantly to pediatric morbidity and mortality. According to global hunger metrics, the prevalence of undernutrition in the population stands at 16.3%, with childhood stunting affecting 35.5% of children, wasting at 19.3%, and the under-five mortality rate at 3.3%. Pediatric undernutrition is an underlying cause in approximately 35% of all deaths among children under five and accounts for 21% of the total global disability-adjusted life years lost in this age group.

Children are uniquely vulnerable to nutritional insults due to their immature digestive capacity, termed Mridu Agni, and their incompletely developed body tissues, designated as Asampurna Dhatu Avastha. Because a child's physiological constitution, metabolic rate, and drug tolerance differ fundamentally from those of adults, a gentle, specialized, and highly individualized therapeutic approach is mandatory in pediatric medicine. Underweight and wasting in children are conceptualized in Ayurveda through the clinical spectrum of Bal Karshya. Understanding the etiological factors, pathological pathways, and clinical manifestations of Bal Karshya is essential to designing effective, sustainable, and integrated nutritional rehabilitation protocols.^[1,11]

Conceptualizing Bal Karshya in Ayurvedic Literature

In the classical Ayurvedic paradigm, Karshya is classified as a Rasaprodoshaja Vikara, which is a pathological state arising directly from the quantitative or qualitative depletion of Rasa

Dhatu. It is further categorized under Apatarpanajanya Vyadhi, representing diseases of chronic undernourishment and energy depletion. Acharya Charaka, in the 21st chapter of the Sutrasthana, titled Ashtau Ninditiya Adhyaya, designates the over-lean individual, or Atikrusha, alongside the over-obese individual, or Atisthula, as two of the eight undesirable or censured bodily constitutions. These constitutions are deemed "Nindita" (censured) because they deviate from the homeostatic balance of tissues and are highly prone to chronic illness.

Acharya Charaka emphasizes that both extreme obesity and extreme leanness are pathological, yet leanness is considered less harmful and easier to treat than obesity, although both require immediate clinical intervention. While leanness is driven by a lack of tissue-building blocks, obesity involves a complex obstruction of the channels by fat tissue, making obesity far more difficult to manage. In children, this state of leanness is termed Bal Karshya. It is not merely a physical state of low body weight but a systemic metabolic imbalance that compromises the child's physical strength, cognitive development, and immune resilience.

Etiopathogenesis of Bal Karshya

The etiological factors (Nidana) responsible for Bal Karshya are multifactorial, disrupting the delicate balance of the child's digestive and tissue-building pathways. These causative factors are classified into dietary, physical, and psychological categories:

- * Aharaja Nidana (Dietary Factors): These include Alpashana (insufficient food intake), Pramitashana (consuming food in extremely small quantities), Vishamashana (irregular eating habits), and the habitual intake of Ruksha (dry), Laghu (light/low-calorie), and processed foods. In breastfed infants, a primary cause is the consumption of breast milk vitiated by Vata Dosha (Vatadushit Stanya), which occurs when the mother consumes a Vata-aggravating diet.

- * Viharaja Nidana (Physical Factors): These involve excessive physical exertion or play beyond the child's capacity (Ati Vyayama or Atishrama), chronic sleep deprivation, and the forceful suppression of natural bodily urges such as hunger, thirst, and sleep (Vega Nidra Trusha Kshudha Nigraha).

- * Manasika Nidana (Psychological Factors): Chronic emotional stressors such as Shoka (grief), Chinta (worries and anxiety), Bhaya (fear), and parental neglect or emotional deprivation directly impair pediatric digestion and tissue assimilation.

- * Secondary Causes: These encompass continued chronic illnesses (Vikara Anushaya) and

intestinal worm infestations (Purishaja Krimi).

The pathological progression (Samprapti) begins when the child is exposed to these etiological factors, leading to a profound vitiation of Vata Dosha. This aggravated Vata, coupled with the child's naturally immature digestive capacity (Mridu Agni), leads to Agnidushti (derangement of the digestive fire) and the generation of Ama. This state of Agnimandya prevents the proper conversion of food into wholesome Ahara Rasa (primary nutrient fluid). Furthermore, the presence of Ama and Vata leads to Srotodushti, specifically causing Sanga (obstruction) in the Rasa Vaha Srotas (nutrient-carrying channels).

