

**AROGYAM BHOJANADHEENAM AND IMMUNITY IN CHILDREN: A CRITICAL  
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**ABSTRACT**

India being a developing country didn't succeed in reducing Under Five Mortality Rate by 2/3rd till the year 2015. Infections remain a major cause of death upto five years of age. Preventing and Fighting infection pose a great challenge to the medical fraternity. Apart from the use of vaccines and antibiotics to deal with infections, a strong immune mechanism in children is required for laying foundation of good health and promotion of growth and development. This defence mechanism is termed as Vyadhikshamatwa or Bala in Ayurveda texts. And, it can be achieved with the help of healthy food practices. Hence food is considered as one of the three pillars of life. Acharya Kashyapa, the father of Ayurvedic Paediatrics, emphasises food as the secret to good health and the best medicine.

**KEYWORDS:** Ayurveda, Vyadhikshamatwa, Bala, Ahara, Kashyapa.**INTRODUCTION**

India has shown an impressive decline of 9% in Under Five Mortality Rate (U5MR), a 4 point decrease from 43/1000 in 2015 to 39/1000 in 2016. Still India lags behind in achieving the targets.<sup>[1]</sup> U5MR is technically not a rate. It is the probability of dying between birth and fifth birthday.<sup>[2]</sup> But U5MR is a good indicator of child health and overall development in countries.<sup>[3]</sup> WHO enlists malnutrition as well as over nutrition along with preterm complications, birth asphyxia and infections such as pneumonia, diarrhoea and malaria as leading causes of U5MR. Nutrition related factors contribute to about 45% of deaths in children upto five years of age. Infections too contribute as a major cause of U5MR.

Malnutrition as well as over nutrition affect immunity adversely making nutrition and immunity interdependent. There exist a vicious cycle between malnutrition and infection. Any infection leads to appetite and nutrients loss which result in malabsorption and altered metabolism. This in turn causes malnutrition, weight loss and lowered immunity, making the child prone to infections. Therefore malnutrition shouldn't be considered as energy and protein deficiency alone.

Ayurvedic texts are full of elaborate sections on Aahara i. e. Food. Aahara is one of the three pillars of life according to Ayurveda, the other two being sleep and sexual life regulations.<sup>[5]</sup> The edible material which is ingested through mouth into the gut, after digestion gets

transformed into sapta dhatus (tissue elements). It also perform functions such as promotion of growth, recovery due to losses and protection from diseases for survival. This is termed as Aahara.<sup>[6]</sup> Acharya Charaka says food is the creator of human body as well as diseases.<sup>[7]</sup>

The reason after giving so much importance to Aahara can be understood from achievement of defence against diseases. Diet is not only the source of energy for performing body functions but also of building up body's defence mechanism. This mechanism known as *Vyadhikshamatwa or Bala* is responsible for prevention of diseases as well as fight against the manifesting disease. This mechanism varies from individual to individual.<sup>[8]</sup>

According to Ayurveda fundamentals food is transformed into 'Aahar Rasa' which in turn forms seven dhatus and at the end of metabolism get transformed into Ojas. Susruta states that the best extracts of all dhatus is Oja and Oja itself is Bala.<sup>[9]</sup> Bala is generally used as a synonym for Vyadhikshamatwa. So, Oja is considered to be the seat of immunity and good health. Thus the quality of food consumed is directly related to quality of body tissue formation and functions as well as Oja production.<sup>[10]</sup> This clarifies the connection between diet consumed and immunity produced.

**AIM:** The present article aims to explore the role of diet in improving immunity.

**OBJECTIVE:** 1) To elaborate Kashyapa's concept 'Arogyam Bhojanadheenam'.

2) To understand the need and importance of application of Ayurvedic dietary principles in improving child immunity for future health.

## METHODS

A detailed review of basic texts of Ayurveda, specially Kashyap samhita was done. Different studies, journals, published research works and health news bulletins were reviewed for literature search and the discussion was framed.

## RESULT AND DISCUSSION

Ayurveda has very well emphasized various aspects that contribute in getting the best outcome from food under the term "Aahar Vidhi Vishesh Aaytan" which can be termed as dietary principles. These principles have a very broad spectrum. These range from the place of food production to place of its consumption. In between these two lies numerous factors like classification of food according to its taste, therapeutic qualities, usefulness to an individual body type, season, human body's good and ill health conditions, different incompatibilities of food based on processing, quantity, combinations, time, place, and way of consumption and so on.<sup>[11]</sup> These factors definitely affect the chemical composition and metabolism of food and quality of Aahar rasa. These vast specifications about food and its way of consumption indicate the availability of in depth knowledge about food and its connection to immunity, in ancient times.

