JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Role of Bhutagnipaka Siddhanta in Digestion and Nutrition: A Comparative Study

Vaidya Shubhangi Patil [1]

1. **Associate Professer, SNKD's Nalasopara Ayurved medical College & Hospital (Late Shri Suresh Narsingh Dube Ayurveda Mahavidyalaya Rugnalaya) Nalasopara, Tal.- Vasai, Dist. -Palghar, Maharashtra**

ABSTRACT

All living beings consume food rich in various nutrients, which undergo metabolic processes in the gastrointestinal tract (GIT), where *Agni* plays a crucial role. In Ayurveda, the concept of *Agni*—though literally meaning "fire"—refers to the various biological energies responsible for digestion and metabolism in the body. The entire process of digestion, metabolism, and assimilation operates through the coordinated function of three types of *Agni*: *Jatharagni*, *Bhutagni*, and *Dhatvagni*.

Additionally, the process of digestion occurs in three sequential stages known as *Avasthapaka*, characterized by *Madhura Paka* (sweet stage) in the stomach, *Amla Paka* (sour stage) in the duodenum, and *Katu Paka* (pungent stage) in the intestines. Following these, *Bhutagni*—the elemental digestive factors—act on the five basic elements (*Panchamahabhutas*) present in food, digesting them and nourishing their corresponding elemental components within the body.

Dhatvagni functions at the tissue level and is primarily responsible for two important activities: the synthesis of new tissues and the generation of energy required for tissue function. After the sequential actions of all these *Agni*, the food is separated into a nutritive fraction and a waste fraction. The nutritive part is utilized for nourishment, while the waste is eliminated from the body.

Key Words: Agni, Dhatwagni, Digestion, Pachan.

INTRODUCTION

Ayurveda is an ancient and holistic healthcare system that has been practiced in India for thousands of years. Its primary objective is described as [1] *"Swasthasya Swasthya Rakshanam, Aturasya Vikara Prashamanam,"*[2] meaning the preservation of health in the healthy and the treatment of disease in the ailing. According to Sushruta, *Swasthya* (health) is defined as a state of equilibrium among the *Tridosha* (the three fundamental physiological regulators), *Agni* (digestive and metabolic fire), *Dhatu* (tissue-forming principles), and *Mala* (waste products), along with a balanced and harmonious state of the sensory organs, mind, and soul. This

definition reflects Ayurveda's holistic approach to health, emphasizing harmony within both the body and the mind[3].

The term *Agni*, though literally translated as "fire," in Ayurveda refers to the various biological energies that govern digestion and metabolism. It plays a crucial role in breaking down, assimilating, and transforming ingested food to sustain life. Proper functioning of *Agni* ensures that the body is well-nourished and capable of maintaining overall well-being [4].

Ayurvedic classics provide a detailed account of the entire digestive process, from the ingestion of food to its complete assimilation. In this context, the concept of *Āhāra Pariṇāmakāra Bhāva*—the factors responsible for proper digestion and metabolism—has been uniquely described. These factors include *Uṣhmā* (the heat factor), *Vāyu* (nervous coordination), *Kleda* (hydrolytic/moistening factor), *Sneha* (unctuous or lubricating factor), *Kāla* (the time factor), and *Samyoga* (appropriate combination and administration of food). While all these elements contribute to digestion and metabolism, the most vital among them is *Uṣhmā* or *Agni*. [5]

Digestion occurs in three distinct stages known as [6]*Avasthā Pāka* (phases of digestion): *Madhura Avasthā Pāka* (sweet stage), *Amla Avasthā Pāka* (sour stage), and *Kaṭu Avasthā Pāka* (pungent stage), which respectively take place in the stomach, duodenum, and intestines. This entire digestive process is driven by *Jatharāgni*, the digestive fire located in the stomach, duodenum, and jejunum, supported by the action of *Doṣhas* and their subtypes.

Alongside *Jatharāgni*, *Bhūtāgni* (digestive fire associated with the five basic elements) processes the elemental components of food, transforming them into a form the body can utilize. The partially digested food (*Annarasa* or chyme) then undergoes *Dhātvāgni Pāka*, a tissue-specific metabolic process, which nourishes the *Sapta Dhātus* (seven bodily tissues) and *Upadhātus* (subsidiary tissues that support structural integrity). *Agni* also plays a crucial role in the separation of food into its nutritious part (*Prasāda*) and waste part (*Kitta*), thereby maintaining overall physiological balance. [7]

Agni

Agni converts food in the form of energy, which is responsible for all the vital functions of our body. Therefore, Ayurveda [8] considers that Dehagni (~bioenergy of body) is the cause of life, complexion, strength, health, nourishment, lustre, oja (immunity), teja (~energy) and prana (~life energy).[9] Regarding the significance of agni, Acharya Charak stated that when the functions of agni ceases, the person dies; nevertheless, when agni is sama (~adequate), a person is well and lives a happy and healthy life. How-ever, a person's entire metabolism would be disrupted if his agni is vitiated, leading to illness and disease. As a result, agni is regarded as the mool (~foundation) of life.[10]

Types of Agni: Charaka has mentioned about 13 Agni.[11] Following three agni play an important role in digestive process Jatharagni –agni present in the stomach, duodenum and intestine Bhutagni – five agni present in five basic elements Dhatvagni – seven agni present in each of the seven dhatus (tissue system) Jatharagni is regarded as the most significant of the three because it is the one that digests the food which nourishes the dhatus, provides strength, improves the complexion, etc. and it also gives strength to other agnis. [12]

Special digestion or Vipaka:

It pertains to the humoral or hormonal mechanisms within the duodenal mucosa that stimulate the secretion of gastric, pancreatic, and hepatic digestive juices essential for facilitating intestinal digestion.

