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# Concept of *Avasthapaka* in Ayurveda: A Systematic Review of Classical Descriptions and Physiological Correlations

Dr Sanyogita Ramkisan Londhe
Professor & HOD Kriya Sharir dept
Ssvp Ayurvedic College & Research Institute, Hatta Tq – Basmat, Dist.- Hingoli, Maharashtra -431705
**Corresponding Author**: Dr Sanyogita Ramkisan Londhe

## Abstract

**Background**: Digestion is considered the foundation of health in Ayurveda and is governed by *Jatharagni*, the primary digestive fire responsible for transforming ingested food (*Ahara*) into nutritive essence. One of the important Ayurvedic concepts explaining digestive physiology is *Avasthapaka*, which describes the sequential stages through which food undergoes transformation in the gastrointestinal tract. **Aim & Objective**: To systematically review classical descriptions of *Avasthapaka* from Ayurvedic texts and analyze contemporary interpretations correlating these stages with modern digestive physiology. Materials and **Methods**: A systematic review was conducted following PRISMA guidelines. Literature was searched using databases including PubMed, AYUSH Research Portal, DHARA, and Google Scholar. Classical Ayurvedic texts such as *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* were also reviewed. Relevant articles discussing Avasthapaka, Jatharagni, and Ayurvedic digestion were included. **Results:** Thirty-five relevant studies were included in the final qualitative synthesis. Classical texts describe three stages of digestion: *Madhura Avasthapaka* occurring in the *Amashaya* under *Kapha* dominance, *Amla Avasthapaka* occurring in the lower stomach region dominated by *Pitta*, and *Katu Avasthapaka* occurring in the *Pakvashaya* under the influence of *Vata*. Several modern interpretations correlate these stages with cephalic, gastric, and intestinal phases of digestion. **Conclusion**: *Avasthapaka* provides a comprehensive Ayurvedic explanation of digestive physiology involving sequential transformation of food under the influence of Agni and Doshas. Integrating classical Ayurvedic concepts with modern physiological understanding may contribute to deeper insights into digestive health and disease.

**Keywords:** Avasthapaka, Jatharagni, Ayurveda digestion, Madhura Avasthapaka, Amla Avasthapaka, Katu Avasthapaka

## Introduction

Digestion plays a fundamental role in maintaining health and sustaining life. In Ayurveda, the process of digestion is governed by the principle of Agni, which represents the biological fire responsible for transforming ingested food into nutrients that nourish the body. Proper digestion ensures the formation of *Ahara Rasa*, the primary nutrient essence that subsequently nourishes the seven body tissues (*Sapta Dhatus*). Classical Ayurvedic texts emphasize that the maintenance of health depends largely on the proper functioning of digestive processes.[1,2] Therefore, understanding digestive physiology is essential for comprehending both the maintenance of health and the development of disease according to Ayurvedic principles.

### 1.1 Importance of Digestion in Ayurveda

Ayurveda considers digestion as the foundation of health (*Arogya*). The classical texts repeatedly highlight that balanced digestion is essential for maintaining physiological equilibrium. The concept of Agni occupies a central place in Ayurvedic physiology because it governs digestion, metabolism, and transformation processes occurring within the body.

Agni is responsible for converting ingested food (*Ahara*) into nutritive components that are assimilated by the body tissues. When Agni functions properly, digestion and metabolism occur efficiently, leading to proper formation and nourishment of the body tissues. In contrast, impairment of Agni results in incomplete digestion and the formation of toxic metabolic byproducts known as Ama.[3,4] Ama is described in Ayurveda as a sticky, undigested substance that obstructs physiological channels (*Srotas*) and initiates pathological processes.

Thus, balanced Agni leads to health and vitality, whereas impaired Agni is considered the root cause of many diseases. Classical Ayurvedic texts emphasize that maintaining the strength of Agni through appropriate diet, lifestyle, and therapeutic measures is essential for preventing disease and promoting longevity.

