

## EXPLORING PEYA KALPANA AS AN ADJUVANT THERAPY FOR DEHYDRATION: AN INTEGRATIVE AYURVEDIC PERSPECTIVE

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### ABSTRACT

Dehydration is a common clinical condition resulting from an imbalance between fluid loss and fluid intake, leading to disturbances in water and electrolyte homeostasis. It frequently occurs in conditions such as diarrhoea, fever, vomiting, excessive perspiration, and inadequate fluid consumption. *Ayurveda* emphasizes the importance of *Ahāra* (diet) as both a preventive and therapeutic measure in disease management. Among the various *Kṛtannā Kalpanā* described in *Ayurvedic* literature, *Peya Kalpanā* is regarded as a light, easily digestible, and nourishing dietary preparation suitable for individuals with impaired digestion and depleted strength. The present conceptual study aims to explore the role of *Peya Kalpana* as an adjuvant dietary intervention in the management of dehydration through an Ayurvedic and contemporary scientific perspective. Classical Ayurvedic texts describe *Peya* as beneficial in conditions such as *Jvara*, *Atisāra*, *Agnimāndya*,

and *Dhātukṣaya*, where restoration of hydration, nourishment, and digestive function is essential. Analysis of its *Rasapañcaka* reveals properties that support *Agni*, replenish bodily

fluids, and promote tissue nourishment without imposing digestive burden. From a modern nutritional viewpoint, rice-based *Peya* provides water, easily absorbable carbohydrates, and trace electrolytes that facilitate intestinal fluid absorption through sodium–glucose co-transport mechanisms, resembling the principles of oral rehydration therapy. In addition to fluid replacement, it contributes to energy restoration and gastrointestinal recovery. Thus, *Peya Kalpana* represents a simple, economical, and physiologically compatible dietary measure that can support the management of mild to moderate dehydration. The integration of classical *Ayurvedic* principles with contemporary understanding highlights its potential significance as a natural rehydrating and restorative intervention.

**KEYWORDS:** *Peya Kalpanā, Dehydration, Krtanna Kalpana, Ahara, Oral Rehydration, Ayurveda, Rasapancaka.*

## INTRODUCTION

*Ayurveda*, the traditional system of medicine of India, emphasizes the preservation of health and the management of disease through a comprehensive approach involving *Ahara*, *Vihara*, and *Aushadha*. Among these, *Ahara* is considered one of the three *Upastambhas* and plays a pivotal role in maintaining physiological equilibrium and supporting recovery from disease.<sup>[1]</sup> The classical *Ayurvedic* texts describe various *Kritanna Kalpana*, each designed to fulfil specific nutritional and therapeutic requirements according to the individual's digestive capacity and disease condition.

*Peya Kalpana* is one such dietary preparation, traditionally prepared by cooking rice in an excess quantity of water to obtain a thin gruel. Owing to its *Laghu*, easily digestible, and nourishing nature, *Peya* has been advocated in conditions characterized by impaired digestion, diminished strength, fever, diarrhoea, thirst, and convalescence.<sup>[2]</sup> *Ayurvedic* classics describe its utility in *Deepana*, *Tarpana*, *Trishna Nigrahana*, and the gradual restoration of physical strength. Due to these properties, *Peya* occupies an important place among *Pathya Kalpana* and is frequently prescribed during the recovery phase of many diseases.<sup>[3]</sup>

Although the term "dehydration" is not explicitly mentioned in classical *Ayurvedic* literature, its clinical manifestations can be understood through concepts such as *Trishna*, *Kleda Kshaya*, *Murchha*, *Daurbalya*, *Shosha*, and *Vata* aggravation resulting from fluid loss. Excessive depletion of *Jala Mahabhuta* and *Rasa Dhatu* can adversely affect tissue

nourishment, physiological functions, and overall homeostasis. Thus, restoration of fluid balance and maintenance of *Agni* become essential therapeutic considerations in such conditions.<sup>[4]</sup>

Dehydration is a clinical condition resulting from excessive loss of body fluids or inadequate fluid intake, leading to disturbances in fluid and electrolyte balance. It commonly occurs in conditions such as diarrhoea, vomiting, fever, excessive sweating, heat exposure, and prolonged physical exertion. Children, elderly individuals, and debilitated patients are particularly vulnerable to its adverse consequences. If not managed appropriately, dehydration may impair cardiovascular, renal, gastrointestinal, and neurological functions, thereby increasing morbidity and mortality.<sup>[5]</sup>