Vipaka

The term **Vipaka** literally means *transformation*. It refers to the metabolic process that begins once the action of **Jatharagni** (digestive fire) is complete. Following the function of Jatharagni, the ingested food is broken down and separated into two parts — the **nutritive (prasad)** and **waste (kitta)** fractions.

After absorption, the nutrients undergo chemical transformation, leading to the emergence of a new **rasa** (taste), known as **Vipaka**. This process of **Vipaka** is distinct from **Avasthapaka** (the earlier stages of digestion). During Avasthapaka, food with six primary tastes (**Shadrasa**) is sequentially transformed—first into **Madhura Rasa** (sweet), then **Amla Rasa** (sour), and finally into **Katu Rasa** (pungent).

Simultaneously, through the process of **Vipaka**, food containing **Madhura** (sweet) and **Lavana** (salty) tastes generally results in **Madhura Vipaka**, whereas substances with **Amla Rasa** (sour taste) are transformed into **Amla Vipaka**. Similarly, those with **Katu** (pungent), **Tikta** (bitter), and **Kashaya** (astringent) tastes typically produce **Katu Vipaka**.

Additionally, the process of **Bhutagni Paka** digests micronutrients at the elemental level based on the **Panchamahabhuta** (five-elemental) nature of the ingested substances.

Bhutagni Paka:

Bhutagni refers to the digestive fire inherent in each of the five basic elements (**Panchamahabhutas**)—**Parthiva** (earth), **Apya** (water), **Tejas** (fire), **Vayavya** (air), and **Nabhasa** (space). Each element possesses its own specific **agni** (metabolic energy) responsible for processing the corresponding element within food substances.

According to **Acharya Charaka**, each **Bhutagni** digests the respective element present in ingested food. Following this digestion, the assimilated nutrients—carrying the elemental qualities—nourish the corresponding **bhautika** (elemental) components within the body. [13]

Objectives of Bhutagni

Although the initial digestion of food is carried out by **Jatharagni**, the resulting product, known as **Ahararasa** (chyme), is still considered foreign to the body and must undergo further transformation before being accepted by the immune system. Until this transformation occurs, the food remains incompatible and cannot cross the **gut-immune barrier**—specifically, the **Pittadharakala**, which includes the **Gut Associated Lymphoid Tissue (GALT)**. [14]

The **Bhutagni** plays a crucial role in inducing affinity-producing changes in the chyme and enabling selective permeability of nutrients through the intestinal lining. Each Bhutagni is responsible for digesting and assimilating the elemental components (like **Parthivagni** for earth elements), helping convert micro-nutrients into a form that can nourish the respective structural elements of the body.

After digestion in the gastrointestinal tract (GIT), the process of **Bhutagni paka** begins with the absorption of nutrients into the portal circulation, carrying **ahara rasa** (micronutrients) to the liver for further processing. Through the hepatic vein, these nutrients enter the bloodstream. In this phase, the **Bhutagni** functions are performed by the liver, portal system, and vascular system, enabling **ahara rasa** to circulate throughout the body and nourish the **rasadi sapta dhatus** (the seven bodily tissues) as illustrated in Figure 1. For this reason, Ayurveda considers the liver as the central organ for **Bhutagni Vyapara** (metabolic activities). According to Ayurvedic physiology, **Bhutagni paka** takes place after **Jatharagni paka** completes digestion in the intestines. Once **Bhutagni paka** is finished, **ahara rasa** is fully produced, making its assimilation into the body's tissues possible.

Dhatvagni

Each of the seven **dhatus** (bodily tissues) possesses its own specific **agni** responsible for metabolizing the nutrients it receives — for example, **Rasagni** in **Rasa dhatu**, **Raktagni** in **Rakta dhatu**, and so on. These **Dhatvagnis** function with distinct mechanisms, selectively transforming and synthesizing the nutrients appropriate to their respective tissues. As **Acharya Charaka** explains, these seven dhatus, which support and sustain the body, contain their own agni that efficiently digests and converts the supplied materials for proper assimilation and nourishment.

Tissue metabolism — which sustains the growth and maintenance of the **Sharira** (body) — is referred to as **dhatu**. Each dhatu exists in two forms: **Asthayi** (mobile or nourishing, also called **Poshaka**) and **Sthayi** (stable, formed, also known as **Poshya**). The **dhatus** are sequentially formed from the **Poshaka** or **Asthayi dhatus**, one after the other.