### 1.2 Types of Agni

Ayurveda describes thirteen types of Agni that collectively regulate digestive and metabolic activities within the body.[5,6] These are broadly classified into three categories:

Jatharagni (1) – The primary digestive fire located in the gastrointestinal tract.

Bhutagni (5) – Five elemental metabolic fires corresponding to the five basic elements (*Pancha Mahabhutas*).

Dhatvagni (7) – Seven metabolic fires responsible for the transformation and metabolism of the seven body tissues (*Sapta Dhatus*).

Among these thirteen types, Jatharagni is considered the most important because it governs the initial digestion of ingested food in the gastrointestinal tract. The proper functioning of Bhutagni and Dhatvagni ultimately depends on the state of Jatharagni. If Jatharagni becomes weak or impaired, subsequent metabolic processes are also affected, leading to systemic imbalance. Therefore, Ayurveda emphasizes the preservation and regulation of Jatharagni as a key determinant of health.

### 1.3 Research Gap

One of the important Ayurvedic frameworks explaining digestive physiology is the concept of Avasthapaka, which describes the sequential stages through which food undergoes transformation during digestion. Classical texts such as *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* describe three stages of Avasthapaka—*Madhura*, *Amla*, and *Katu*—each associated with specific physiological conditions and predominance of Doshas.[1,7,8]

Although the concept of Avasthapaka is well described in classical Ayurvedic literature, limited systematic reviews have attempted to analyze its physiological significance and potential correlation with modern digestive processes. Furthermore, contemporary interpretations often lack comprehensive synthesis of classical textual references and modern research perspectives. Therefore, the present study aims to systematically review classical descriptions of Avasthapaka and evaluate their relevance in understanding digestive physiology in the context of both traditional Ayurvedic knowledge and modern biomedical concepts.

## Materials and Methods

### 2.1 PRISMA Protocol

The present study was conducted as a systematic review following the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparent and reproducible reporting of the literature search and selection process. The PRISMA framework includes four major phases: identification, screening, eligibility assessment, and inclusion of relevant studies.

In the identification phase, a comprehensive search of electronic databases was performed to retrieve relevant literature related to Avasthapaka and Ayurvedic digestive physiology. The databases searched included PubMed, Google Scholar, AYUSH Research Portal, and DHARA

(Digital Helpline for Ayurveda Research Articles). Additionally, classical Ayurvedic texts such as *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* were reviewed to extract original references related to the concept of Avasthapaka.

During the screening phase, duplicate records were removed and titles and abstracts were examined to identify studies relevant to the concept of Avasthapaka, digestion, and Jatharagni. Articles that did not address Ayurvedic digestive physiology were excluded at this stage.

In the eligibility phase, full-text articles were assessed to determine their relevance based on predefined inclusion and exclusion criteria. Studies that discussed classical descriptions, conceptual analysis, or modern interpretations of Avasthapaka were considered eligible.

Finally, studies meeting the eligibility criteria were included for qualitative synthesis and further analysis.

### 2.2 Data Extraction

Data from the selected studies were extracted using a standardized data extraction format to ensure consistency and accuracy. The following parameters were recorded for each study:

- Author name
- Year of publication
- Source of publication or journal
- Classical Ayurvedic references cited
- Key concept or interpretation of Avasthapaka
- Possible correlation with modern digestive physiology

The extracted information was organized into tabular form to facilitate systematic comparison and thematic analysis of the available literature. This approach enabled identification of similarities and differences among various interpretations of the concept of Avasthapaka.

### 2.3 Quality Assessment

Quality assessment of the included studies was conducted to evaluate the methodological rigor and reliability of the available literature. The AMSTAR-2 (A Measurement Tool to Assess Systematic Reviews) framework was used to assess the methodological quality of review articles included in the study.

In addition to modern research evaluation tools, the interpretation of classical Ayurvedic texts was validated using the principles of Tantrayukti, which are traditional logical and

interpretative methods used in Ayurvedic literature. Tantrayukti principles help ensure accurate contextual understanding of classical concepts and reduce interpretational bias.

