

## A REVIEW ON “FAILURE TO THRIVE” AS PER ASPECTS OF AYURVEDA

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**ABSTRACT**

Nutrition is a major concern for mankind. To cope up the need of all physiological functions of human body, an uninterrupted supply of food in nutrition channel is must until death. Nutrition becomes more essential and subject of concern for infant and children during period of their growth and development. Failure to thrive (FTT) is a condition where the growth of the child is much below the expected for that age or the child loses weight significantly over a short period of time. This term is used only for children up to 5 years of age. It is not a diagnosis but a term which is used to describe persistent weight loss, failure to gain weight (static weight) or fall in the rate of growth from the child's normal percentile. Child usually weighs below 3<sup>rd</sup> or 5<sup>th</sup> percentile, or the weight may decrease from 75<sup>th</sup> percentile to 2<sup>th</sup> percentile in a short time. With the concern of Ayurveda, FTT could be considered with the inclusion of the conditions like *Karshya*, *Balashosha*, *Phakka*, *Parigarbhika*, *Sushka Revati*, *Aptarpanjanya Vyadhi* from the *Ayurvedic Samhitas*. So in this article we will consider the ayurvedic perspective of FTT.

**KEYWORDS:** Failure to Thrive, *Karshya*, *Phakka*, *Parigarbhika*, *Baalshosha*.**INTRODUCTION**

Failure to thrive (FTT), more recently known as faltering weight or weight faltering, is a term used in pediatric and adult medicine, (where it is also referred to as ill thrift), to indicate insufficient weight gain or inappropriate weight loss. When not more precisely defined, the term refers to pediatric patients. In children, it is usually defined in terms of weight and can be evaluated either by a low weight for the child's age, or by a low rate of increase in the weight.

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According to National Family Health Survey (NFHS)-3, carried out in 2005-06, 40% of India's children under the age of three are underweight, 45% are stunted and 23% are wasted. In worldwide contemplation also India is one of the highest ranking countries in the world for number of children suffering from malnutrition as per the estimation of World Bank. Also for prevalence of underweight children, India stands at the highest in the World with direct consequences for morbidity, mobility, productivity and economic growth. Hence effective management and positive outcome of medical condition like malnutrition becomes prime concern for the nation as well as the world.

**AIMS AND OBJECTIVES**

- 1) To review and evaluate the importance of failure to thrive as per the aspects of *Ayurveda*.
- 2) To discuss the scientific background of failure to thrive as mentioned in *ayurvedic samhitas*.

**MATERIALS AND METHODS**

Data and information collected from different personnel practicing the pediatric care in different parts of the country, references from the different kinds of journals, articles, papers and websites, research papers, dissertations and thesis from different institutes. Reference and text books on pediatrics and neonatology,

*Ayurveda Samhitas* and related texts, news papers and other electronic media sources.

### FAILURE TO THRIVE

*Ayurveda* considers both the variety of malnutrition i.e., over lean (*Atikrusha*) as well as over obese (*Atisthula*) persons as eight despicable persons (*Ashtau-Ninditiya Purusha*) in whom, management is said to be difficult. and also considered as *apatarpanjanya vyadhi*. *Karshya* is disease a similar to undernutrition. Similarly, disease such as *Parigarbhika*, *Phakka*, *Balashosha*, and *Shuska Revati* describe by various author of *Ayurveda* can also co-related to Undernutrition based on the clinical features these diseases related to each other.

Traditionally, causes of FTT have been divided into endogenous and exogenous causes. Initial investigation should consider physical causes, calorie intake, and psychosocial assessment.

### Endogenous (or "organic")

Causes are due to physical or mental issues with the child itself. It can include various inborn errors of metabolism. Problems with the gastrointestinal system such as gas and acid reflux are painful conditions which may make the child unwilling to take in sufficient nutrition. Cystic fibrosis, diarrhea, liver disease, and coeliac disease make it more difficult for the body to absorb nutrition. Other causes include physical deformities such as cleft palate and tongue tie. Milk allergies can cause endogenous FTT. Also the metabolism may be raised by parasites, asthma, urinary tract infections and other fever-inducing infections, or heart disease so that it becomes difficult to get in sufficient calories to meet the higher caloric demands.