From an *Ayurvedic* perspective, management of fluid depletion extends beyond mere replacement of water. It involves restoration of digestive capacity, replenishment of depleted tissues, maintenance of electrolyte-rich body fluids, and support of physiological recovery. In this regard, *Peya Kalpana* offers a unique advantage as it combines hydration with nourishment while remaining easy to digest. Its liquid consistency facilitates rapid assimilation, whereas its rice content provides a readily available source of energy for weakened individuals.<sup>[6]</sup>

From a nutritional perspective, rice-based gruels have long been recognized as beneficial supportive foods during dehydration and gastrointestinal illnesses. The presence of easily digestible carbohydrates, adequate water content, and small quantities of naturally occurring electrolytes facilitates fluid absorption and energy replenishment. Modern studies suggest that rice-based oral rehydration preparations may improve intestinal water absorption and reduce stool output in certain diarrhoeal conditions. The scientific basis of oral rehydration therapy involves sodium-glucose co-transport across the intestinal mucosa, which promotes efficient water uptake. Rice-derived carbohydrates present in *Peya* may contribute to similar physiological processes, making it a potentially valuable supportive dietary measure during dehydration.<sup>[7]</sup>

Furthermore, *Peya* is economical, easily prepared, culturally acceptable, and widely accessible, making it particularly relevant in resource-limited settings where dehydration remains a significant public health concern. Its dual role as a source of hydration and

nutrition aligns closely with the Ayurvedic principle that appropriate diet itself can serve as a therapeutic tool when administered according to the patient's condition.

Considering the growing interest in evidence-based traditional dietary practices and integrative healthcare approaches, it becomes pertinent to evaluate the classical and scientific rationale of *Peya Kalpana* in the context of dehydration. Therefore, the present conceptual study aims to explore the Ayurvedic attributes, *Rasapanchaka*, therapeutic applicability, and possible rehydration potential of *Peya Kalpana* as an adjuvant dietary intervention in the management of dehydration.

### Need of the study

Dehydration is a serious worldwide health concern that affects people of all ages, but it is especially dangerous for vulnerable groups like the elderly and children. Acute gastrointestinal disorders like vomiting and diarrhoea are frequently linked to it, but fever, heavy perspiration, or dehydration can also cause it. The World Health Organization (WHO) estimates that dehydration from diarrhoea is one of the main causes of death for children under five, accounting for over 480,000 fatalities globally each year, particularly in low- and middle-income nations. In India, a significant portion of instances of diarrheal illness do not receive prompt and appropriate Oral Rehydration Solution (ORS) therapy, making it a major public health concern and a leading cause of infant mortality. It is frequently underdiagnosed and undertreated in the senior population. According to clinical studies, dehydration affects 20–30% of hospitalized elderly patients. This is caused by a decline in thirst perception with age, impaired renal function, chronic illnesses, and polypharmacy. These numbers demonstrate the necessity of rehydration interventions that are efficient, easily available, and culturally appropriate. Even though ORS has been shown to be effective, obstacles like low compliance, restricted availability in rural areas, and lack of awareness prevent its widespread use. Therefore, investigating complementary solutions is urgently needed.

### AIM

To explore the role of *Peya Kalpana* as an adjuvant dietary intervention in the management of dehydration through *Ayurvedic* principles and contemporary scientific understanding.

### OBJECTIVES

1. To review the classical Ayurvedic literature related to *Peya Kalpana* from *Brihatrayi*, *Laghutrayi*, and other relevant texts.

- To analyze the *Rasapanchaka* and therapeutic properties of *Peya Kalpana* in the context of dehydration

### Review of literature

All relevant classical *Ayurvedic* references related to *Peya Kalpanā* and dehydration will be collected from authoritative texts such as the *Bṛhatrayī*, *Laghutrayī*, and various *Nighantus*. Special focus will be given to descriptions under *Kṛttanna Kalpanā*, which includes *Peya* as a dietary preparation. Additionally, modern scientific literature will be reviewed, including recent research articles, WHO guidelines on dehydration and Oral Rehydration Therapy (ORT), and contemporary studies on nutrition, digestion, and hydration.