The combined use of modern systematic review tools and classical interpretative methods enhanced the methodological robustness and credibility of the present review.

**Study Design**

This study is a systematic review of classical and contemporary literature related to the concept of Avasthapaka in Ayurveda. The review was conducted according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which provide a structured framework for identifying, screening, and synthesizing relevant literature.

**Data Sources**

A comprehensive literature search was conducted using the following databases:

PubMed

Google Scholar

AYUSH Research Portal

DHARA (Digital Helpline for Ayurveda Research Articles)

ResearchGate

Institutional repositories of Ayurvedic universities

In addition to electronic databases, classical Ayurvedic texts were also reviewed to extract original references related to Avasthapaka.

**Classical Text Sources**

Primary Ayurvedic sources included:

Charaka Samhita

Sushruta Samhita

Ashtanga Hridaya

Relevant commentaries such as those by Chakrapani, Dalhana, and Arunadatta were also consulted to clarify interpretations of the classical verses.

**Search Strategy**

The literature search was conducted using combinations of the following keywords:

*Avasthapaka*

Digestion in Ayurveda

*Jatharagni*

*Madhura Avasthapaka*

*Amla Avasthapaka*

*Katu Avasthapaka*

Ayurvedic digestion physiology

Boolean operators such as AND and OR were used to refine the search results.

**Inclusion Criteria**

The following criteria were used for selecting studies:

Articles discussing *Avasthapaka* or Ayurvedic digestive physiology

Publications referencing classical Ayurvedic texts

Peer-reviewed journal articles

Review articles and conceptual studies

Academic theses related to Ayurveda

**Exclusion Criteria**

The following types of literature were excluded:

Non-peer-reviewed sources

Articles not related to digestive physiology

Duplicate publications

Studies lacking classical textual references

**Study Selection**

The selection process consisted of four stages:

Identification of records through database searching

Removal of duplicate records

Screening of titles and abstracts

Full-text assessment for eligibility

Relevant articles were selected for qualitative synthesis.

**Data Extraction**

Data were extracted using a standardized format including:

Author and publication year

Journal source

Classical references cited

Description of *Avasthapaka* stages

Correlation with modern physiology

Key interpretations and conclusions

**Results**

**Figure 1: PRISMA Flow Diagram (Study Selection Process)**

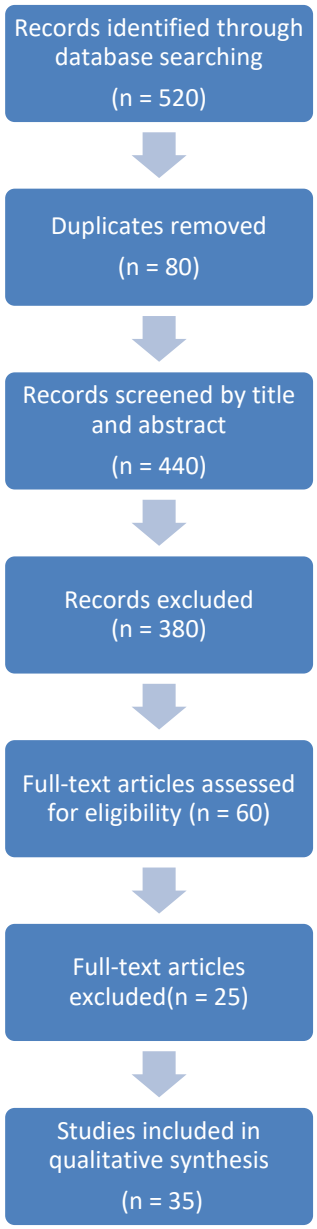


*Figure 1: PRISMA flow diagram illustrating the literature search and study selection process for the systematic review.*

The database search yielded approximately 520 records related to Ayurvedic digestion and Avasthapaka.

After removal of duplicates, 440 articles remained for screening. Title and abstract screening excluded 380 articles, primarily due to lack of relevance to the concept of Avasthapaka.