### Exogenous (or "nonorganic")

Caused by caregiver's actions. Examples include physical inability to produce enough breastmilk, using only babies' cues to regulate breastfeeding so as to not offer a sufficient number of feeds (sleepy baby syndrome), inability to procure formula when needed, purposely limiting total caloric intake (often for what the caregiver views as a more aesthetically pleasing child), and not offering sufficient age-appropriate solid foods for babies and toddlers over the age of six months. A recent study on toddlers with exogenous FTT has found preliminary evidence suggesting that difficulty experienced during feeding times with this condition may in fact be impacted by preexisting sensory processing problems. Such difficulties with sensory processing are more commonly observed in toddlers who have a history of growth deficiency and feeding problems; however, further research is required in order to determine a causal relationship between sensory processing problems and nonorganic FTT. In developing countries, conflict settings and protracted emergencies, exogenous faltering may be caused by chronic food

insecurity, lack of nutritional awareness, and other factors beyond the caregiver's control.

### Mixed

However, to think of the terms as dichotomous can be misleading, since both endogenous and exogenous factors may co-exist. For instance a child who is not getting sufficient nutrition may act content so that caregivers do not offer feedings of sufficient frequency or volume, and a child with severe acid reflux who appears to be in pain while eating may make a caregiver hesitant to offer sufficient feedings.

### Treatment guideline for PEM mainly consists following points.

1. General principles for routine care i.e. to treat / prevent hypoglycemia etc associated conditions; and to treat / prevent infection
2. To correct micronutrient deficiencies and starting cautious feeding (nutritional support)
3. Treatment of SAM (Severe Acute Malnutrition) and its complication (eg. shock).

Food (*Aahara*) is one of the three sub-pillars of life as per Ayurvedic classics and it is also regarded as best Medicine as per *Acharya Kashyapa*. *Kaumarabhritya Tantra* is a specialty of Ayurveda science dealing mainly with the care of child and treatment of childhood disorders starting from newborn to age of sixteen. Here due emphasize is given to nutritional aspect of child starting from first day of life. Coming to similar disease entities in Ayurveda, these are compiled and drawn in Table-1 along with their descriptions and similarities with current nomenclatures. Treatment mentioned in classics for those conditions are described in Table-2.

**Table. 1: Disease conditions showing resemblance to PEM.**

Sr. No.	Name of Condition	Lakshana of the mentioned disease	Similar associated symptoms in modern medicine / modern terminology for the disease
1	<i>Karshya</i>	Emaciated buttocks, abdomen and neck; a vascular network is visible on skin with prominent joints. Person appears to have skin and bones only.	Emaciation/ Severe Emaciation/ FTT (Failure to thrive) ? Marasmas (PEM)
2	<i>Balashosha</i>	Suffers from lack of appetite, recurrent respiratory infections, cough, fever, gradually body gets emaciated, pallor of face and eyes (Undernutritional state of child due to excess Kapha in body)	Emaciation ? Marasmas (PEM)
3	<i>Phakka</i>	<i>Phakka</i> - A condition when a child is unable to walk by his own at completion of 1 year age is grossly diagnosed as <i>Phakka</i> .	Delayed development (motor) / Motor developmental delay
		<i>A. Ksheeraja Phakka</i> It caused by milk vitiated by breast milk due to <i>Kapha, Pitta, Vata</i> or <i>Tridosha</i> .	? Marasmas (PEM) / ? Severe PEM leading global developmental delay
		<i>B. Garbhaja Phakka</i> It occurs in a condition where mother whose baby is still on exclusive breastfeeding conceives again. (deficient breast feeding)	Emaciation / Stunted growth / FTT (Failure to thrive) / ? Severe PEM leading global developmental delay leading to death
		<i>C. Vyadhija Phakka</i> It is caused by chronic illnesses and unhygienic conditions. It manifests as severe form of malnutrition with clinical features such as wasting of buttocks, thighs and upper limbs, pot belly, big head appearance, inability to walk etc	severe malnutrition / severe acute malnutrition (SAM) / Severe PEM
4	<i>Parigarbhika</i>	loss of appetite (anorexia), vomiting, lethargy, emaciation, loss of interest in food, vertigo / giddiness and abdominal distension, [specifically it occurs to the baby fed by (qualitatively or / and quantitatively insufficient) breast milk of pregnant mother]	? Marasmas (PEM) / Severe PEM
5	<i>Sushka Revati</i>	progressive emaciation of all body parts, (one type of <i>Balagraha / Graharoga</i> )	severe acute malnutrition (SAM) / Severe PEM / ? severe Marasmas
6	<i>Aptarpanjanya Vyadhi</i>	Progressive decrease in digestion, complexion, muscle and strength associated with other diseases specially <i>Vata</i> disorders (pain, constipation, urine retention etc)	Emaciating disorders / ? FTT (Failure to thrive) in children

