

# Avasthapaka: Modern and Ayurvedic Concept of Digestion

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## ABSTRACT

**Background:** Digestion is a fundamental Physiological process that transforms food into essential nutrients. Modern biomedical science explains digestion through enzymatic and hormonal activities within specific organs, while Ayurveda offers a holistic framework emphasizing the roles of *Agni* (digestive fire), *Dosha* (*Vata*, *Pitta*, *Kapha*) and *Strotas* (bodily channels). The *Ayurvedic* concept of *Avasthapaka* categorizes digestion into three sequential stages *Madhura*, *Amla* and *Katu* each governed by a dominant *dosha*.

**Aim:** To explore and compare the Modern scientific and *Ayurvedic* perspectives on digestion and focusing on the *Ayurvedic* concept of *Avasthapaka*.

**Methods:** This is a narrative review synthesizing information from classical *Ayurvedic* texts such as *Charaka Samhita*, *Sushruta Samhita* and *Ashtanga Hridaya* alongside modern scientific literature including Guyton and Hall's Textbook of Medical Physiology, Robbins' Pathologic Basis of Disease.

**Results:** The study found significant parallel between *Ayurvedic* and Modern concepts of digestion. *Madhura Avasthapaka* corresponds to the cephalic and gastric phases, *Amla* to enzymatic digestion in the stomach and small intestine, and *Katu* to the intestinal phase of absorption and elimination. *Agni* aligns with metabolic enzymes and acids while *Strotas* reflect bodily transport and absorptive pathways. Clinical manifestations of digestive imbalances in *Ayurveda* correlate with biomedical gastrointestinal disorders.

**Conclusion:** *Avasthapaka* offers a layered and energetically nuanced model of digestion. When integrated with modern physiology. It presents a more personalized and holistic understanding of digestive health. Such integration enhances both preventive and therapeutic strategies by combining the measurable precision of biomedicine with the individualized and dynamic approach of *Ayurveda*.

**Keywords:** *Agni*, *Strotas*, *Ayurveda*, Digestion, Stomach

## INTRODUCTION

Digestion is a vital physiological process that converts food into nutrients essential for energy, growth, and repair. Modern science explains digestion through anatomical and biochemical mechanisms, involving enzymes, hormones, and organs. *Ayurveda*,

the ancient Indian system of medicine, offers a holistic view, emphasizing the roles of *Agni* (digestive fire), *Strotas* (bodily channels), and *Doshas* (*Vata*, *Pitta*, and *Kapha*). Central to *Ayurvedic* understanding is *Avasthapaka*, which describes digestion in three stages: *Madhura*, dominated by *Kapha* and

occurring in the mouth and upper stomach. *Amla*, governed by *Pitta* in the stomach and small intestine; and *Katu* influenced by *Vata* in the colon, where absorption and waste elimination occur. These stages align with modern digestive phases cephalic, gastric, and intestinal highlighting parallels between the two systems. The concept of *Agni* resembles metabolic activity and *Strotas* reflect the body's circulatory and lymphatic pathways. Integrating *Ayurveda* with modern physiology offers a more complete view of digestive health, accounting for factors like emotions, seasons, and lifestyle. This synergy enriches both preventive and therapeutic approaches, promoting a balanced, personalized, and holistic understanding of digestion.

### Aims

The aim of this article is to explore and compare the *Ayurvedic* and modern scientific perspectives on digestion, with a specific focus on the *Ayurvedic* concept of *Avasthapaka*.

### Objectives

1. To elucidate the stages of digestion according to *Ayurveda* emphasizing the role of *Agni*, *Dosha* and *Strotas*.
2. To outline the Physiological and biochemical processes of digestion from a modern scientific viewpoint.

### MATERIALS AND METHODS

This article is a narrative review based on classical *Ayurvedic* texts and contemporary biomedical literature. The *Ayurvedic* concepts were primarily derived from authoritative sources such as *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hridaya*, Modern scientific content was drawn from current medical physiology and gastroenterology textbooks, along with peer-reviewed journals and articles from reputable sources such as: Guyton and Hall Textbook of Medical Physiology, Robbins Pathologic Basis of Disease, PubMed-indexed journals on gastroenterology and nutrition.

