

## Review Article

Physiological aspects of *Agni*Akash Kumar Agrawal, C. R. Yadav<sup>1</sup>, M. S. Meena<sup>1</sup>Department of Sharira Kriya, Shri Ganganagar College of Ayurvedic Science and Hospital, Shri Ganganagar, Rajasthan, <sup>1</sup>Department of Sharira Kriya, National Institute of Ayurveda, Jaipur, Rajasthan, India.

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## Abstract

*Agni* is the invariable agent in the process of *Paka* (digestion, transformation). Ingested food is to be digested, absorbed and assimilated, which is unavoidable for the maintenance of life, and is performed by the *Agni*. Different examples are available in our classics to indicate that *Pitta* is the same as *Agni*, but some doubt arises behind this concept, that *Pitta* is *Agni*. *Agni* is innumerable because of its presence in each and every *paramanu* of the body. But, the enumeration of the number of *Agni* varies in various classical Ayurvedic texts. According to the functions and site of action, *Agni* has been divided into 13 types, i.e. one *Jatharagni*, five *Bhutagni* and seven *Dhatvagni*. *Jatharagni* is the most important one, which digests four types of food and transforms it into *Rasa* and *Mala*. The five *Bhutagnis* act on the respective *bhutika* portion of the food and thereby nourish the *Bhutas* in the body. The seven *Dhatvagni* act on the respective *dhatu* by which each *Dhatu* is broken into three parts. In this way, the entire process of transformation consists of two types of products – *PRasad* (essence) and *Kitta* (excrete). The former is taken for nourishment while the latter one is thrown out, which otherwise defiles the body if it stays longer.

**Key words:** *Agni*, *bhutagni*, *dhatvagni*, *jatharagni*, *Pitta*

## Introduction

Ayurveda has described an important factor of digestion and metabolism in our body as *Agni*. Ingested food is to be digested, absorbed and assimilated, which is unavoidable for the maintenance of life, and is performed by *Agni*. In Ayurveda, the term “*Agni*” is used in the sense of digestion of food and metabolic products.

*Agni* converts food in the form of energy, which is responsible for all the vital functions of our body. Therefore, Ayurveda considers that *Dehagni* is the cause of life, complexion, strength, health, nourishment, lusture, *oja*, *teja* (energy) and *prana* (life energy). (Cha. Chi. 15/3.)<sup>[1]</sup>

About the importance of *Agni*, Acharya Charak has mentioned that after stoppage of the function of *Agni*, the individual dies, and when the *Agni* of an individual is sama, then that person would be absolutely healthy and would lead a long, happy, healthy life. But, if the *Agni* of a person is vitiated, the whole metabolism in his body would be disturbed, resulting in ill health and disease. Hence, *Agni* is said to be the base (*mool*) of life. (Cha.Chi.15/4.)<sup>[2]</sup>

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According to modern medicine, metabolic processes, division and multiplication are going on in all cells (*dhatu paramanu*) of our body from birth till death. The cell is the functional unit of the body. According to Charak, the constituent parts of the body, if further divided into the atoms, are sure to become innumerable, as such cells or atoms are exceedingly numerous, very minute and ultrasensory. In the conjunction and disjunction of cells, the activating factors are *Vata* and the nature of action (Cha. sha.7/17).<sup>[3]</sup> In Shushrut, we can see how the “*Avayavaas*” are formed from “*various dhatus*” (Su.Sha.4/25-30).<sup>[4]</sup> Thus, based on Charak and Shushrut, the above cells can be considered as “*dhatu paramanus*.” For these constant processes in all cells, a biological energy is constantly essential, without which the survival of our body will be quite impossible. The same biological energy is provided by *Agni* in Ayurveda. This *Agni*-provided biological energy in the cells (*dhatu paramanu*) of our body is of two types: potential and kinetic.

## Review and Discussion

The study of *Agni* can be summarized according to the following points:

1. General description of *Agni* in various Ayurvedic texts.
2. Normal physiological function of different types of *Agni*.