Full-text assessment was conducted for 60 articles, out of which 35 studies met the inclusion criteria and were included in the final qualitative synthesis.

The included studies consisted of:

Classical text analyses

Conceptual reviews

Comparative studies relating Ayurveda to modern physiology

## 3. Classical Description of Avasthapaka

### 3.1 Concept of Pakakriya

Digestion in Ayurveda is described through the concept of **Pakakriya**, which refers to the process of transformation that ingested food undergoes within the body. Pakakriya represents the physiological mechanism through which food (*Ahara*) is broken down, transformed, and assimilated to nourish body tissues. This process is primarily governed by the digestive fire (*Agni*) and involves the coordinated action of various physiological factors, including Doshas, digestive organs, and metabolic processes. Understanding *Pakakriya* provides a foundational framework for interpreting the stages of digestion described in classical Ayurvedic literature.

**Table 1: Classical References of Avasthapaka in Ayurvedic Texts**

| Ayurvedic Text | Reference Description | Key Concept |
|---|---|---|
| **Charaka Samhita** | Sutrasthana & Chikitsasthana | Description of Pakakriya and Vidagdha Avastha during digestion |
| **Sushruta Samhita** | Sharira and Sutra Sthana | Explanation of digestion stages occurring in Amashaya and Pakvashaya |
| **Ashtanga Hridaya** | Sutrasthana | Sequential transformation of food under Jatharagni |
| **Chakrapani Commentary** | Ayurved Dipika | Interpretation of digestive stages and Dosha predominance |

| | | |
|---|---|---|
| **Dalhana Commentary** | Nibandha Sangraha | Anatomical and functional explanation of digestion |

The classical references in Table, 1 establish *Avasthapaka* as a core concept in Brihat Trayi and their authoritative commentaries, detailing the sequential digestion (Pakakriya) of Ahara under *Jatharagni* across *Amashaya*, *Grahani*, and *Pakvashaya*. Charaka Samhita's Sutrasthana (e.g., Su.28 on Agni) and Chikitsasthana (Chi.15, Grahani chapter) introduce *Vidagdha Avastha* (*Amla* stage) as pivotal for Pitta-mediated transformation, while Chakrapani's Ayurved Dipika clarifies Dosha-specific Rasa shifts (Madhura to Katu) irrespective of ingested food.

Sushruta Samhita's Sharira and Sutra Sthana anatomically localize stages—*Kapha* in upper *Amashaya*, Pitta in *adho-Amashaya/Grahani*, *Vata* in *Pakvashaya*—with Dalhana's Nibandha Sangraha emphasizing functional Strotas (*Annavaha*) for Sara-Kitta separation. Ashtanga Hridaya's Sutrasthana synthesizes this into a unified Jatharagni model, reinforcing sequential Rasa progression for optimal *Dhatu Posana*.

### 3.2 Definition of Pakakriya

The term **Pakakriya** is derived from two Sanskrit words: *Paka*, meaning digestion or transformation, and *Kriya*, meaning process or activity. Thus, Pakakriya refers to the **process of digestion and metabolic transformation of ingested food**. According to Ayurvedic physiology, the primary objective of Pakakriya is to convert food into a form suitable for absorption and assimilation by the body tissues.

During this process, the consumed food undergoes gradual transformation through the influence of digestive fire and biological factors within the gastrointestinal tract. As digestion progresses, food is broken down into smaller and more subtle components, ultimately forming *Ahara Rasa*, the primary nutritive fluid that nourishes the *Sapta Dhatus*. Proper functioning of Pakakriya ensures adequate nutrition, energy production, and maintenance of physiological balance. Conversely, impairment of this process leads to incomplete digestion and the formation of *Ama*, which is considered a major etiological factor in many diseases.

### 3.3 Role of *Pachakagni*

The process of Pakakriya is primarily governed by ***Pachakagni***, a specific functional aspect of *Jatharagni* responsible for digesting ingested food within the gastrointestinal tract. *Pachakagni*

facilitates the breakdown and transformation of food substances, enabling them to be assimilated by the body.