**Table. 2: Similar disease conditions and their treatment.**

Sr. No.	Name of condition	Treatment <i>siddhantas as per ayurveda</i>	Probable understanding behind treatment principle
1	<i>Karshya</i>	Light and nourishing diet	Nourishing diet and conduct
2	<i>Balashosha</i>	-Different formulas mainly in <i>Ghrita</i> form or powder form with <i>Anupana</i> of <i>Ghrita</i> and/or honey - <i>Abhyanga</i>	Herbs with digestive and anabolic properties
3	<i>Phakka</i>	- <i>Snehana</i> with <i>Kalyanaka Ghrita</i> etc medicated <i>Ghrita</i> followed by <i>Shodhana</i> therapy - <i>Brahmi Ghrita</i> as internal medication - <i>Abhyanga, Basti</i> etc according to disease and <i>Dosha</i> condition -Physiotherapy: use of tricycle for assisting the practice of walking	Purification by <i>Virechana</i> , to rejuvenate physiology of digestion that may help for better result of internal medication
4	<i>Parigarbhika</i>	- <i>Agnideepan</i> is advised as main line of treatment -Use of of <i>Ghrita</i> made of digestive and carminatives herbs	Aim should be to bring <i>Agni</i> to normalcy (correction of digestion and appetite).
5	<i>Sushka Revati</i>	- Treatment with medicated <i>Ghrita</i> with digestive and <i>Rasayana</i> properties must be along with - <i>Daiva Vyapashryaya Chikitsa</i>	-measures for personal hygiene -fumigation, <i>Abhyanga</i> , bath etc - measures to treat and stop spread of infection - assisted psychotherapy and counseling
6	<i>Aptarpanjanya Vyadhi</i>	<i>Santarpana / Brimhana</i>	Nourishing diet and conduct

*Ayurvedic* treatment found for those similar conditions broadly covers internal as well as external medicaments. These all treatment modalities are aimed to have anabolic effect (*Brimhana*) on child along with required correction of digestion.

## MANAGEMENT

The management protocols are following

1. Avoidance of etiological factors because this *Nidana Parivarjana* has two fold benefits.

2. *Samshodhana* (Purification therapy), *Samshamana chikitsiya* (Conservative therapy), along with diet and lifestyle are helpful in preventing controlling as well as eradication of the *Karshiya*.

3. It is a *Agnimandya* disorders that's why principles of treatment shall be on the lines of *Agnidipana*, *Brimhana*, *Dhatusara vardhana*.

4. *Acharya Charaka* has been described the line of treatment of *Karshya* through diet management e.g. Light and nourishing diet is prescribed for the nourishment of the *Karshya* patients.<sup>25</sup> In case of an emaciated person, light and nourishing diet (like old *shali* rice) should be given so as to bring about proper nourishment in them. Such diets being light serve as stimulants of digestive power and bring about nourishment due to their nutritive property. Sleep, joy, comfortable bed, contentment, tranquility of mind, abstinence from anxiety and physical exercise, pleasant sights, intake of freshly harvested rice, fresh wine, meat soup of domestic, marshy and aquatic animals, well prepared meat, curd, ghee, milk sugarcane, *shali* rice, Phaseolus radiates, wheat, sweet preparations, enema consisting of unctuous and sweet herbs, regular oil massage, use of scents and garlands, use of white apparel, elimination of *doshas* in time and administration of rejuvenating and *Brinhana* (nutritive) drugs cure as well as prevent of emaciation and nourish to the child.