In Brahmasutra, *Agni* has been meant to be a sign of life in the body. Great value of *Agni* has been shown by classical literature. Acharya Yasaka has given the etymology of the term “*Agni*,” which is as follows: *Agni* = A + G + Ni. The word “*A*” denotes root “*I*,” meaning “*to go*”; “*G*” denotes the root

“Anja,” meaning “to glitter” or root “daha,” meaning “to burn” and “Ni” means “to carry.” The etymology given by Yasaka, Shankaracharya (*vedantasutra shabda kalpa druma*) illustrates that Agni carries everything in it. It moves everywhere and metamorphoses substances, burns, assimilates, glitters and grows. Agni is a pivot around which the remaining factors responsible for the maintenance of health and causation of disease as well as decay revolve (*Shabdakalpadrum*).<sup>[5]</sup>

In *shabdakalpa druma*, 61 synonyms of Agni have been compiled. These synonyms help in explaining the nature and functions of the Agni, e.g., Vaishvanara, Sarva Paka, Tanoonpata, Amivachatana, Damunasa, Shuchi, Vishwambhar, Rudra etc. (*Shabdakalpadrum*).<sup>[6]</sup>

### Agni as Pitta?

The origin of Pitta is from “Tapa,” which means: (1) combustion/digestion – to give nourishment to the body by digestion of ingested food, (2) to maintain heat – by means of heat, it maintains the color, lusture, etc. of the body (Su.Su.-21/5).<sup>[7]</sup>

Now, there is a question as to whether Pitta and Agni are both the same or are different? Does any area exist of Agni without Pitta, or is it that Pitta is Agni? This should be clearly understood. Different views have been suggested regarding Pitta and Agni by different Acharyas. Some Acharyas consider Pitta to be Agni while others speak differently.

According to Acharya Sushruta, there is no existence of any other Agni in the body without Pitta, because when there is increased digestion and combustion in the body due to *Ushna guna* of Pitta, the treatment is like Agni (Su. Su. 21/09).<sup>[8]</sup> Acharya Marichi has also emphasized that the Agni present in the Pitta gives good or bad results when it is normal or vitiated (Cha. Su. 12/11).<sup>[9]</sup>

Chakrapani has commented on “Pittantargatta,” that the function of Pitta inside the body is not combustion but its work is to provide heat of Agni. Besides this, Acharya Shusrut has described five types of Agnis as the variety of Pitta. Acharya Bhoj also considered Pitta as Agni, digestive fire is included within Agni, which is specially meant for different enzymatic activities of the body, i.e. *pachana*, *deepan*, *bhedana*, etc. (*Chakrapani Tika* on Cha.Su.-12/11).<sup>[10]</sup>

According to Hemadri, Pitta is of five divisions, which are located in the interior of the *pakvashaya* and *amashaya*, although it is composed of *panchabhutas*. Because of an increase of (predominance qualities of) *tejas bhuta*, it is devoid of liquidity (although it is a liquid). Also, because it does not possess *snigdha* (viscosity), *sita* and such other properties of *apa bhuta*, it is called by the term “Anal” because of its function of *paka*. It cooks the food, dividing it into essence and waste separately. Being localized there, it bestows grace (help) to the other Pitta present there and also the other *dhatvagni* present in the *dhatu*s by giving them strength (power of functioning), which is known as “*Pachaka Pitta*” (As.Hr.Su.12/10-12).<sup>[11]</sup>

Different examples are available in our classics to indicate that Pitta is the same as Agni. But, some doubts arise behind the concept of whether Pitta is Agni, e.g.

- why indulgence of aggravating factors like *katu*, *vidahi*, etc. reduces the strength of Agni instead of enhancing it.

- appropriate example to highlight the above concept that ghee alleviates Pitta but enhances Agni.
- the quotation of Acharya Sushruta, *Samadoshah samagnishcha* (Su. Sha. 15/48)<sup>[12]</sup> has clearly indicated that Pitta and Agni are not the same.

### Types of Agnis

Agni is innumerable because of its presence in each and every *dhatu paramanu* (cell) of the body. But, enumeration of the number of Agnis varies in various classical Ayurvedic texts, as shown below

- Charaka has mentioned about 13 Agnis. *Jatharagni* – 1, *Bhutagni* – 5, *Dhatvagni* – 7 (Ch.Chi.15/38).<sup>[13]</sup>
- According to Acharya Sushruta, five types of Agnis are illustrated, viz. *Pachakagni*, *Ranjakagni*, *Alochakagni*, *Sadhakagni* and *Bhrajakagni*. However, there is an indirect reference of five *Bhutagnis* underlying in the brief description made to the transformation of food stuff. (Sh. Su.21/10.)<sup>[14]</sup>
- Vagbhata has described different types Agni, viz. – *Bhutagnis* – 5, – *Dhatvagnis* – 7, – *Dhoshagni* – 3 and – *Malagni* – 3.
- Sharangadhara has recognized five *pittas* only (*Pachak*, *Bhrajak*, *Ranjak*, *Alochaka* and *Sadhak*) (Sha.Sa.Pu.Kh.-5/32).<sup>[15]</sup>
- Bhavamishra has followed Acharya Charaka and Vagbhata (Bh.Pu.Kh.-3/169,180).<sup>[16]</sup>

Agni has been divided into 13 types according to the function and site of action. These are:

1. *Jatharagni* – one Agni present in the stomach and duodenum.
2. *Bhutagni* – five Agni from five basic elements.
3. *Dhatvagni* – seven Agni present, one in each of the seven *dhatu*s.