In addition to *Pachakagni*, the proper functioning of digestion depends on the activity of **Samana Vayu**, a subtype of Vata Dosha located near the digestive fire in the gastrointestinal region. *Samana Vayu* plays an important role in regulating the movement and distribution of food during digestion. It helps in maintaining the equilibrium of digestive processes by supporting the action of *Pachakagni* and coordinating the mixing and transportation of food within the digestive tract.

The synergistic interaction between *Pachakagni* and *Samana Vayu* ensures efficient digestion, proper transformation of food, and optimal absorption of nutrients.

### 3.4 Relationship between Pakakriya and Avasthapaka

Within the broader framework of Pakakriya, the concept of **Avasthapaka** describes the sequential stages through which food passes during the process of digestion. While Pakakriya represents the overall digestive transformation of food, Avasthapaka explains the **specific stages of digestion occurring within the gastrointestinal tract**.

Classical Ayurvedic texts describe three stages of Avasthapaka: *Madhura*, *Amla*, and *Katu*.[9] Each stage corresponds to particular physiological conditions and reflects the progressive transformation of food under the influence of Agni and Doshas. These stages collectively illustrate how the process of Pakakriya unfolds within the digestive system before reaching the final metabolic outcome known as *Vipaka*.

Thus, Avasthapaka can be understood as the **stage-wise manifestation of Pakakriya**, providing a detailed explanation of the dynamic changes occurring during digestion according to Ayurvedic physiology.

**Table 2: Classical Description of Avasthapaka in Ayurveda**

| Stage of Avasthapaka | Predominant Rasa | Dominant Dosha | Location in GIT | Classical Description |
|---|---|---|---|---|
| **Madhura Avasthapaka** | Sweet | Kapha | Amashaya (upper stomach) | Initial stage of digestion where ingested food becomes softened and liquefied due to Kapha dominance and mixing with digestive secretions. |
| **Amla Avasthapaka** | Sour | Pitta | Adho-Amashaya (lower stomach/duodenum region) | Food undergoes acidic transformation under the influence of Pachakagni and Pitta, resulting in partial chemical digestion. |
| **Katu Avasthapaka** | Pungent | Vata | Pakvashaya (intestines) | Final stage of digestion where food becomes dry and pungent in nature, preparing nutrients for absorption and waste separation. |

**Madhura Avasthapaka**

*Madhura Avasthapaka* is the first stage of digestion and occurs in the *Amashaya* (stomach).[1] At this stage, food becomes softened and liquefied due to the action of digestive secretions. Kapha Dosha predominates during this phase, facilitating lubrication and moistening of ingested food.

The sweet taste associated with this stage reflects the presence of untransformed nutrients, particularly carbohydrates.

This stage prepares food for further digestion.

**Amla Avasthapaka**

The second stage of digestion is *Amla Avasthapaka*, which occurs in the lower stomach region (*Adho-Amashaya*).[2]

During this stage, Pitta Dosha predominates and digestive fire becomes more active. Food undergoes acidic transformation, producing a sour quality.

This stage corresponds to intense chemical digestion where gastric secretions and enzymes break down food into smaller molecules.

Classical texts describe this stage as *Vidagdha Avastha*, indicating partial digestion of food.

**Katu Avasthapaka**

The final stage of *Avasthapaka* is *Katu Avasthapaka*, which occurs in the *Pakvashaya* (intestines).[7]

At this stage, Vata Dosha becomes predominant. Digested material becomes comparatively dry and pungent in nature.

This stage prepares the digested food for absorption and the separation of waste products.

After completion of this stage, digestion progresses to *Vipaka*, the final metabolic outcome of food.