5. Absorption and digestion of food items mainly depend on liver function and in some case of malnutrition liver functions reduced, so in such condition liver function boosting medicine play a major role for increase appetite and absorption some examples of liver boosting herbs such as.

***Cichorium intybus***: Traditionally used for hepatic conditions and liver rejuvenation.

***Boerhaavia diffusa***: For hepatic disorders and for poor digestions of food.

***Picrorhiz kurroa***: Traditionally in *Ayurveda* for centuries as a general liver tonic.

***Phyllanthus niruri***: The fresh root is traditionally given in jaundice and a liver for rejuvenating from.

6. ***Brumhana* therapy**: In case of malnutrition *brumhana* therapy may be more effectively because *Karshya* is a *Apatarpana Janya Vyadhi* and *brumhana dravya* promotes healthy growth of *Dhatus*, particularly *Kapha* (type of biohumor), *Mamsa* (muscles) and *Meda* (fat) leading to proper development and enhancement of different body parts.

7. ***Samsoshodhan* therapy**: According to *Ayurvedic* texts *Vata Dosha* being a prime responsible factor along with *Agni* in the pathogenesis of *Karshya* disease,<sup>27-28</sup> that's why *Basti Karma* is choice of *Panchkarma* procedures in malnourished children.

8. **Immune therapy**: Malnourished children more prone to infection due to poor immune function, most common site of infection are the skin, the alimentary tract, the respiratory tract and the urinary tract.<sup>29</sup> Hence in such condition immunotherapy play a major role for protect the child from serious infection which may be fulminant when hypoglycemia and hypothermia associated with infection. In *Ayurvedic* texts, various *Acharayas* described countless useful *dravya*, formulations (yogas), mode of conducts for enhance immunity (*bala or vyadhikshmatva*). Some examples are:

- ***Lehana karma***: The *lehana karma* a play major role in enhance immune function of malnourished child due to its properties of enhances growth & development by providing sufficient nutrition, promote health, complexion and strength (immunity) and protect from various infections.<sup>30</sup>

- ***Swarna Prasana***: It is a type of *Samskara* which play a major role for an ancient technique to modulate the immunity and improve quality of life. One pharmacoclinical study, done on the *Madhu Ghrita-Swarna-Vacha* combination given to neonates showed a significant effect of humoral antibody formation and it acted on immunological system, which was evident by triggering the response of immunological system arise in the total protein and serum IgG level.<sup>31</sup>

- ***Rasayana* therapy**: *Rasayana* therapy also immune booster due to proper uptake, growth and improvement of essential *saptadhatus* (seven vital tissues). Some examples are: Immuno stimulatory effect of *Curculigo orchioides*,<sup>32</sup> macrophage activation property of *Tinospora cordifolia*,<sup>33</sup> effect of some Indian herbs (*Asparagus racemosus*, *Tinospora cordifolia*, *Withania somnifera* and *Picrorhiza kurroa*) on macrophage functions in mice,<sup>34</sup> immune protection by *Withania somnifera*, *Tinospora cordifolia* and *Asparagus racemosus* during cancer chemotherapy.

## CONCLUSION

*Ayurveda*, the Indian System of Medicine, has been in vogue from times immemorial to impart natural healing for various ailments. The system was nurtured by ancient scholars on the basis of sound underlying philosophy,



oriental methodology and practices prevalent in that era. This system is believed to be quite safe and free from side effects as it is more close to nature. In the developing countries malnutrition (*Karshya*) is a major problem in children. This problem is mainly related to improper uptake, digestion and absorption of various Vitamins, minerals and trace elements in growing children. *Ayurveda* suggest balance (Daily diet should include all components of diet; protein, fat, carbohydrates and minerals.) intake of *Aahar* to fulfill the various nutritional requirements of body which are essential for proper growth and development of children along with enhance immune function in early age.