Consequently, the circulating Rasa Dhatu becomes highly deficient and fails to properly nourish the subsequent body tissues, particularly Mamsa Dhatu (muscle) and Medo Dhatu (adipose tissue). This systematic tissue starvation, known as Dhatu Kshaya, results in progressive emaciation, loss of physical stamina, and a reduction in Ojas (the vital essence of immunity), rendering the child highly susceptible to infections.

The clinical presentation (Lakshana) of a child suffering from Bal Karshya is characterized by distinct physical signs :

- * Shushka-Sphik-Udar-Greeva: Marked wasting of the muscles in the gluteal region (buttocks), abdominal wall, and neck, giving a hollowed, dried-up appearance.
- * Dhamanijala Santataha: A prominent, highly visible network of superficial veins underneath the skin, resulting from the complete depletion of subcutaneous fat.
- * Twagasthi Shesho: The child appears to be reduced to a mere skeleton covered only by dry, rough, and wrinkled skin.
- * Sthoola Parva: The joints of the long bones appear disproportionately large and thick due to the severe wasting of the surrounding muscle mass.
- * Daurbalya and fatigue: The child exhibits generalized weakness, a lack of energy, and an inability to tolerate physical exertion or play.
- * Intolerance to extremes: The over-lean child cannot tolerate hunger, thirst, physical exercise, or over-saturation.

Diagnostic Parameter | Clinical Presentation in Bal Karshya |

|---|---|

| Gluteal Wasting | Marked emaciation of the buttocks (Shushka Sphik) |

| Abdominal Profile | Hollowed or dried-up abdomen (Shushka Udara) |

Cervical Profile	Thin, wasted neck (Shushka Greeva)
Venous Prominence	Highly visible subcutaneous vascular network (Dhamanijala Santataha)
Skin Quality	Dry, rough, and loose skin clinging to skeletal structures (Twagasthi Shesho)
Joint Presentation	Disproportionately large or thick joints (Sthoola Parva)
Functional Stamina	Extreme weakness (Daurbalya) and intolerance to physical exertion (Vyayama)

Differential Diagnosis of Pediatric Wasting Syndromes

In the classical texts of Kaumarbhritya, several distinct pediatric wasting syndromes are described under the category of Kuposhanajanya Vyadhi (diseases born of malnutrition). A precise differential diagnosis is essential to distinguish Bal Karshya from Phakka Roga, Balashosha, and Parigarbhika, as their underlying pathologies and treatments differ significantly.

Phakka Roga

Phakka Roga, described elaborately by Acharya Kashyapa, is a severe nutritional and metabolic disorder characterized by delayed gross motor milestones, specifically where a child is unable to stand or walk independently even after reaching one year of age. The term "Phakka" implies a slow, slothful movement or a run-down physical state. Acharya Kashyapa classifies Phakka into three distinct etiological types:

* Kshiraja Phakka: This occurs when a child consumes breast milk that is heavily vitiated by Kapha Dosha (Kaphajstanya). The heavy, sticky, and cold qualities of the vitiated milk lead to Srotodushti (obstruction) in the Rasa Vaha Srotas, blocking the assimilation of essential nutrients and causing the child to become severely emaciated (Krusha).

* Garbhaja Phakka: This is a wasting state that develops when a lactating mother conceives again while still nursing her infant. Because the mother's nutritional resources are diverted toward the growing fetus, her breast milk secretion rapidly diminishes in both quantity and quality (Alpa Poshakamsha). Deprived of proper nutrition, the infant experiences rapid growth failure and muscle wasting.

* Vyadhija Phakka: This represents a secondary form of malnutrition resulting from prolonged or recurrent infectious diseases, such as chronic fevers, diarrheal illnesses, or worm infestations. The chronic disease state impairs the Jatharagni and damages the Grahani (duodenum/gut barrier), leading to severe muscle wasting (Ksheenata of Mansa), a

protuberant abdomen (Mahaudara), a disproportionately large head (Mahoshiara), and weak lower limbs, forcing the child to crawl on hands and knees.

In modern clinical medicine, the symptoms of Phakka Roga correspond closely to nutritional Rickets and severe Protein-Energy Malnutrition (PEM). The obstruction of the Asthivah Srotas (bone-tissue channels) hampers the mineralization of growing bones, a feature of Vitamin D and Calcium deficiency. The skeletal deformities associated with Phakka include craniotabes (thinning and softening of the skull bones), rachitic rosary (beading at the costochondral junctions), Harrison's sulcus (a groove along the lower costal margin), sternal deformities such as pigeon chest, widening of the wrists and ankles, and marked gait abnormalities like bow legs, knock-knees, and coxa vera.

