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Review Article

Physiological Aspect of Agni and its Role in Metabolic Activities: A Review

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Abstract

In the Ayurvedic medical system, *Agni* represents the primary force governing digestion and metabolism within the body. It manifests as the active component in bodily secretions responsible for catalyzing digestive and chemical processes. Physiologically *Agni* performs functions of digestion, absorption and assimilation of ingested food. *Jatharagni* holds a central position as it influences the functioning of both *Bhutagni* and *Dhatvagni*. Physiologically *Jatharagni* transforms ingested foods into *Rasa* and *Mala*. The *Bhutagnis* act on specific elemental components of food, nourishing the corresponding elements within the body. The *Dhatvagnis* operate on respective tissues, breaking them down into different parts. The overall transformative process led by *Agni* contributes to the maintenance of vital aspects such as *Bala*, *Arogya*, *Ayu*, *Prana*, *Swasthyam*, *Varnam*, *Utsaha*, *Prabha*, *Ojha* and *Teja*. *Agni* serves as a critical factor in transforming ingested substances of diverse origins into a uniform nature, converting consumed food into energy.

Keywords: Ayurveda, Agni, Digestion, Metabolism, Paka

Introduction:

The digestion, absorption, and assimilation of ingested food, crucial for sustaining life, these all process physiologically govern by the *Agni*. Based on their functions and sites of action, *Agni* is classified into 13 types: one *Jatharagni*, five *Bhutagni*, and seven *Dhatvagni*. *Jatharagni* assumes utmost importance, digesting foods and transforming them into *Rasa* and *Mala*. The five *Bhutagnis* operate on specific elemental components of food, simultaneously, seven *Dhatvagnis* act on the respective tissues. This entire transformative process yields two types of products; *Prasad* for nourishment and *Kitta* for expulsion¹⁻³.

The *Agni* is considered crucial element not only at the physiological but also at pathological levels. *Agni* is primarily identified as the digestive and metabolic fire within the body. It manifests as a substance in bodily secretions directly responsible for initiating digestive and chemical changes. The indispensable process of digesting, absorbing and assimilating ingested food, performed by *Agni*. The majority of health disorders stem from the improper functioning of *Agni*, making it a central factor in health considerations. *Agni's* role extends beyond the absorption of both macronutrients and micronutrients; it also plays a crucial role in the destruction of microbes and pathogens. According to Ayurvedic principles,

the improper functioning of the digestive fire is identified as the root cause of clinical diseases³⁻⁵.

According to Ayurveda our body is composed of the five fundamental elements known as *Pancha mahabhutas*. Within this *Panchabautika sharira*, various metabolic transformations, or *Paka*, are continually occurring. All bodily transformations are catalyzed by *Agni*, and any impairment in *Agni* can disrupt the proper transformation of food. The metabolic activities of body also governed by *Agni* which includes digestion, transformation, heat generation and production of energy.

Agnis are performs their functions with different intensity and based on this they are categorizes as *Tikshnagni*, *Mandagni*, *Vishamagni* and *Samagni*⁵⁻⁷. *Sushruta* also identifies five types of *Agnis* as depicted in **Figure 1**. These various types of digestive fires perform different activities as mentioned below:

- ✓ *Pachakagni* is associated with digestion.
- ✓ *Ranjakagni* is concerned with coloration of bile pigments.
- ✓ *Alochakagni* is associated with vision.
- ✓ *Sadhakagni* is concerned with digestion.
- ✓ *Bhrajakagni* is related with brain.

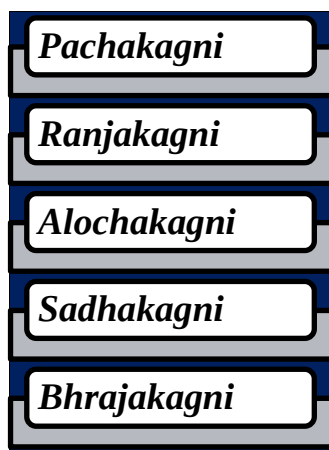


Figure 1: Five types of *Agnis* as per *Sushruta*

Physiological Role of *Agni*:

- ✓ *Agni* plays a pivotal role in regulating thermodynamic and chemodynamic activities in the body.
- ✓ In a normal state, it contributes to proper digestion, joy, happiness and the maintenance of normal bodily heat and complexion.
- ✓ *Agni* exhibit *Dahana* and *Pachana Karmas* and respond similarly to *Sheetala* and *Ushna*.
- ✓ *Agni* possesses *Sushka* and *Ruksha Guna* thus primarily maintains *Pakadi karmas*.
- ✓ *Agni* is responsible for the absorption of nutritious substances during the digestive process.
- ✓ In the absence of *Aahar*, it also addresses *Ama pachan* by effectively metabolizing improper metabolites.
- ✓ *Agni* plays a pivotal role in converting food into energy, which is essential for all vital functions in the body.
- ✓ It serves as the constant agent in the process of *Ahara paka*, overseeing metabolic transformations.