### DISCUSSION

The comparative analysis between the *Ayurvedic* and modern concepts of digestion reveals a deep synergy that can enhance both understanding and clinical management of digestive health. *Ayurveda Avasthapaka* framework comprising *Madhura*, *Amla* and *Katu* stages parallels the modern cephalic, gastric and intestinal phases of digestion. These stages not only reflect anatomical progression but also represent shifts in energetic dynamics as governed by the *Dosha*. For example, *Kapha* moistening and heavy nature in the early stage aligns with Salivary and gastric secretions, *Pitta* enzymatic action parallels Bile and Pancreatic enzymes. while *Vata* mobility corresponds to peristalsis and waste elimination.

### *Ayurvedic* Understanding of Digestion

*Ayurveda* places central importance on digestion considering it the cornerstone of health and disease. The concept of *Agni* represents the metabolic fire responsible for digestion and metabolism. There are thirteen types of *Agni* described in classical texts: one *Jatharagni* (digestive fire), five *Bhutagni* (elemental fires) and seven *Dhatvagni* (tissue-level fires). *Jatharagni* is the most important and acts as the primary transformer of ingested food. Impairment in *Agni* leads to the formation of *Ama* (toxins), which is the root cause of many diseases.<sup>1</sup>

*Strotas*, or bodily channels, are responsible for the transportation and transformation of nutrients throughout the body. There are numerous *Strotas* in the body, including *Annavaha Strotas* (digestive tract), *Rasavaha Strotas* (plasma carrying channels) and others involved in nutrition and waste elimination. A healthy flow through these channels ensures proper nourishment of tissues and overall balance.<sup>2</sup>

*Avasthapaka* is the process by which food is digested in sequential stages within the gastrointestinal tract. This process is broadly classified into three phases:

### 1. **Madhura Avasthapaka**

This is the first stage of digestion and takes place primarily in the stomach. It is named *Madhura Avasthapaka*. because the sweet taste of food is dominant during this phase. The action of *Kapha dosha*, which possesses qualities like heaviness, coldness, and liquidity, governs this stage.<sup>3</sup> Mechanically, this phase involves the moistening and partial breakdown of food. The food at this stage is termed *Ahara Rasa* a semi-liquid mass prepared for further digestion. *Jatharagni* initiates digestion here and the *Annavaha Strotas* begin their role in transporting the food mass.

### 2. **Amla Avasthapaka**

As food moves from the stomach to the small intestine, it enters the second phase, characterized by sourness or acidity (*Amla*).<sup>4</sup> This transformation is governed by *Pitta dosha* particularly *Pachaka Pitta* which symbolizes the enzymatic and acid-based breakdown of food. This stage is crucial for converting food into absorbable nutrients. The Bile and Pancreatic secretions align with this activity and this phase is responsible for nutrient extraction and assimilation. *Agni* activity intensifies here and the food essence is carried forward through the *Rasavaha Strotas*.

### 3. **Katu Avasthapaka**

The third and final phase occurs in the large intestine and is termed *Katu* due to the taste associated with residual, decomposing food material. This phase is dominated by *Vata dosha* which exhibits dry, rough and mobile qualities.<sup>5</sup> During this stage water is absorbed and fecal matter is formed. The Peristaltic movements associated with *Vata* facilitate the elimination of waste material through the rectum. Any imbalance in *Vata* or obstruction in *Strotas* can result in constipation, gas or irregular elimination.

These three stages ensure a smooth transformation of food into nutrients and waste and any disruption in this process leads

to incomplete digestion, *Ama* formation and eventually disease.

### **Vipaka and Its Clinical Role in Modern Medicine:**

In *Ayurveda*, *Vipaka* refers to the final effect that food and herbs have on the body after digestion. This idea helps explain how different substances bring about healing. While it's rooted in ancient tradition *Vipaka* is increasingly relevant today as we explore how traditional remedies align with modern science. This piece looks at how *Vipaka* works, its types and how it's reflected in the use of common *Ayurvedic* herbs.

### **Understanding Vipaka:**

*Ayurveda* takes a whole-body approach to healing and *Vipaka* is a key part of how it understands medicine. Rather than focusing only on immediate effects like in modern medicine, *Ayurveda* considers how a substance transforms inside the body over time to produce healing effects.