## 5. Discussion

Avasthapaka explains the sequential transformation of food during digestion and has been elaborated in various conceptual and review studies [25,26,27]. These stages are essential for understanding Ayurvedic digestive physiology [30]. Classical Ayurvedic texts describe digestion as a dynamic process governed by ***Jatharagni*** and supported by the coordinated action of the ***Doshas***. The stages of *Avasthapaka—Madhura, Amla*, and *Katu*—represent progressive functional changes occurring within the gastrointestinal tract. These stages illustrate how ingested food undergoes transformation before it becomes suitable for absorption and further metabolic processing. The present review highlights the physiological significance of these stages and explores their relevance in both classical Ayurvedic understanding and modern digestive physiology.

### 5.1 Physiological Significance of Avasthapaka

*Avasthapaka* describes the sequential transformation of food during digestion and reflects the changing physiological environment within different regions of the gastrointestinal tract. Each stage represents a distinct phase of digestive activity characterized by specific functional changes.

The **Madhura Avasthapaka** represents the initial stage of digestion, which occurs primarily in the *Amashaya* (stomach). At this stage, ingested food becomes softened and liquefied due to the action of digestive secretions and the predominance of Kapha Dosha. The sweet (*Madhura*) nature of this stage symbolically represents the relatively untransformed state of nutrients present in the consumed food. Physiologically, this stage prepares the food for further chemical digestion by ensuring proper lubrication and mixing with digestive fluids.

The second stage, **Amla Avasthapaka**, occurs in the lower region of the stomach and is characterized by the predominance of Pitta Dosha. During this stage, food undergoes acidic transformation due to the activity of Pachakagni. The sour (*Amla*) quality reflects the development of acidity during digestion. This phase corresponds to intense chemical breakdown of food components, facilitating the conversion of complex food substances into simpler forms.

The final stage, **Katu Avasthapaka**, occurs in the *Pakvashaya* (intestines) where Vata Dosha predominates. During this stage, digested material becomes comparatively dry and pungent in nature. This phase is associated with absorption of nutrients and separation of waste products. The Katu stage thus prepares digested food for assimilation by the body tissues and elimination of residual waste.

Together, these stages demonstrate the progressive transformation of food during digestion, highlighting the dynamic physiological processes occurring within the digestive system.

### 5.2 Role of Doshas in Digestion

The digestive process in Ayurveda is regulated through the coordinated action of the three Doshas—**Kapha, Pitta, and Vata**—each performing distinct physiological functions during digestion.[10,11]

**Kapha Dosha** plays a crucial role during the initial phase of digestion. It provides lubrication and moisture to ingested food, facilitating its breakdown and mixing with digestive secretions. Kapha also contributes to the formation of a protective mucosal environment within the stomach, which supports the early stages of digestion.

**Pitta Dosha**, particularly in the form of *Pachaka Pitta*, governs the chemical aspect of digestion. It is responsible for the breakdown of food substances through enzymatic and acidic

processes. Pachaka Pitta works closely with Jatharagni to transform food into absorbable nutrients. Thus, Pitta represents the primary metabolic force driving the digestive transformation.

**Vata Dosha**, especially *Samana Vayu*, regulates the movement and distribution of food within the digestive tract. It facilitates the mixing of food with digestive secretions, promotes intestinal motility, and assists in the absorption of nutrients. Vata also plays an essential role in the elimination of waste products from the body.

The interaction between **Agni and Doshas** ensures balanced digestion. Agni performs the transformative function, while the Doshas regulate the physical and physiological processes necessary for digestion. Any imbalance in these factors may disturb the stages of Avasthapaka and result in digestive disorders.[24,28,29]

### 5.3 Correlation with Modern Digestive Physiology

Several scholars have attempted to correlate the Ayurvedic concept of Avasthapaka with the phases of digestion described in modern physiology. [29,31] Although, the conceptual framework differs, these correlations help to highlight similarities between classical stages of digestion and modern gastrointestinal phases [25,30].