Role in Metabolic Transformation:

Digestion and Metabolism are intricately connected processes crucial for the proper functioning of the body. Metabolism encompasses the chemical processes that occur within the body to transform food into energy. The process of Digestion initiates in the mouth with both mechanical and chemical breakdown of food. As food traverses the digestive system, it undergoes further breakdown and processing facilitated by digestive enzymes, bile, and stomach acid. Nutrients derived from the food are subsequently absorbed into the bloodstream, transported to various body parts, and utilized for energy, growth, and repair. Metabolism, on the other hand, constitutes a series of chemical reactions within cells to convert food into energy. These reactions involve breaking down carbohydrates, proteins, and fats to generate energy and synthesizing new molecules from these nutrients to support diverse bodily functions⁶⁻⁸.

Agni play vital role in these process which collectively referred to as *Awastha paka* categorized into three phases; *Amavstha* (*Madhuravastha*) *Paka*, *Pachymanavastha* (*Amlavstha*) *Paka* and *Pakavstha* (*Katuavstha*) *Paka*. *Amavstha Paka* occurs in the stomach. *Pachymanavastha Paka* takes place in the *Grahani*. *Pakavstha Paka* occurs in the small and large intestine. These phases represent the changing nature of *Rasa* during different stages of digestion. At the conclusion of

digestion, the digested food retains its original *Rasa*, in alignment with the *Rasa* of the ingested food. The metabolic transform (*Vipaka*) of different *Rasa* differ from each other, *Madhur rasa* and *Lavan rasa* exhibit *Madhura Vipaka*, *Amla rasa* has *Amla vipaka* and *Katu & Kashaya rasa* showcase *Katu vipaka*. These metabolic transformations of ingested *Rasa* exhibited in final stage of digestion.

The intricate processes of digestion and metabolism are overseen by *Agni*, this digestive fire which is vital for effective digestion, metabolism and the elimination of waste products from the body. *Jatharagni* is responsible for digestion while *Bhootagni* and *Dhatvagni* play important role in metabolism. *Bhootagni* is responsible for the metabolism of the five basic elements (*Bhootas*) constituting the body and the universe; earth, water, fire, air, and ether. It transforms these elements from ingested food into energy. *Dhatvagni*, on the other hand, oversees the metabolism of the *Dhatus* including *Rasa*, *Rakta*, *Mamsa*, *Meda*, *Asthi*, *Majja* and *Shukra*. *Dhatvagni* converts nutrients from food into the foundational components for these tissues⁷⁻⁹.

Health and *Agni*:

Maintaining the health of *Agni* is imperative for proper metabolism and overall well-being. Imbalances in these *Agnis* can lead to digestive issues, inadequate nutrient absorption, and an accumulation of toxins in the body, impacting metabolism and other bodily functions. Ayurveda provides diverse dietary and lifestyle recommendations to foster healthy *Agni* including adhering to a balanced diet, engaging in regular physical activity and practicing stress-management techniques. Additionally, Ayurvedic herbs and treatments are utilized to support optimal digestion and metabolic function⁸⁻¹⁰.

Conclusion

Agni plays a pivotal role in regulating thermodynamic and chemodynamic activities in the body. *Agni* exhibit *Dahana* and *Pachana Karmas* and maintains *Pakadi karmas*. *Agni* is responsible for the absorption of nutritious substances; *Agni* plays a pivotal role in converting food into energy and it governs metabolic transformations inside the body. *Acharya Charaka* elucidates the digestive and metabolic functions of *Agni*, emphasizing that various dietary substances are processed by their respective *Agni*. This process is facilitated and augmented by *Jatharagni*, leading to further digestion and metabolism by *Dhatvagni*. The ultimate outcome is the nourishment of the body, contributing to its nutritional strength, complexion, and overall well-being. Simultaneously,

this process imparts energy to the seven *Dhatus*, promoting a harmonious and contented life.

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