## REFERENCES

- Gangnolati M, Meera S, Das Gupta M. India s undernourished children: A call for reform and action. World Bank, 2005; 7.
- Sharma PV Agnivesha, Charaka Samhita., Reprint edition, part 1, Chaukhamba Orientalia Varanasi, Sutrasthana, 2011; 11/35: 75.
- Caraka Samhita of Agnivesa, Revised by Caraka and Drdhabal with elaborated vidyotini Hindi commentary by Pt. Sastri Kasinatha & Chaturvedi Gorakhanatha, edited by Pt. Rajeswara Datta Sastri, Chaukhambha Bharti Academy, Varanasi, Reprint, 2007; 2: 452-453.
- Singhal GD & Colleagues, Sushruta, Sushruta Samhita second edition 2007, Chaukhambha Sanskrit Pratishthan Dehli, sutrasthana, 15/33; 138-139.
- Vridhha Vagbhat. Ashtanga sangraha Shashilekha Sanskrita Commentary by indu Prologue in Sanskrita and English by prof. mitra Jyotir, edited bysharma Shivprashada 1<sup>st</sup> Varanasi Chaukhambha, Sanskrita Series, 2006; 643.
- Kashyapa. Kashyapa Samhita with Vidyotini Hindi commentary and Hindi translation of Sanskrit introduction by Ayurvedalankar Bhisagacharya Shri Satyapal, 10th ed. Varanasi. Chaukhambha Sanskrita Samsthana Charu printers, 2005; 140.
- Agnivesha. Charaka Samhita, Ayurveda dipika Ayushi Hindi commentary. 1<sup>st</sup> ed. Varanasi. Chaukhambha orientalia, 2005; 63.
- Agnivesha. Charaka Samhita, Ayurveda dipika Ayushi Hindi commentary. 1<sup>st</sup> ed. Varanasi. Chaukhambha orientalia, 2005; 830.
- Kashyapa. Kashyapa Samhita with Vidyotini Hindi commentary and Hindi translation of Sanskrit introduction by Ayurvedalankar Bhisagacharya Shri Satyapal, 10th ed. Varanasi. Chaukhambha Sanskrita Samsthana Charu printers, 2005; 140.
- Vridhha Vagbhat. Ashtanga sangraha Shashilekha Sanskrita commentary by Indu, Prologue in sanskrita and English by Prof. Mitra Jyotir, Edited by Sharma Shivprashada. 1st ed. Varanasi.
- WHO. Nutrition through-out life. 4<sup>th</sup> Report on the world nutrition situation. Geneva; ACC/SCN. 2000.
- WHO. Global data base on child growth and malnutrition. Geneva: World Health Organization; 1997. Available from: <http://www.who.int/nutgrowthdh>.
- Paul VK, Bagga A. Ghai Essential Pediatrics. Nutrition. 8<sup>th</sup> ed. New Delhi: CBS Publishers, 2013; 95.
- Water low JC. Protein Energy malnutrition. 2<sup>nd</sup> ed. London: 1992 Hodder & Stouton.
- UNICEF. The state of the world's children. Adolescence: Children with disabilities. 2013. [Last retrieved on 2013 Aug 10]. Available from: <http://www.unicef.org/sowc2011/>
- Park K. Parks Textbook of Preventive and Social Medicine. Nutrition and health. 19th ed. Jabalpur: Banarsidas Bhanot, 2007; 507.
- Tomkins A, Watson F. Malnutrition and Infection - A Review – Nutrition Policy Discussion Paper No. 5. United Nations - Administrative Committee on Coordination - Subcommitee on Nutrition, 1989.
- Nutritional Deficiency Disorders In Paediatrics: An Ayurvedic Perspective Dr. Kapil R. Chavan. Dr. Jagruti Kharatmal Aayushi International Interdisciplinary Research Journal (AIIRJ).
- Review on etiology and management of karshya (malnutrition) in children Mukesh Kumar Meena \* Senior Consultant at M.S. Regional Ayurveda Research Institute for Endocrine Disorders (RARIED), Jaipur, Rajasthan, India. [www.ijrap.net](http://www.ijrap.net)
- A review on role of digestive component i.e. agni in the management of pem (protein-energy malnutrition) in children Apexa G. Vyas Associate Professor, Dept of Kaumarbhritya, J S Ayurved Mahavidyalaya, Nadiad – 387001, Gujarat – India International Ayurvedic Medical Journal, (ISSN: 2320 5091), June, 2017; 5(6).