### Classical references highlight its role

*Caraka Saṃhitā*: *Peya* is *Laghutara* (lightest) and *Pācaniya* (digestive), prescribed when *Agni* is weak. <sup>[8]</sup>

*Suśruta Saṃhitā*: Recommended in fevers, post-surgical care, and for debilitated patients. <sup>[9]</sup>

*Aṣṭāṅga Hṛdaya*: Indicated in *Jvara cikitsā* and as an initial *Pathya Āhāra*. Thus, *Ayurveda* recognized *Peya* as a functional food that restores hydration, supports digestion, and aids recovery in dehydration-like conditions. <sup>[10]</sup>

### “*Peya Sikthasamanvita*”<sup>[11]</sup>

As *Peya Kalpanā* is simple, easily available, and cost-effective. It can serve as a bridge between classical *Ayurvedic* wisdom and modern nutritional science. This article mainly focuses on the concept of *Peya Kalpanā* as an adjuvant in dehydration, exploring its properties, therapeutic utility, and relevance in present-day healthcare.

*Kṛttannā Kalpanā*, which includes rice-based therapeutic food preparations such as. <sup>[12]</sup>

S.no	Kalpana	Main ingredient and consistency
1.	<i>Mand</i>	Very thin, only Supernatant liquid
2.	<i>Peya</i>	Thin rice gruel includes some solids (1:14 or 1:16)
3.	<i>Vilepi</i>	Thick rice gruel with less water (1:4 or 1:6)
4.	<i>Yavagu</i>	Semi-solid, with or without herbs (1:6 or 1:8)

Among these, *Peya* occupies a special place for its therapeutic role in *Atisāra*, *Jvara*, *Agnimāndhya*, and convalescence.

### Method of preparation of *Peya Kalpana*

*Peya* is a therapeutic dietary formulation categorized under *Kṛttanna Kalpanā* in *Ayurveda*. It is primarily prepared by cooking *Shāli*-type rice (or other easily digestible grains) with a large quantity of water, resulting in a semi-liquid gruel. The standard classical ratio often suggested is 1 part rice to 14 parts water, boiled until the grains are soft and the consistency is thin but slightly thicker than *Manda* (supernatant rice water).<sup>[13]</sup>

### *Peya Kalpanā* in Dehydration—*Ayurvedic* View

Dehydration, understood in *Ayurveda* as a disturbance in *Drava dhātu* often arises from gastrointestinal disorders such as *Atisāra* and *Chardi* (vomiting). *Peya* is advised due to its properties:<sup>[14]</sup>

<i>Drava</i>	Fluid replenishing
<i>Laghu</i>	light, easily digestible
<i>Agnivardhaka</i>	supports digestive fire
<i>Doṣa-prashamana</i>	balances aggravated <i>Doṣa</i>
<i>Dhātu-puṣṭi</i>	nourishes tissues

### 1. *Panchamahabhoutika* Perspective of *Peya*

*Peya* can be understood through the concept of *Panchamahabhuta* predominance. Due to its high water content, it is rich in *Jala Mahabhuta*, which helps replenish fluid depletion.<sup>[15]</sup> The cooked rice component contributes *Prithvi Mahabhuta*, supporting nourishment and tissue restoration. Thus, *Peya* simultaneously addresses both fluid loss and nutritional deficiency occurring during dehydration.

### 2. *Peya* as a *Pathya Kalpana*

*Ayurvedic* classics repeatedly emphasize the importance of *Pathya* in disease management. *Peya* is not merely a food preparation but a therapeutic *Pathya* that supports recovery without burdening the digestive system.<sup>[16]</sup> Its utility demonstrates the *Ayurvedic* principle that appropriate diet itself acts as a therapeutic intervention.

### 3. Role in *Rasa Dhatu* Restoration

Since *Rasa Dhatu* is considered the primary nourishing fluid of the body, excessive fluid loss may lead to *Rasa Kshaya*. The liquid consistency and nourishing nature of *Peya* help in replenishing depleted *Rasa Dhatu*, thereby supporting subsequent *Dhatu* nourishment and restoration of strength.

#### 4. Relevance in *Langhana* to *Brimhana* Transition

*Peya* occupies an important position in the dietary progression from fasting or *Langhana* to normal nourishment. After acute illnesses associated with dehydration, it serves as an intermediate dietary preparation that gradually restores digestive capacity and nutritional status.

#### 5. Importance in *Agni* Preservation

Unlike direct fluid replacement alone, *Peya* simultaneously supports *Agni*. Preservation of *Agni* is crucial because impaired digestion can delay recovery and reduce nutrient assimilation.<sup>[17]</sup> Thus, *Peya* addresses both hydration and digestive restoration.

#### Utility of *Peya* in Dehydration

Dehydration occurs due to excessive fluid loss from diarrhoea or vomiting, fever with sweating, overexertion, and heat exposure.

*Peya* is beneficial in such conditions because it restores fluid imbalance, is light and easily digestible, provides instant energy, soothes *Pitta* vitiation, and relieves thirst.<sup>[18]</sup>

#### Properties of *Peya Kalpana*.<sup>[19]</sup>

<i>Raspanchak</i>	Properties
<i>Rasa</i>	<i>Madhura</i> , slightly <i>Kashaya anurasa</i>
<i>Guna</i>	<i>Laghu</i> , <i>Drava</i> , <i>Snigdha</i> , <i>Sheet</i> or <i>ushna</i> (depending on herbs)
<i>Virya</i>	<i>Usna</i> —especially when spices like <i>Saindhava</i> , <i>Shunthi</i> or <i>Jeeraka</i> are added
<i>Vipak</i>	<i>Madhura</i>
<i>Prabhav</i>	<i>Agnidipana</i> , <i>Trsnahara</i> , <i>Balya</i>

## DISCUSSION

*Peya Kalpanā* (Ayurvedic Dietary Formulation)

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Prepared from

- *Śāli* rice, *Mudga*, or other light cereals
- Cooked with excess water → semi-liquid consistency
- Often combined with salt, *ghee*, or herbs as per condition

↓□

Therapeutic Principle

- “*Āhāra eva Auśadha*” — food as medicine

- Serves both dietary and therapeutic functions

*Ayurvedic Pharmacodynamics- Rasapanchaka Attributes of Peya-*

- *Rasa* (Taste): *Madhura* → *Pitta Śamana, Trṣṇāhara*
- *Guṇa* (Quality): *Laghu, Mṛdu* → Easily digestible
- *Vīrya* (Potency): *Śīta* → Cooling, reduces *Pitta doṣa*
- *Vipāka*: *Madhura* → Supports *Dhātu Pushti* (tissue Nourishment)

↓□

Functional Outcomes:

- Restores fluid balance
- Pacifies *Pitta* and *Vāta* aggravated by dehydration
- Prevents *Agnimāndya* (digestive impairment)
- Promotes gradual *Dhātu Bala* (tissue strength) restoration

↓□

Indicated in

- Dehydration due to fever, diarrhoea, or vomiting
- Digestive weakness (*Agnimāndya, Āma avasthā*)
- Convalescence after acute illness
- Post-*Panchakarma* recuperation

↓□

Therapeutic Outcomes:

- Provides sustained hydration
- Enhances digestion and assimilation
- Improves energy and tissue recovery
- Acts as a preventive dietary regimen for at-risk individuals

Integrative Significance

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Peya = Functional food bridging diet and therapy (*Āhāra–Cikitsā*)

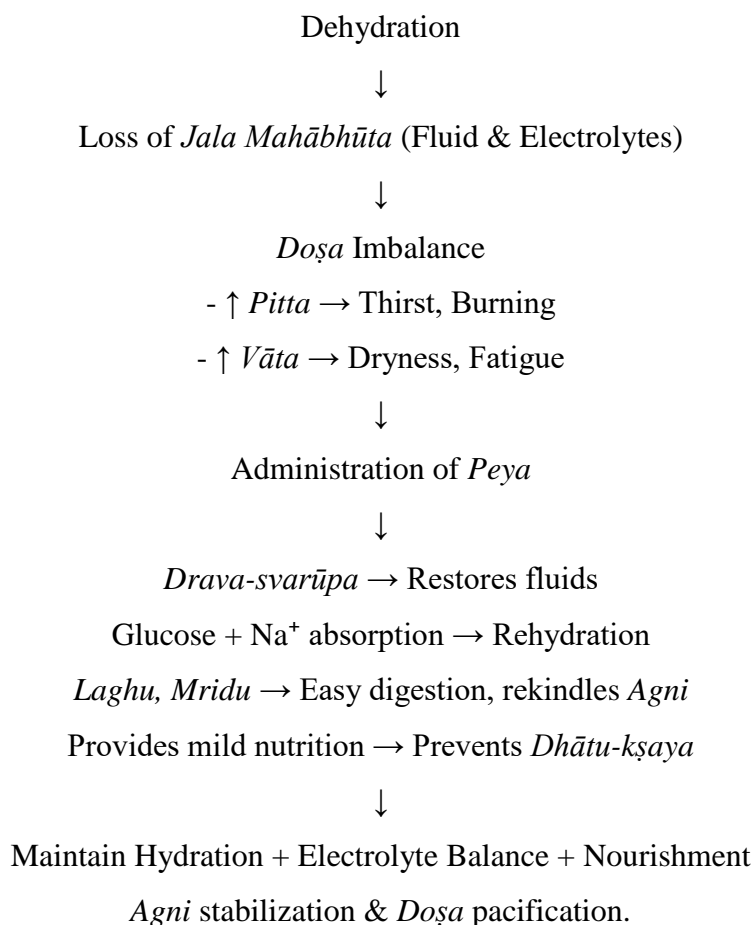
Provides balanced rehydration with metabolic support