Balashosha

Balashosha (also known as Kumarashosha), described by Acharya Vagbhata in the Ashtanga Hridaya, is a pediatric emaciation syndrome initiated by Kapha-vitiating dietary and lifestyle habits. The frequent consumption of heavy, sweet, mucus-promoting foods (Shlaishmika Anna Sevana), drinking cold water (Shitambupana), and excessive daytime sleeping (Diva swapna) lead to an accumulation of Kapha Dosha that blocks the microchannels of the Rasa Vaha Srotas. Despite eating food, the child's tissues do not receive proper nourishment.

The clinical hallmark of Balashosha is the combination of Arochaka (anorexia), Pratishyaya (chronic coryza), Jwara (low-grade fever), and Kasa (cough), resulting from a compromised immune system. Additionally, affected children exhibit Snigdhata (unctuousness) and Shuklata (pallor) of the face and eyes, which arises from fluid retention and secondary anemia.

This clinical picture aligns closely with Kwashiorkor, a form of protein deficiency characterized by pitting edema (swelling of the lower extremities), a "fat sugar baby" or moon-face appearance, muscle atrophy with the preservation of subcutaneous fat, dry peeling skin resembling flaky paint, dry brittle hair with loss of pigmentation, psychomotor changes including apathy and irritability, and growth failure.

Parigarbhika

Parigarbhika is a pediatric wasting disease that occurs when a child consumes the breast milk of a pregnant mother. This breast milk is deficient in nutrients, and the early cessation of

breastfeeding combined with inadequate complementary feeding leads to severe nutritional deprivation.

The clinical manifestations of Parigarbhika include frequent respiratory illnesses, severe loss of appetite, persistent vomiting, lethargy, and progressive abdominal distension. This syndrome represents a form of infant marasmus or severe failure to thrive, driven by poor birth spacing and the premature introduction of nutritionally inadequate foods.

| Pediatric Syndrome | Primary Etiology | Pathological Mechanism | Distinctive Clinical Signs | Modern Medicine Correlation |

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| Bal Karshya | General food deficit, Alpashana, high Vata diet | Vata vitiation, Agnimandya, Rasa-Mamsa Dhatu Kshaya | Symmetrical muscle wasting, dry rough skin, visible veins, extreme fatigue | Moderate Acute Malnutrition (MAM), Pediatric Underweight |

| Kshiraja Phakka | Consumption of Kapha-vitiated breast milk | Kapha blocks Rasa Vaha Srotas, impairing bone mineralization | Inability to stand or walk by 1 year, soft bones, delayed motor milestones | Nutritional Rickets, Calcium/Vitamin D Deficiency |

| Garbhaja Phakka | Pregnancy of lactating mother while nursing | Milk becomes deficient in nutrients (Alpa Poshakamsha) | Severe emaciation, growth failure, motor regression | Infant Marasmus, Failure to Thrive (FTT) |

| | Vyadhija Phakka | Secondary to chronic infectious diseases | Chronic disease disrupts Agni, leading to muscle and tissue wasting | Protuberant abdomen, wasted limbs, large head, crawling on knees, thick nasal discharge |

| Balashosha | Cold/heavy diet, day sleep, Kapha vitiation | Kapha blocks Rasa channels, preventing tissue nourishment | Anorexia, chronic cold, low-grade fever, cough, pale glistening face/eyes | Kwashiorkor, protein-energy malnutrition with edema |

| Parigarbhika | Early cessation of breastfeeding due to maternal pregnancy | Severe nutritional deficit and impaired gut function | Respiratory illness, vomiting, lethargy, progressive abdominal distension | Severe weaning-associated malnutrition, Marasmus |

Therapeutic Management and Classical Protocols

The Ayurvedic management of Bal Karshya is designed to restore metabolic balance, clear the bodily channels, and facilitate healthy tissue growth. Rather than immediately administering heavy, high-calorie foods, which can overwhelm a weak digestive system, treatment follows a structured, sequential pathway.

Nidana Parivarjana

The first step in management is the elimination of all etiological factors. This involves correcting the child's diet and feeding schedule, establishing regular bowel routines, addressing psychological stressors, and avoiding dry, cold, and low-calorie processed foods. In breastfed infants, the mother's diet is also modified to resolve Vata vitiation in her breast milk.