### **There are three main types:**

- *Madhura* (Sweet): Nourishing and cooling. It calms *Vata* and *Pitta* and supports tissue building and strength.
- *Amla* (Sour): It has a cooling impact and tends to increase *Pitta*. It supports bile flow and helps break down fats.
- *Katu* (Pungent): It has a warming, stimulating effect. It helps reduce excess *Kapha* and supports better circulation and digestion.

### **Practical Use of Vipaka in Healing:**

Knowing a plant's *Vipaka* helps *Ayurvedic* practitioners choose remedies based on a person's unique body type and health imbalance. Some examples include:

- Turmeric (*Katu*): Often used to manage inflammation, skin issues, and joint pain, especially for *Kapha* and *Vata* issues. Science shows its active ingredient, curcumin, helps with inflammation, arthritis, and even cancer support.
- Ginger (*Katu*): Aids digestion and eases nausea, especially helpful for *Vata* and

*Kapha* imbalances. Modern studies confirm its benefits for stomach health and inflammation.

- *Amla (Amla)*: A powerful antioxidant that supports immunity and digestion, especially helpful for calming *Pitta*. Scientific research supports its effects on blood sugar, liver function, and healing.
- *Ashwagandha (Madhura)*: Builds resilience to stress and restores energy. Useful in cases of fatigue and hormonal imbalance. Today's research shows it lowers stress hormones and improves mental focus.

### Bridging Ancient Wisdom and Modern Science:

Though *Ayurveda* and modern medicine take different approaches, there's growing overlap. Where *Ayurveda* describes post-digestive effects like stimulation or nourishment, science now finds matching evidence like how ginger boosts bile or how *Ashwagandha* helps reduce cortisol.

*Vipaka* offers a deeper way of understanding how herbs heal not just in the moment, but over time as the body processes them. It shows how ancient knowledge can work hand-in-hand with modern science, helping create more personalized, well-rounded treatment options.

### Modern Scientific View of Digestion

From a Modern Physiological Perspective, Digestion is divided into five major stages: Ingestion, Mechanical Digestion, Chemical Digestion, Absorption and Elimination. Each organ of the digestive system has a specialized function and together they coordinate to break down food into

molecules small enough to be absorbed into the bloodstream.

1. Oral Cavity and Salivary Digestion  
Digestion begins in the mouth where food is Chewed (mastication) and mixed with saliva. Saliva contains the enzyme Salivary amylase which initiates the breakdown of starch into simpler sugars.<sup>6</sup> The chewed food forms a bolus and is swallowed.
2. Gastric Digestion  
In the stomach, Hydrochloric acid and Pepsinogen create an acidic environment essential for protein digestion. The mechanical churning of the stomach mixes the food with digestive juices to form chyme.<sup>7</sup>
3. Small Intestine Digestion and Absorption  
Chyme enters the small intestine where the majority of digestion and absorption occurs. Bile from the liver emulsifies fats and Pancreatic enzymes continue the breakdown of carbohydrates, proteins, and fats. The Jejunum and Ileum are the primary sites for nutrient absorption.<sup>8</sup>
4. Large Intestine Function  
In the large intestine water and electrolytes are absorbed. The gut microbiota ferment undigested carbohydrates and producing gases and short-chain fatty acids. The remaining waste is eventually expelled through defecation.

### Correlation Between *Avasthapaka, Agni, Strotas, and Modern Digestion*

There is a strong correlation between the *Ayurvedic* stages of *Avasthapaka*, the functions of *Agni* and *Strotas*, and the modern scientific understanding of digestion.