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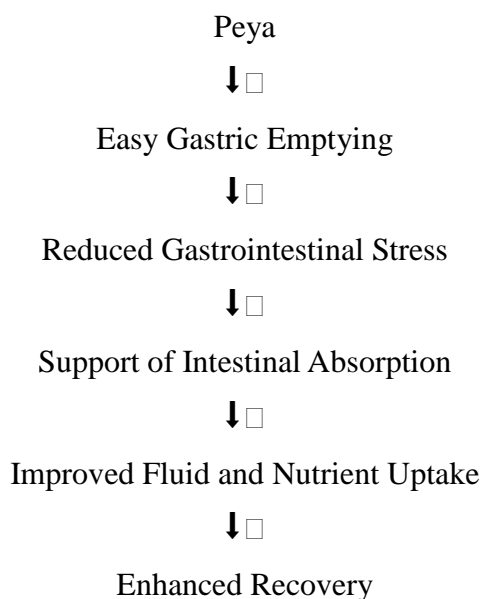
*Peya Kalpanā* serves as a holistic rehydration formulation combining fluid restoration, digestive balance, and nutritional recovery, offering an integrative model that surpasses the limited scope of ORS.

Modern nutritional science also supports these principles. Rice-based solutions have been shown to improve glucose-mediated sodium absorption and promote faster recovery in diarrheal dehydration compared to simple salt-sugar ORS. In this context, it can be considered a functional equivalent of ORS with the added benefits of mild nutrition, gut stimulation, and immune support. Additionally, the adaptability of *Peya*—its preparation can be modified by adjusting water, salt, and herbal additives—ensures that it remains safe across all age groups, including children, the elderly, and debilitated patients. This highlights its timeless clinical relevance, bridging classical *Ayurvedic* wisdom with contemporary therapeutic needs.

#### Probable mode of action of *Peya* in dehydration



### Gut Health Perspective



### Comparative Analysis

Parameter	<i>Peya Kalpana</i> <sup>[20]</sup>	ORS <sup>[21]</sup>
Primary function	Rehydration, restores digestion and nourishment.	Rapid electrolyte and fluid replacement
Glucose type	Complex (rice starch)	Simple (glucose)
Electrolyte source	Natural salt and minerals	Chemical salts
Osmolarity	220 mOsm/L	245 mOsm/L
Therapeutic properties	<i>Agni deepan, balya, tridosha shamana</i>	none
Side effects	Well tolerated, less gastric irritation	May cause nausea in some cases
Digestive Benefits	Improves <i>Agnibala</i> , prevents bloating and fermentation, and supports gut microbiota	Does not enhance digestion or <i>agni</i> .
Effect on Gut	Soothes intestinal lining, restores mucosal health, and reduces gut inflammation	Maintains hydration but no healing effects on mucosa
Absorption Mechanism	Sodium-glucose co-transport via rice starch	Sodium-glucose co-transport via glucose
Ideal use	Mild to moderate dehydration, recovery phase post-ORS	Acute dehydration, first line in severe fluid loss

### CONCLUSION

According to *Ayurveda*, *Peya Kalpanā* is a straightforward yet efficient dietary formulation for the treatment of dehydration and related ailments, including *Atisāra*. It is ideal for sensitive populations, such as youngsters, the elderly, and convalescent patients, due to its special blend of lightness, ease of digestion, and *Agni* support. In contemporary science, *Peya* functions similarly to rice-based oral rehydration solutions in that it replenishes fluids and

electrolytes, enhances intestinal absorption, and provides readily available energy in the form of complex carbs. Its dual function of metabolic support and rehydration emphasizes its therapeutic potential in integrative healthcare. Even though its traditional use is well-established, more investigation is necessary to confirm its effectiveness and create standardized preparation procedures. This includes clinical trials, biochemical profiling, and comparisons with standard ORS. Such research could establish *Peya Kalpanā* as a culturally acceptable, affordable, and physiologically advantageous method for managing dehydration on a global scale by bridging traditional *Ayurvedic* knowledge with contemporary scientific data.

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