Modern studies also suggest that immune function is highly dependent on the nutritional status of an individual.<sup>[12]</sup> The immune system is exquisitely sensitive to environmental changes. Diet is one of the major environmental factor that exert a crucial effect on development and function of immune system and greatly influence health and disease.<sup>[13]</sup>

The development of immune system starts right before birth as maternal nutrition plays an essential role in fetal health and development. In-utero exposure to nutrients is important in fetal immune development and in programming the susceptibility to allergic conditions.<sup>[14]</sup> This can explain why the Ayurveda texts have designed a framework for antenatal care of mother which give directions about do's and don'ts in diet and daily routine of mother to achieve healthy progeny. These are described under the head "Garbhini Paricharya."<sup>[15]</sup>

To develop healthy immune system, a healthy gut microbiota is necessary in early life and it is directly linked to nutrition.<sup>[16]</sup> At birth innate immunity is muted to accept maternal antigens and tolerate changes due to development. Therefore neonates are susceptible to infections.<sup>[17]</sup> Human milk contains numerous immune factors working for optimizing immune system and protect the infant from infections and help in prevention of allergic diseases.<sup>[18]</sup> Therefore exclusive breastfeeding

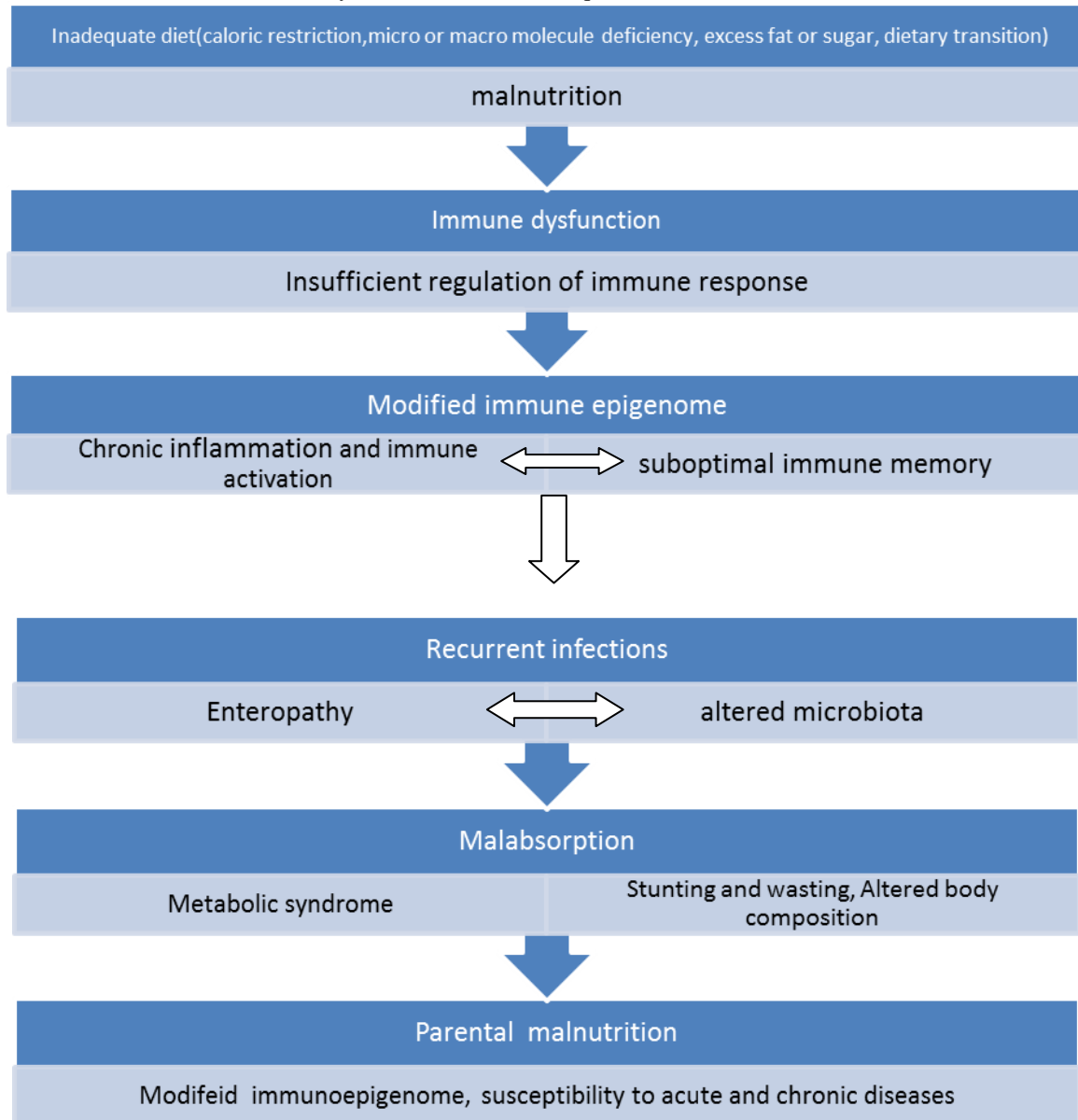
for six months is recommended for babies. Ayurveda specifies diet and routine to be followed by the mother during post natal period, too, in the name of "Sutika Paricharya." The nutrition of mother is responsible for fetal as well as newborn nutrition which in turn is the source to immune supplements. Thus it seems that during this phase also, Ayurveda dietary principles might help maternal as well as child immunity.

Early weaning has not been advised in Ayurveda. Rather it instructs introduction of food to a child at a particular age as "Annaprashan Sanskar." Kashyapa advise introduction of fruit juice prior to food as "Phalaprashan."<sup>[19]</sup> Fruit juices contain variety of polyphenols. Studies have evidenced that dietary polyphenols help in maintenance of intestinal health by preserving the gut microbial balance through stimulation of beneficial bacteria and inhibition of harmful ones and exert the effects of prebiotics.<sup>[20]</sup> Hence Phalaprashan might be serving the required need of gut microbiota development prior to introduction of food.

Children are born with immature immune system which matures and take shape as he/she grows along with exposure to foreign challenges.<sup>[21]</sup> Childhood require a lot of energy for rapid somatic growth and development and to stay away from diseases. All the micro and macronutrients needed to maintain good immunity come from food. But these nutrients should come in a steady supply because malnutrition as well as over nutrition affects immune system adversely. Deficient or excess nutrients disturbs immune homeostasis and cause immune dysfunction leading to changes in immune epigenome.(as shown in flow chart).

Considering the changes in immune epigenome, the double burden of under nutrition and over nutrition in developing countries is a public health challenge and need an intervention. Under nutrition make children prone to communicable diseases whereas overnutrition make them prone to non communicable diseases and degenerative changes. This calls for a closer and deeper look into role of Ayurveda dietary fundamentals in preventing these diseases.

**Flow chart:** Malnutrition and Immunity, connection and consequences.



Source: Trends Immunol. 2016 Jun; 37(6): 386–398. PMID: 27237815

Nutrition transition is the study of dynamic shifts in dietary intake and physical activity patterns and trends in obesity and diet related non communicable diseases. Nutrition transition, explained by Prof. Bary Popkin is one more factor that affect immune system. It is also fuelling the epidemic of chronic diseases.<sup>[22]</sup> Nutritional patterns collectively known as “Western diet” include high fat, high protein, high sugar and excess salt intake and low fibre. Glucose decreases phagocytic activity. High sugar also raise insulin levels immediately which depresses immune system and promote storage of fat.<sup>[23]</sup> Frequent consumption of such processed and fast foods promote obesity, metabolic and cardiovascular diseases.<sup>[24]</sup>

Looking at the interaction of food with immune system at various levels resulting in immune epigenome changes

and emergence of various diseases, there seems to be an urgent need to understand the role of Ayurveda dietary Fundamentals in prevention as well as management of diseases.

Ayurveda principles state that food should vary with individual with different body type keeping in mind concepts like Prakriti, Karan, Rashi, Desha, Kala, Agni, Aama, Pathya, Viruddha aahar etc.<sup>[25]</sup> There are again variations in diet as per seasonal changes. Acharya Kashyapa advise selection of food according to different geographical regions.<sup>[26]</sup> The concept is further elaborated by balanced use of food items with sweet, sour, bitter or salty taste to attain good health. Excess or less of any one type of these tastes is said to produce diseases by vitiation of doshas. Also practice of particularly any one type leads to loss of strength.<sup>[27]</sup>

The quantity of food, the way of taking meals, hot or cold food, time of consumption, pace of eating, mental state of individual, happy or sad mood, stress, position of body during meals, contraindicated food combinations, time and quantity of drinking water during meals all are discussed thoroughly in Ayurvedic texts.

These specifications about food and its effects throw light on the fact that in ancient times a lot was known regarding the connection between food and immunity. Specially, Acharya Kashyapa, the master of Ayurveda pediatrics, states that unperturbed growth of children can be achieved with the help of these dietary principles and many non communicable and chronic diseases can be prevented.

### CONCLUSION

Finding relationship between nutrition and immunity is modern medicine's one of the most hot and current problems. Use of molecular and genetic technologies reveal that nutrients affect certain innate and/or acquired immune functions. Nutritional research have shown the possibilities of prevention of acute and chronic diseases with the help of diet modifications. The aim of nourishment should not be only to gain energy and protein, but to turn the immune response in an individual's best interest. Ayurvedic dietary principles hold a promising arsenal for their successful practical application in maintaining present and future generation's health. The process starts right before conception with preconceptional preparation and Garbhini paricharya followed by Sutika Paricharya as instructed by Ayurveda. Therefore Ayurveda's concise but broad spectrum statements "Aaharo hi Mahabhaishajyam" and "Aarogyam Bhojanadheenam" seems to be true in modern era. Thus children must be caught young and one must make conscious decisions regarding their dietary habits. This could serve the primary aim of Ayurveda of preservation of good health by boosting immunity. Trans-disciplinary research about food as preventive medicine is equally important in finding practical solutions for contemporary health conditions.

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