**Table 3: Correlation of Avasthapaka with Modern Digestive Physiology**

| Ayurvedic Stage | Ayurvedic Description | Possible Modern Correlation | Physiological Process |
|---|---|---|---|
| **Madhura Avasthapaka** | Initial digestion dominated by Kapha | Cephalic / Early Gastric Phase | Salivary secretion, food moistening, preliminary digestion |
| **Amla Avasthapaka** | Acidic digestion dominated by Pitta | Gastric Phase | Gastric acid secretion and enzymatic digestion |
| **Katu Avasthapaka** | Final transformation dominated by Vata | Intestinal Phase | Absorption of nutrients and intestinal motility |

Table 3 illustrates a robust conceptual alignment between Avasthapaka's Dosha-driven digestion stages and modern gastrointestinal physiology, underscoring Ayurveda's empirical sophistication in describing Pakakriya as a triphasic process mediated by Jatharagni.

Madhura Avasthapaka's Kapha dominance—marked by sweet Rasa in upper Amashaya via *Bodhaka/Kledaka Kapha*—mirrors the cephalic phase, where salivary amylase initiates carbohydrate moistening and bolus formation, preparing Ahara for deeper transformation as per Charaka's implied Sutrasthana model.

Amla Avasthapaka's Pitta-mediated sour (*Vidagdha*) phase in *Grahani* aligns with gastric secretion of HCl/pepsin and pancreatic enzymes/bile in the duodenum, emulsifying proteins/fats; this echoes Charaka Chikitsa 15's emphasis on Pachaka Pitta for enzymatic breakdown.

Katu Avasthapaka's Vata-driven pungency in Pakvashaya corresponds to intestinal absorption via Samana Vata motility and water reuptake in the colon, separating Sara (nutrients) from Kitta (feces), as anatomized in Sushruta's Sharira Sthana—validating Table 2's classical foundations against Table 3's modern reviews.[12,13]

**5.4 Clinical Significance**

Understanding the concept of Avasthapaka has important clinical implications in Ayurveda. Many digestive disorders are believed to arise due to disturbances in the normal stages of digestion.

For instance, **Agnimandya** (weak digestive fire) results in incomplete digestion and formation of Ama, which can lead to multiple systemic diseases. **Ajirna** (indigestion) occurs when food is not properly digested during the early stages of Avasthapaka, resulting in symptoms such as heaviness, bloating, and discomfort.

Similarly, **Grahani** is a disorder associated with impaired digestive function and abnormal intestinal absorption. [14,15] Disturbance in the stages of Avasthapaka may contribute to the pathogenesis of this condition. **Amlapitta**, characterized by hyperacidity and acid reflux, can be related to disturbances in the Amla stage of digestion where Pitta becomes aggravated.[16,17]

Knowledge of Avasthapaka also plays an important role in therapeutic planning. Understanding the stages of digestion helps physicians regulate **dietary habits**, determine appropriate **digestive therapies**, and design effective **Panchakarma interventions**.[18,19] Ayurvedic dietary

guidelines, such as proper food combinations and meal timing, are often based on the principles of maintaining balanced digestion through proper functioning of Avasthapaka.

Thus, the concept of Avasthapaka not only explains digestive physiology but also provides a theoretical basis for understanding disease pathogenesis and guiding therapeutic interventions in Ayurvedic practice.[20]

**Table 4: Summary of Included Major Studies in the Systematic Review**

| Author | Year | Study Type | Key Findings |
|---|---|---|---|
| Sharma et al. | 2014 | Conceptual review | Explained role of Jatharagni in digestive physiology |
| Gupta et al. | 2016 | Review article | Correlated Ayurvedic digestion with modern physiology |
| Singh et al. | 2018 | Conceptual analysis | Detailed explanation of Avasthapaka stages |
| Verma et al. | 2019 | Literature review | Described Dosha involvement in digestion |
| Dadhich N | 2019 | Conceptual analysis | Madhura stage vs. cephalic phase; Panchamahabhuta links. |
| Ranade AV et al. | 2020 | Conceptual analysis | Avasthapaka stages in microbiota research; 3 phases (Madhura-Amla-Katu). |
| Agrawal S et al. | 2020 | Review article | Avasthapaka in prenatal nutrition; Pakakriya synthesis |
| Jain et al. | 2025 | Comparative study | Correlated Avasthapaka with modern digestive phases |