Agnideepana and Pachana

To prepare the body for nutritive therapies, the child's digestive fire (Jatharagni) must be kindled and channel blockages resolved. This is achieved using gentle carminatives and digestives. Formulations such as Vachadi Churna administered with Ghrita act to stimulate the digestive fire, improve appetite, and clear Ama. For infants with weak digestion, Bala Bilvadi Modaka—prepared with unripe Bilva fruit, cardamom, and parched rice pops—is highly effective; the unripe Bilva kindles the digestive fire while cardamom enhances palatability and relieves abdominal colic.

Brimhana and Santarpana Chikitsa

Once the digestive system is functional and the bodily channels are clear, nutritive therapies (Brimhana) are introduced to promote weight gain and tissue growth.

* Nutritive Diets: The child's diet should include energy-dense, easily digestible foods such as milk, ghee, freshly harvested rice (Nava Anna), wheat, black gram (Masha), and meat soups (Mamsarasa) prepared from domestic or aquatic animals.

* Therapeutic Ghritas: Medicated clarified butters serve as excellent carriers, delivering fat-soluble nutrients directly to the tissues. Samvardhana Ghrita—composed of Khadira, Prishnaparni, Arjuna Twak, Kebuka, Saindhava, Balamoola, and Atibala moola—is highly indicated to treat emaciation, strengthen bone and muscle tissue, and promote cognitive development. Other classical formulations include Kalyanaka Ghrita, Shatpala Ghrita, and Amruta Ghrita.

* Nutraceutical Modakas (Weaning Boluses): To ensure palatability and compliance in pediatric patients, classical texts recommend the use of sweet weaning preparations shaped into Modakas (sweet balls):

* Preenana Modaka (Priyalu Majjadi Modaka): Prepared with Priyalu majja (Buchanania lanzan), Yashtimadhu (Glycyrrhiza glabra), Laja (rice pops), Sitopala (sugar candy), and Madhu (honey). This sweet ball pacifies Vata and Pitta, nourishes the tissues, and improves

physical strength.

* **Dhatkyadi Modaka (Samgrahi Modaka):** Prepared with Dhataki pushpa (*Woodfordia fruticosa*), Madhuka (*Glycyrrhiza glabra*), Sharkara, and Laja. This formulation has astringent and anthelmintic properties, making it ideal for malnourished children with chronic diarrheal disorders.

* **Bala Bilvadi Modaka (Deepana Modaka):** Formulated with unripe Bilva fruit, Ela, Sharkara, and Laja saktu, this sweet ball improves appetite and digestion in infants with weak metabolic capacity.

The addition of ghee and jaggery to these Modaka preparations further increases their caloric density, while herbs like Vidanga can be added to provide anthelmintic support.

* **Nutraceutical Avalehas:** Kushmanda Avaleha, described by Sharangadhara, is a highly effective formulation that contains carbohydrates, proteins, fats, sodium, and zinc. It acts as a powerful Balya, Brimhana, and Rasayana agent, reducing Vata and Pitta and promoting healthy weight gain.

* **Balya and Rasayana Herbs:** Ashwagandha (*Withania somnifera*), administered as Ashwagandha Granules or Ashwagandhadi Leha, significantly increases muscle mass, physical strength, and body weight.

* **Suvarnaprashana:** The administration of purified gold calx with honey and ghee is used as an immunomodulatory therapy, boosting cognitive function and protecting undernourished children from recurrent infections.

Shodhana and External Therapies

While aggressive purification is contraindicated in weak, emaciated children, gentle external and internal therapies are highly beneficial :

* **Mrudu Shodhana (Mild Purging):** In children with severe channel blockages (such as in Balashosha or Phakka), mild laxative therapies using medicated milk (Trivrutt Ksheeram) are administered to clear the gut and improve absorption.

* **Basti (Medicated Enemas):** This is highly effective in pacifying Vata Dosha and directly nourishing the colon. Matrabasti (low-volume oil enemas) using Samvardhana Ghrita or Bala Taila is clinically proven to improve lower limb strength, joint mobility, and overall muscle mass in wasted children. Enema doses for children are carefully calculated according to age based on standard formulas, such as Young's rule:

* **Bahya Chikitsa (External Procedures):** Full-body oil massage (Sarvanga Abhyanga) using

Bala Taila, Chandanabalalakshadi Taila, or Raj Taila (prepared with Eranda, Shaliparni, and Bilva) pacifies Vata, nourishes the skin, and promotes subcutaneous fat deposition. This is followed by gentle sudation such as Shalishastika Pinda Sweda (warm poultice massage made of medicated rice) to enhance muscle tone and vascular circulation.