After **Jatharagni paka** and **Bhutagni paka**, the **Adya Ahara Rasa** (essential nutrients) circulates through the body, carried by **Vyana Vayu** via both gross and subtle channels. This nutrient essence simultaneously reaches all dhatus through their specific channels, with each tissue absorbing the nourishment meant for it.

The nourishing portion extracted from **Ahara Rasa** by each **dhatu** remains in circulation for a period ranging from **5 to 30 days**, gradually transforming into the successive **dhatu**. **Rasa** is formed immediately on the same day, while **Rakta** takes 5 days, **Mamsa** 10 days, **Meda** 15 days, **Asthi** 20 days, **Majja** 25 days, and **Shukra** requires 30 days to be fully formed.

Function of Dhatwagni

The functions of Dhatvagni are essentially twofold: first, to synthesize new tissues, and second, to generate energy required for the functioning of these tissues. When Dhatvagni is weakened or impaired, both of these critical functions are disrupted.

Interestingly, the seven categories of agnis associated with the dhatus undergo metabolic transformation in two distinct ways — Prasada Paka and Kitta Paka. Prasada Paka produces the nourishing, health-promoting components known as Poshaka (nutrients) and Poshya (sustainers) for the tissues, while Kitta Paka results in waste products.

In alignment with modern science:

- Rasa dhatu can be compared to chyle, lymph, or plasma
- Rakta dhatu corresponds to blood tissue
- Mamsa dhatu relates to muscle tissue
- Meda dhatu aligns with adipose (fat) tissue
- Asthi dhatu represents bone tissue
- Majja dhatu correlates with bone marrow
- Shukra dhatu is comparable to reproductive tissue and aspects of the immune system

DISCUSSION

Ushma (agni) is the chief component of ahar parinamkara bhava (chemical/ metabolic reactions); therefore, it is described as the predominant component among all. To achieve good nutritional value and health, the appropriate time, quality, and quantity of food are necessary. Accordingly, Acharya Charak enumerated rules and regulations known as "Astha ahar vidhi vishesh ayatana," i.e., eight rules for the intake and preparation of food.

References

1. Charaka S, Sashtri Kashinath, Pt, Chaturvedi Gorakhnath., Dr. Ibid verse 30/26. Varanasi: Chaukhamba Bharti Academy; sutrasthana, 30/26. 2004.
2. Sushruta, Sushruta Samhita, Sutra Sthana, Dosha-Dhatu-Mala Kshaya, 8th ed. Varanasi: Chaukhamba Orientalia;
2. Vriddhi Vijnaniya Adhyaya, 15/41, edited by Vaidya Jadavji Trikamji Acharya; p. 75. 2005.
3. Basisht G. Exploring insights towards definition and laws of health in Ayurveda: Global health perspective. Ayu. Oct -Dec;35(4):351-5. 2024 doi: 10.4103/0974-8520.158975. PMID: 26195894;
4. Charaka S, Sashtri Kashinath, Pt, Chaturvedi Gorakhnath., Dr. Ibid verse 6/15. Varanasi: Chaukhamba Bharti Acade-my;. Sharirasthana, 6/15. 2004
5. Agrawal AK, Yadav CR, Meena MS. Physiological aspects of Agni. Ayu. Jul;31(3):395-8. 2010 doi: 10.4103/0974-8520.77159. PMID: 22131747; PMCID:
6. Charaka S, Sashtri Kashinath, Pt, Chaturvedi Gorakhnath., Dr. Ibid verse 15/9-11. Varanasi: Chaukhamba Bharti Acade-Chikitsasthana, 15/9-11,2004

7. Kunte AM, Navre KR. Ashtanga hrdaya (A Compendium of the Ayurvedic System) of Vagbhata, 'Sarvanga sundra' of Arunadatta and 'Ayurvedarasayana' of Hemadri. Varanasi: Chaukhamba Surbharti Prakasan;. p. 193. 2002
8. Shabdakalpadruma, Radhakantdev R, editors. Amar Publication Varanasi: Chaukhamba Samskrit Series.:8. 1967
9. Charaka S, Sashtri Kashinath, Pt, Chaturvedi Gorakhnath., Dr. Ibid verse 15/3. Varanasi: Chaukhamba Bharti Academy;. Chikitsasthana, 15/3; p. 452. 2004
10. Charaka S, Sashtri Kashinath, Pt, Chaturvedi Gorakhnath., Dr. Ibid verse 15/4. Varanasi: Chaukhamba Bharti Academy;. Chikitsasthana, 15/4. 2004
11. Charaka Samhita, Shastri K, Chaturvedi G., editors. Varanasi: Chaukhamba Bharti Academy; Chik. Sth, 15/5.p458 2004.
12. Dwarkanath C, Introduction to kayachikitsa, 3 edition, Chaukhambha Orientalia, p.46.
13. Shastri K, Chaturvedi G. Charaka Samhita, . Varanasi: Chaukhamba Bharti Academy;. Chikitsasthana, 15/8. 2004
14. Nisha Garg & Srikanta Kumar Panda: Role Of Doshas In Different Areas Of Digestive Tract. International Ayurvedic Medical Journal {online} 2022