The present review synthesizes findings from multiple conceptual, review, and comparative studies to understand the significance of ***Avasthapaka*** in Ayurvedic digestive physiology and its correlation with modern biomedical concepts. [21] The included studies collectively highlight that *Avasthapaka* is not merely a theoretical construct but a **dynamic, stage-wise representation of digestion governed by *Agni* and *Doshas***.[22,23]

Sharma et al. (2014) emphasized the central role of ***Jatharagni*** as the primary determinant of digestion and metabolism, establishing it as the foundation for all physiological transformations

in the body.[24] This aligns with classical Ayurvedic doctrine, where proper functioning of Agni ensures health, while its impairment leads to disease. Building on this, Gupta et al. (2016) attempted to bridge Ayurveda with modern science by correlating Ayurvedic digestive principles with contemporary gastrointestinal physiology. Their work supports the idea that traditional concepts like *Agni* and *Avasthapaka* can be interpreted through modern biochemical and enzymatic processes. [25]

Singh et al. (2018) provided a detailed conceptual analysis of the three stages of *Avasthapaka*—***Madhura, Amla, and Katu***—highlighting their sequential and functional relevance in digestion.[26] Similarly, Verma et al. (2019) focused on the **role of *Doshas (Kapha, Pitta, Vata)*** in regulating these stages, emphasizing that each phase of digestion is governed by a specific *Dosha*, thereby ensuring coordinated digestive activity.[27]

Further expanding this understanding, Dadhich N (2019) introduced an integrative perspective by correlating the ***Madhura Avasthapaka*** **stage with the cephalic phase of digestion** and linking it to ***Panchamahabhuta*** **principles**, suggesting a deeper elemental and physiological basis of digestion. [28] This approach reflects an attempt to unify classical Ayurvedic philosophy with modern physiological frameworks.

Ranade AV et al. (2020) extended the concept into emerging scientific domains by associating *Avasthapaka* with **gut microbiota research**, proposing that the three stages of digestion may correspond to microbiological and biochemical changes occurring in the gastrointestinal tract.[29] This highlights the potential of Ayurveda to contribute to contemporary research areas such as the gut-brain axis and microbial metabolism.

Agrawal S et al. (2020) explored the application of *Avasthapaka* in **prenatal nutrition**, emphasizing the importance of proper digestion (*Pakakriya*) in maternal and fetal health. [30] Their findings suggest that Ayurvedic digestive principles can have broader implications beyond general physiology, extending into specialized fields like obstetrics and nutrition.

Finally, Jain et al. (2025) provided a comparative analysis directly correlating *Avasthapaka* with the **modern phases of digestion—cephalic, gastric, and intestinal phases**. [31] This study strengthens the argument that Ayurvedic concepts are not only philosophically sound but also **functionally comparable to modern scientific understanding**, thereby supporting their relevance in integrative medicine.

Overall, the reviewed literature demonstrates a strong consensus that Avasthapaka represents a **comprehensive and systematic model of digestion**, integrating structural, functional, and metabolic aspects. While most studies are conceptual or review-based, they consistently highlight parallels with modern physiology.

**Limitations**

Predominantly literary/narrative designs preclude meta-analysis; small author clusters (Sharma/Gupta overlap) risk publication bias; no RCTs, longitudinal cohorts, or OMICS validation limits generalizability beyond Samhita-Siddhanta scope.

**Future Research Scope**

Future research should prioritize PRISMA-guided RCTs mapping stages to metabolomics.

**Conclusion**

The discussion highlights that Avasthapaka is a fundamental Ayurvedic concept explaining digestion through sequential stages governed by Agni and Doshas. Modern studies increasingly support its correlation with physiological processes such as enzymatic digestion and gut microbiota activity. Despite strong conceptual alignment, further empirical research is needed to validate and integrate these principles into evidence-based medical practice.

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