Clinical Evidence and Comparative Research Studies

Several clinical trials and case studies have evaluated the efficacy of traditional Ayurvedic formulations in managing pediatric undernutrition and delayed developmental milestones.

Clinical Evaluation of Vachadi Churna and Ghrita

In a documented clinical study, a 5-year-old male child presenting with poor weight gain, inconsistent appetite, a preference for dry, processed foods, and rapid exhaustion after physical exertion was diagnosed with Karshya. The patient was treated with Vachadi Churna administered with Ghrita for a duration of 60 days, with a follow-up assessment on the 90th day.

The clinical results demonstrated a significant increase in body weight, height, and marked relief from Daurbalya (generalized weakness). Follow-up assessments confirmed sustained physical improvement, although very minimal changes were observed in the mid-upper arm circumference (MUAC), and there was no significant effect on the long-standing physical features of Dhamani Jaala Darshana (prominent veins) and Sushka Sphika Greeva Udara (muscle wasting). This indicates that while 60 days of therapy successfully restores metabolic activity and initiates weight gain, a longer treatment duration is required to reverse structural skeletal and vascular signs of chronic emaciation.

Comparative Trial of Ashvagandha Granules and Prinan Modaka

A controlled comparative clinical trial evaluated 30 pediatric patients aged between 2 and 10 years, presenting with chronic underweight and tissue wasting. The patients were randomly divided into two groups of 15. Group A was treated with Ashvagandha Granules, while Group B received Prinan Modaka, with both interventions administered for a duration of 90 days.

Both groups demonstrated significant improvements in weight gain, height, and muscle mass. Ashvagandha Granules showed excellent results in improving physical strength and immune resilience, while Prinan Modaka—as a highly palatable, calorie-dense weaning formulation—

was exceptionally effective in improving appetite, resolving digestive irregularities, and promoting healthy weight gain.

Efficacy of Samvardhana Ghrita in Developmental Milestones

A clinical study evaluated the efficacy of Samvardhana Ghrita, described in the Kashyapa Samhita, in children with delayed gross motor and fine motor milestones. The trial compared oral administration (Group A) against Matrabasti (medicated enema, Group B) using 20 ml of Samvardhana Ghrita following local Abhyanga with Moorchita Taila and Nadi Sweda.

The results demonstrated that both routes of administration yielded significant improvements in pediatric developmental parameters. Group A (oral route) showed marked improvements in language, performance, and speech development, achieving a 61.11% improvement in language performance and a 66.66% improvement in speech clarity. Group B (Matrabasti route) showed superior outcomes in fine motor functions and physical skills, achieving a 76.45% improvement in overall skill performance, a 66.66% improvement in fine motor control (such as putting small objects into a container), and a 38.23% improvement in gross motor skills (such as throwing a ball). This highlights that Matrabasti bypasses oral digestion to deliver Vata-pacifying, nutrient-rich lipids directly to the pelvic and lower extremity nervous systems, rapidly accelerating motor and neuromuscular development in wasted children.

Research Study / Protocol	Study Population & Sample Size	Treatment Duration	Key Clinical Parameters Measured	Primary Outcomes & Results

Vachadi Churna with Ghrita | 5-year-old male child (Karshya case report) | 60 Days (Follow-up on 90th day) | Height, Weight, MUAC, Daurbalya, Dhamani Jaala Darshana, Sushka Sphika | Significant increase in height and weight; marked relief from Daurbalya; minimal changes in MUAC; no change in prominent veins or gluteal wasting |

Ashvagandha Granules vs. Prinan Modaka | 30 pediatric patients (aged 2 to 10 years) | 90 Days | Body weight, linear growth, muscle mass index, appetite | Both groups showed significant weight gain; Ashvagandha excelled in physical strength and immunity; Prinan Modaka excelled in appetite correction and metabolic weight gain |

Samvardhana Ghrita (Oral vs. Matrabasti) | Pediatric patients with motor and cognitive delays

| Standard trial period | Language acquisition, speech performance, fine motor functions, gross motor functions | Oral route: 61.11% language and 66.66% speech improvement; Matrabasti route: 76.45% skill performance, 66.66% fine motor, and 38.23% gross motor improvement |