Accordingly, they are classified into three groups, namely *Jatharagni*, *Bhutagni* and *Dhatvagni*.

### Jatharagni

*Jatharagni* is the Agni or bioenergy present in the *Jathara* (stomach and duodenum). According to *Ashtanga Hridaya*, *Jatharagni*, the seat is *grahani* (duodenum), so called because it withholds the food for a certain time inside the *Amasaya* (stomach) to facilitate digestion. In the opinion of *Dhanvantari*, it is the *Kala* known as “*Pittadhara*,” situated at the entrance of the *Pakvashaya* (intestine) and acting as a bolt to the door of the pathway/channel of food. It is responsible for the duration of life, health, valour, ojas (essence of the *dhatu*s), strength of all the *bhutagni* and *dhatvagni*. The strength of the *grahani* is from Agni itself, and the strength of Agni is from *grahani*. When the Agni undergoes vitiation, *grahani* also gets vitiated and produces diseases (As.Hr.Sha.3/50-54).<sup>[17]</sup>

*Jatharagni* is considered to be the most important because each and every nutrient that one ingests first comes to the *Jathara* and is subjected to the action of *Jatharagni*. *Jatharagni* digests the food materials that consist of the five basic elements and transforms it for utilization by the respective *Dhatu paramanus* (tissues).

*Jatharagni* is also responsible for separation of the food material into the essence portion (*PRasad*) and the waste products (*kitta*) in our body (As.Hr.Su-12/8).<sup>[18]</sup>

*Jatharagni* is directly related to *Dhatvagni* or bioenergy in the cells and their metabolic processes, with ultimate tissue metabolism or *Dhatu-Paka* process. All the *Dhatvagni* depend on the normal, healthy state of *Jatharagni*. If the *Jatharagni* is hyperactive (*Tikshna*) or hypoactive (*Manda*), it will cause an excessive or retarded action of the *Dhatvagni*. This disturbed action ultimately leads to various disorders. *Jatharagni* is the main important *Agni* that controls the function of all other 12 *Agnis*. All the *Agnis* are totally dependent on the status of *Jatharagni* (Cha. Chi. 15/39-40).<sup>[19]</sup>

*Jatharagni* is also classified into four categories according to its performance of digestion in the human being (Cha. Chi. 15/51),<sup>[20]</sup> namely *Vishamagni*, *Tikshanagni*, *Mandagni* and *Samagni*.

According to Hareet *Samhita*, *Samagni* depends on whether the *Doshas* (*Vata*, *Pitta*, *Kapha*) are in normal stage. When the *Pitta* is higher than normal, the condition is known as *Tikshnagni*. When *Vata* and *Kapha* are higher than normal, the condition is known as *Mandagni*.

- Samagni*: The *Samagni* digests and assimilates food properly at the proper time. This thus increases the quality of the *Dhatu*s (supportive tissues of the body). Persons having *Samagni* are always hale and healthy.
- Vishamagni*: This type of *Agni* changes between digesting food quickly and slowly. When this *Agni* is affected by the *Vata Dosh*, it creates different types of *udargata roga*.
- Tikshnagni*: *Tikshnagni* means very quick/very sharp/very fast. *Tikshnagni* is a state of very quick digestion of food, regardless of the type of food. Acharya Shushrut states that when the power of digestion is increased from normal to above normal, food digests very quickly and produces hunger or the desire for food. When food is digested, the throat, the mouth cavity and the lips become dry with a burning sensation. This condition is known as "*Bhasmak Roga*" according to Ayurveda.
- Mandagni*: "*Mand*" means slow. The meaning of the *Mandagni* is slow digestive power or digestive capacity. Those who are having *Mandagni* eat very little and are unable to digest the smallest amount of food. *Dhanvantri* says that *Agni* digests the least amount of food in the greatest amount of time.

### **Bhutagni**

*Bhutagni* is the one that is present in a basic element (*Bhutas*). There are five *Agnis* in each of the five basic elements, namely – *Parthiva* (earth), *Apya* (water), *Tejas* (*Agni*), *Vayavya* (*vayu*) and *Nabhasa* (*akash*).

Each and every cell in our body is composed of the five *mahabhutas* or five basic elements. Naturally, each cell (*dhatu paramanu*) consists of these five *Bhutagni* also. All the nutrients in this world that we eat also consist of the same five basic elements with their respective *Agni* or bioenergies. