



## Review Article

www.ijrap.net

(ISSN Online:2229-3566, ISSN Print:2277-4343)



### A REVIEW ON AYURVEDIC APPROACHES TO STRENGTHENING PEDIATRIC IMMUNITY: A HOLISTIC PERSPECTIVE

Ankita <sup>1\*</sup>, Shrinidhi Kumar K. <sup>2</sup>

<sup>1</sup> PG Scholar, Department of Kaumarbhritya, National Institute of Ayurveda (Deemed to be University), Jaipur, Rajasthan, India

<sup>2</sup> Professor, Department of Kaumarbhritya, National Institute of Ayurveda (Deemed to be University), Jaipur, Rajasthan, India

Received on: 03/11/25 Accepted on: 23/12/25

#### \*Corresponding author

E-mail: silluankita@gmail.com

DOI: 10.7897/2277-4343.17124

#### ABSTRACT

The early years of life are crucial for the development of a strong immune system; however, children today frequently experience recurrent infections, nutritional deficiencies, and environmental stressors that compromise immunity. Ayurveda, the ancient Indian system of medicine, emphasizes a holistic approach to strengthening immunity (Bala) through diet (Ahara), lifestyle practices (Dinacharya), rejuvenative therapies (Rasayana), immunomodulatory formulations such as Suvarna Prashana and Prakarayogas, along with Yoga. This review explores Ayurvedic strategies for enhancing pediatric immunity and their relevance in modern healthcare. Data were collected from Medline and PubMed, research articles, online pediatric publications, and classical Ayurvedic texts. The findings indicate that Ayurvedic interventions including Suvarna Prashana, Prakarayogas, and daily regimens such as Abhyanga, nasal drops, and age-appropriate Yoga demonstrate positive outcomes in improving immunity and overall wellbeing. Additionally, herbs like Guduchi, Shankhpushpi, and Mandukparni exhibit immunomodulatory, antioxidant, and adaptogenic properties. Overall, Ayurveda offers a safe, natural, and preventive model for strengthening pediatric immunity, highlighting its potential as a complementary approach to conventional care for promoting long-term health and disease prevention in children.

**Keywords:** Ayurveda, Pediatric immunity, Suvarna Prashana, Prakarayoga and Rasayana.

#### INTRODUCTION

The immune system plays a vital role in protecting the body against infections and diseases, and in children, it is particularly important as their immune defenses are still developing. During the early years of life, children are more vulnerable to infections due to their immature immune responses. This period is crucial for building a strong foundation for long-term health through proper nutrition, timely vaccinations, and healthy environmental exposures. Factors such as breastfeeding, adequate sleep, physical activity, and minimal exposure to environmental toxins significantly contribute to the development of a robust immune system.

Immunity in Ayurveda is called "Bala" (strength), "Vyadhi Kshamatva" (disease resistance), and is intimately associated with Dhatu Sarata (tissue quality), Agni (digestive fire), and Ojas. There is three type of Bala-Sahaja Bala – Inborn immunity (genetic or constitutional). Kalaja Bala – Time/age-based immunity (develops with age and seasonal changes). Yuktikruta Bala – Acquired immunity (through proper nutrition, herbs, lifestyle, and Rasayana therapy).

Chakrapanidatta expounds it as "Vyadhiksamatvam Vyadhibala Virodhitvam Vyadyutpada Pratibandhakatvam Iti Yavat" i.e., The ability to prevent the unmanifested disease and attenuate the manifested one are both components of an individual's resistance to disease.<sup>1</sup>

According to Chakrapanidatta, Ojas is the essence of all Dhatus, or Sara. It has a direct connection to physical strength. Ojas,

immunity is therefore also reliant. Another name for it is an Uttamapranayathana, which means "best seat of life." It has been noted that in illnesses when there is significant tissue loss, strength, immunity, and Ojas are similarly affected.<sup>2</sup>

Ojas, the Sara (essence) of all the dhatus, is found in the heart. It permeates the entire body and governs how it functions. It is clear (transparent), Snigdha (unctuous), Raktamishat Spitkam (little reddish yellow in color), and Somatmaka (preponderant in watery primary). Oja is the cause of various bodily conditions and bodily functions. By its loss (destruction, absence) death will occur and by its presence the body (and life) sure to survive. Oja is the cause of various bodily conditions and bodily functions.<sup>3</sup>

Several measures are considered to enhance the immunity in children through diet (Ahara), lifestyle (Dinacharya and Ritucharya), rejuvenative therapies (Rasayana), immunomodulatory formulations like Suvarna Prashana, Prakaryoga and Yoga.