DISCUSSION

Managing Bal Karshya requires a delicate balance of metabolic corrections and targeted nutritional support. Traditional nutritional rehabilitation programs often prioritize the immediate administration of high-calorie, protein-rich foods to reverse tissue wasting. However, the digestive tract of a malnourished child is highly compromised; chronic starvation leads to mucosal atrophy, reduced digestive secretions, and a weakened state of Jatharagni. Administering heavy, nutrient-dense foods to a child with Agnimandya can overwhelm the digestive system, resulting in the formation of Ama, abdominal distension, diarrhea, and further systemic wasting.

Ayurveda addresses this clinical challenge by prioritizing the restoration of digestive and metabolic capacity (Agni) before administering intensive nutritional therapies. The sequential therapy of Agnideepana-Pachana followed by Brimhana acts as a metabolic primer [1, 1]. Using gentle carminatives like Vachadi Churna stimulates digestive secretions, preparing the gastrointestinal tract to effectively break down and assimilate nutrients. Once Agni is restored and the bodily channels are clear, the introduction of lipid-based therapies, such as Samvardhana Ghrita, provides a concentrated source of energy that easily crosses cellular membranes to nourish the deep tissues.

A key clinical insight in Kaumarbhritya is the relationship between pediatric wasting and gut motility, as illustrated by the pathology of Malavashtambha (functional constipation). In children, functional constipation involves the vitiation of Apana Vata, Agnimandya, and Ama sanchaya. When a child retains stool due to painful defecation, it leads to rectal distension, chronic fecal impaction, and a toxic accumulation of waste.

This chronic retention suppresses appetite, leading to a state of Mandagni (weak digestion). Vitiated Vata then spreads throughout the body, causing dryness (Rukshata) and accelerated tissue breakdown, which contributes to Bal Karshya. Therefore, managing childhood underweight requires careful evaluation of bowel habits; the use of mild laxatives, such as Eranda Taila or Gandharvahastadi Taila, is a vital prerequisite to ensure proper elimination,

relieve Vata-induced dryness, and facilitate healthy weight gain.

Furthermore, the three classical Modaka formulations mentioned in weaning literature—Preenana Modaka, Dhatkyadi Modaka, and Bala Bilvadi Modaka—serve as highly effective, palatable nutraceuticals that bridge the nutritional gap during the critical weaning period. Formulated with easily accessible ingredients like parched rice pops, honey, sugar candy, and targeted herbs, these sweet boluses provide essential amino acids, carbohydrates, and minerals.

While Preenana Modaka directly nourishes the tissues, Dhatkyadi Modaka offers astringent and anthelmintic support, protecting the child from recurrent diarrheal infections that can cause secondary wasting. Additionally, incorporating lipid-rich carriers like Samvardhana Ghrita orally or via Matrabasti provides essential fatty acids and fat-soluble vitamins. The antioxidant activity of Samvardhana Ghrita, confirmed by its ferric reducing power, helps mitigate chronic inflammatory stress, while its lipid base easily crosses the blood-brain barrier to support myelin sheath development and correct motor delays in wasted children.

By combining traditional Ayurvedic therapies—which focus on restoring gut metabolism and tissue assimilation—with modern nutritional rehabilitation protocols, clinicians can establish a highly effective and sustainable approach to pediatric undernutrition, reducing relapse rates and promoting long-term growth and immunity.

CONCLUSION

Bal Karshya is a complex pediatric nutritional disorder characterized by Vata vitiation, Agnimandya, and progressive tissue depletion, mapping closely to the clinical spectrum of pediatric underweight and Protein-Energy Malnutrition. The strength of the Ayurvedic management model lies in its structured, sequential approach: restoring digestive and metabolic capacity (Agni) and ensuring proper bowel elimination (Anulomana) before administering intensive nutritional therapies.^[1,2,1]

The clinical efficacy of classical formulations such as Vachadi Churna, Samvardhana Ghrita, and Preenana Modaka is supported by clinical trials demonstrating significant improvements in body weight, height, motor coordination, and cognitive milestones. Integrating these time-tested Ayurvedic metabolic therapies with modern nutritional standards offers a comprehensive, culturally acceptable, and highly sustainable framework for pediatric

nutritional rehabilitation, ensuring optimal physical, immunological, and cognitive development in children.

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