<i>Ayurvedic Stage</i>	<b>Dominant Dosh</b>	<b>Modern Equivalent</b>	<b>Key Activity</b>	<b>Related <i>Agni</i> and <i>strotas</i></b>
<b>1. Madhura Avasthapaka</b>	<i>Kapha</i>	Oral Cavity and Stomach	Salivary Mixing, Gastric Churning	<i>Jatharagni</i> and <i>Annavaha Strotas</i>
<b>2. Amla Avasthapaka</b>	<i>Pitta</i>	Stomach and small intestine	Enzymatic digestion and acid secretion	<i>Jatharagni</i> and <i>Rasavaha strotas</i>
<b>3. Katu Avasthapaka</b>	<i>Vata</i>	Large Intestine	Water absorption, peristalsis, excretion	<i>Jatharagni</i> and <i>Purishavaha strotas</i>

The concept of *Agni* can be equated with the body's metabolic enzymes and acids. When *Agni* is strong and balanced, digestion proceeds smoothly. In modern terms this equates to optimal enzyme activity and gut health. Weak or imbalanced *Agni* corresponds to hypochlorhydria, enzyme deficiencies or gut dysbiosis all of which impair nutrient assimilation. Similarly, blockages or dysfunction in *Strotas* reflect poor nutrient absorption, malabsorption syndromes or constipation.

### **Role of Digestive Health in Ayurveda**

*Ayurveda* stresses the importance of maintaining balanced *Agni* and unobstructed *Strotas* to ensure proper digestion and overall health. Many preventive and therapeutic strategies are centered around enhancing digestive power and ensuring the smooth flow of bodily channels. Some of these include:

- Eating only when hungry, respecting natural cues.
- Avoiding incompatible food combinations (*Viruddha Ahara*).
- Consuming warm, freshly prepared meals.
- Using spices like Ginger, Cumin, Black pepper and Turmeric.
- Practicing seasonal routines (*Ritucharya*) and daily regimens (*Dinacharya*). Detoxifying periodically to clear *Ama* and open *Strotas*.

These measures help prevent the formation of *Ama*, the root of many chronic conditions in *Ayurveda*. From a modern standpoint these habits align with recommendations for gut health, including mindful eating, avoiding processed foods and maintaining a diverse gut microbiota.<sup>9</sup>

### **Clinical Implications of Avasthapaka, Agni, and Strotas**

Understanding *Avasthapaka* along with the status of *Agni* and *Strotas* provides diagnostic and therapeutic insight into digestive disorders. For example:

A *Kapha* dominant imbalance during *Madhura Avasthapaka* may manifest as

heaviness, bloating, or loss of appetite, indicating sluggish *Agni* and obstructed *Annava*

*Strotas*. *Pitta* imbalance in the *Amla Avasthapaka* phase could lead to hyperacidity, ulcers or inflammatory bowel disease due to excessive *Agni* and irritation in *Rasavaha Strotas*. *Vata* aggravation in the *Katu Avasthapaka* phase may present as constipation, gas or irregular bowel movements, signaling dryness and obstruction in *Purishavaha Strotas*.

Treatment strategies often include digestive stimulants (*Deepana*), carminatives (*Pachana*), purgatives (*Virechana*), and enema (*Basti*) tailored to the stage and dosha involved along with therapies to strengthen *Agni* and clear blockages in *Strotas*.

### **CONCLUSION**

The *Ayurvedic* concept of *Avasthapaka* presents a rich layered understanding of digestion that transcends the mechanical view of food breakdown. Rooted in ancient wisdom *Avasthapaka* describes digestion as a sequential transformation of food governed by the dynamic interplay of *Dosha* (*Vata*, *Pitta* and *Kapha*), *Agni* (digestive fire) and *Strotas* (bodily channels or pathways). Each stage of digestion *Madhura*, *Amla* and *Katu Avasthapaka* reflects not only a physical process but also an energetic and functional shift highlighting the body's innate intelligence in assimilating and eliminating food substances. When this *Ayurvedic* framework is examined alongside modern physiology, compelling correlations emerge. The progression from mastication and enzymatic breakdown to nutrient absorption and waste elimination mirrors the stages described in *Avasthapaka*. Modern science focuses on enzymes, acids, hormones and organs. while *Ayurveda* emphasizes energetic balance, digestive strength (*Agni*) and individualized responses to food. Together they form a complementary system where *Ayurveda* personalizes digestion based on an individual's constitution and external influences and biomedicine provides measurable, structural, and biochemical

insights. By integrating both approaches we move toward a more personalized, preventative, and holistic model of digestive health one that respects the complexity of the human body and the subtle factors that influence well-being. such as diet, metabolism, emotional state, and environment.

**Declaration by Authors**

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