A qualitative literature review was conducted using classical Ayurvedic texts (Charaka Samhita, Kashyapa Samhita, Ashtanga Hridaya) and modern research from databases such as PubMed, AYUSH Research Portal, and Google Scholar. Clinical studies, observational data, and traditional practices were analyzed to evaluate the efficacy of Ayurvedic interventions in children.

#### Ahara

In Ayurveda, children are classified into three groups as per their diet which are as follows:<sup>4</sup>

Ksheerap Awastha- up to 1 year of life consuming only breast milk.

Stanyapana is recommended by Ayurveda and is considered an Amruta for newborns. From birth to six months, the majority of Acharya told exclusive Stanyapana. Acharya Kashyapa says, "Stanyam aharashrestham balasya," which means "breast milk is the supreme food for the infant, and it supports formation of Dhatus, development of Ojas, and nourishment of sharira and manas."

Ksheerannada Awastha- up to 2 years of life along with milk child is consuming solid food.

A baby who is growing quickly requires more energy and calorie-dense food, which breast milk alone cannot provide. which could result in serious dietary issues. As a result, breast milk should initially be maintained as a primary food along with supplemental foods. After six months have passed, the Phalaprasnan and Annaprashan ceremonies should be held. Complementary foods that are easy to digest and high in nutrients (Brimhana) should be offered in a sequential order after six months, taking into consideration of baby's need, tolerance, and tooth eruption, as well as digestion (Agnibala). These foods should include fruits, liquid, semi-solid, and solid foods.<sup>5</sup>

Annada Awastha- After 2 years of life where child consumes all like adult.

This Awastha child should be switched to the cereals in their whole. Foods of all kinds, including Lehya, Peya, Bhojya, and others, can be offered at this Awastha of children's lives. As they become older, kids require meals that are high in calories and protein, like legumes, pulses, nuts, sugar, milk, eggs, and edible oil or ghee. Their daily menu should include seasonal fruits and vegetables, such as green leafy vegetables that are readily available in the area. For older kids and teenagers, oil or ghee should be ingested along with lots of milk to meet their high calcium needs. Food should be consumed in the appropriate setting, away from distractions, and with complete focus.<sup>6</sup> Incorporate Ghrita in child diet, Ghrita helps in improving memory, concentration, boosts digestion, relieves constipation, strengthens immunity, complexion, colour.<sup>7</sup>

### Dincharya

It starts from waking up in early morning Bramhamuhurata i.e., 1.5 hours before sunrise. "Brahme muhurte uttishet swastho rakshaarthamayushah |" (A.H.Su.2/1). Those who want to maintain their longevity and well-being should rise early in the morning in Brahmamuhurta.<sup>8</sup> This time is favourable for reading as calm and environment helps for easy grasping of any knowledge.<sup>9</sup>

Shauchkarma involves defecation at proper time which increases a child's Jatharagni and avoids symptoms like constipation and foul-smelling flatus.<sup>10</sup>

Dantadhavan means cleaning the teeth. It stimulates taste perception and increases the salivation. Powder of Kashtha, Trikatu, Triphala and Trijatak mixed with honey should be massaged on gum.<sup>11</sup> Akshiprakshalan and Achamana should be done with milk, gulabjal or water. As it will give soothing effect to eyes.

Several pediatric illnesses can be effectively treated with the use of oil massage. By strengthening the nerve system, Abhyanga's calming and relaxing effects can aid kids with sleep issues and

lower tension and anxiety. Regular practice can help promoting immune system.

Nasya is the process of administering medication by the nose, which can be in the form of smoke, ghee, oil, powder, or liquid. Children experiencing headaches, neck pain, and other issues as a result of the constant online classes. Pratimarsha Nasya, which is advised for regular use, aids in the prevention of head, neck and also respiratory disorders.<sup>12</sup>

Acharya's have mentioned that one should take bath early in the morning. According to Acharya Charak, Snana act as a purifying, prolongs life and promotes strength and endurance in body.<sup>13</sup> Children should be bathed every day to be clean and odor-free as well as to stay fit and healthy.

Introduction of Shadarasa (Madhura, Amla, Lavana, Katu, Tikta and Kashaya) is emphasized.

### Ritucharya

Ritucharya, which modifies lifestyle in accordance with the seasons, is seen as a seasonal adaptation since Ayurveda acknowledges the influence of seasonal variations on immunity. The environment in which we live is clearly changing as the seasons change. The external environment has a significant impact on the body because humans are a part of the same ecology. Numerous external and endogenous rhythms interact and synchronize with one another due to their distinct phase relationships. Dosh Vaishamya may result from the body's inability to adapt to stressors because of seasonal variations in particular characteristics, making the body more vulnerable to one or more illnesses. Understanding Ritucharya, or the regimen for different seasons, is crucial since adapting to changes is the key to survival.<sup>14</sup>

The year is divided into 2 Kaal (time periods) i.e., Uttarayana and Dakshinayana, each formed of three Ritu or season. Doshas exhibit three different types of responses, including accumulation, agitation, and auto-pacification, according to various Ritu. If a Dosha that had arisen in a separate Ritu is worsened rather than pacified, it will continue to move through pathogenic phases (Shatkriyakala), leading to the development of disease.<sup>15</sup> As a result, prompt action at each step stops the illness process in its tracks and avoids the appearance of the next stage.

By understanding Ritusandhi (seasonal junction), one can progressively leave the habits of the previous Ritu and adopt the upcoming Ritu's routine, restoring the body's natural equilibrium and enhancing the immune system all year long.

### Rasyana

Acharya Sushruta described four formulations that contain Suvaran and improve children's general immunity, cognitive ability, and general growth and development. These are:

1. Suvarna Bhasma with Kushta, Vacha, Madhu and Ghrita
2. Suvarna Bhasma with the paste of Brahmi, Shankpushapi, Madhu and Ghrita
3. Suvarna Bhasma with Arakpushapi, Vacha, Madhu and Ghrita
4. Suvarna Bhasma with Kaidarya, Shweta Durva, Ghrita<sup>16</sup>

Acharya Charak mentioned four Medhya Rasyana-Mandukparni, Guduchi, Shankpushapi and Yashtimadhu. Medhya clarifies intellect by highlighting the emphasis on improving cognitive capacities. A healthy mind can positively influence the body's immune system.

### Suvarnprashan

In the Lehadhyaya of Kashyapa Samhita, Swarnaprashana is described as the first and foremost formulation. It is attributed with multiple benefits, including enhancement of intellect, digestive power, metabolism, immunity, and physical strength (Medha, Agni, and Bala Vardhanam). It is also said to promote longevity (Ayushyam), bring auspiciousness (Mangalam), and support righteousness (Punyam). Additionally, Swarnaprashana is considered rejuvenative and aphrodisiac in nature (Vrushyam), improves skin tone and complexion (Varnyam), and provides protection against harmful influences, including infections and negative forces (Grahapaham).<sup>17</sup>

Since the first year of life is thought to be the most susceptible time for infections because of the underdeveloped immune system, it can be given to children at an early age to have the immunomodulatory effect. As long as there isn't a significant sickness involved, it can even be given in cases of immunodeficiency. The following study reports provide justification for the immune system's response to gold. Pharmacological investigations revealed both specific and nonspecific immune responses, which were positively altered in mice given Swarna Bhasma. Additionally, it stimulated peritoneal macrophages, which could aid in the fight against infections.<sup>18</sup>

### Prakarayoga

Arogyakalpadruma mentions Prakarayogas as a way to prevent childhood illnesses. Vaidya Kaikkulangara Rama Varrier wrote the well-known Ayurvedic clinical pediatrics book Arogyakalpadruma in Sanskrit, which is widely used in South India. It includes a good number of straightforward medication combinations that are given to children in various age groups to protect them against a variety of common illnesses that are age-specific. The 42 chapter of Arogyakalpadruma provides a methodical explanation of the special idea of Prakarayoga. Numerous formulations have been proven to be effective in preventing illnesses and enhancing immunity.<sup>19</sup>

### Yogasana and Pranayam

Asanas that open the shoulder and chest region, such as Bhujangasana, Ushtrasana, Chakrasana, and Dhanurasana, help children become more confident and improve their body posture. Simhasana helps children with ENT disorders, stuttering, and stammering.

Pavanmuktasana relieves discomfort in the abdomen, which aids in the release of flatulence. The child is capable of developing a wide range of movements, body awareness, focus, and vital skills. Pranayam regulates and controls breathing, which promotes better sleep and increases strength, balance, and endurance. For special children, Shitali, Shitkari Pranayam helps them reach their speech milestone. Mukha Bhastrika improves comprehension and memory.<sup>20</sup>

**Table 1: Ayurvedic strategies for enhancing pediatric immunity**

Ayurvedic Component	Role in enhancing pediatric immunity
Ahara	supports Agni, Ojas, growth, and immunity.
Dincharya	promote digestion, neural balance, and immune strength.
Ritucharya	maintain Dosha equilibrium and prevent disease.
Rasayana	enhance immunity, cognition, growth, and overall vitality.
Suvarnprashana	improves Medha, Agni, Bala, and resistance to infections.
Prakarayoga	protect children from age-specific illnesses and support immunity.
Yoga and Pranayama	improve digestion, respiratory health, mental focus, and immune resilience.

### DISCUSSION

Ahara (food) is the most important aspect as food contributes to building of body cells and enables to fight off disease. Yuktikrit Bala (acquired immunity) is achieved with a proper diet. One of best way to enhance Bala and Ojas is through consuming proper food.<sup>21</sup>

Dincharya increase the health quality and prevent from the disease.

Majority of Rasayana drugs works on multiple areas and helps in achievement of vyadhikshamatwa through its dipana, pachana, medhya, antioxidant, adaptogenic, and immunomodulators properties.<sup>22</sup>

As an immunomodulator, it can be offered to children as early as one year old, when their immune systems are most vulnerable to infections due to immature immune system. Gold's immune-boosting effects are supported by the following studies. Swarna Bhasma treatment improved immunological responses, both specific and nonspecific. It also had a stimulatory effect on peritoneal macrophages, which may be helpful to fight against infections.<sup>23</sup>

The medications mentioned in Prakarayogas affect the two pillars of Vyadhikshamatwa: "Vyadhi utpadaka pratibandakatwa," which lowers the incidence of diseases, and "Vyadhibala virodhitwa,"

which lowers the severity and length of illnesses. Prakarayogas prevent morbidity in infancy because of their digestive, carminative, channel-clearing, and rasayana qualities. It is the only age-appropriate immunization technique described in Ayurveda. Giving children Prakarayoga from birth is an excellent idea since it strengthens their innate immunity, which in turn improves their quality of life.<sup>24</sup>

By giving the body vital energy, the yoga and pranayam practices complement each other to integrate many physiological and emotional functions in children. The systemic sequence of various asana can improve overall nerve function, promote healthy muscle tone, and reduce muscle tension. Thus, practicing yoga and pranayam on a regular basis can help build immunity.

### CONCLUSION

Ayurveda offers a time-tested, holistic approach to strengthening pediatric immunity by focusing on the balance of body, mind, and environment. Through practices such as proper diet (Ahara), daily routines (Dincharya), seasonal regimens (Ritucharya), herbal formulations, and nurturing therapies like Abhyanga and Nasya, Ayurveda emphasizes prevention and long-term wellness. Unlike modern medicine's focus on symptom management, Ayurveda builds resilience from within by supporting digestion, enhancing Ojas, and maintaining doshic balance from early childhood. Integrating these principles into pediatric care can provide a

natural, safe, and comprehensive way to promote healthy growth, disease resistance, and overall well-being in children.

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## Cite this article as:

Ankita and Shrinidhi Kumar K. A Review on Ayurvedic approaches to strengthening pediatric immunity: A Holistic Perspective. Int. J. Res. Ayurveda Pharm. 2026;17(1):141-144  
DOI: <http://dx.doi.org/10.7897/2277-4343.17124>

Source of support: Nil, Conflict of interest: None Declared

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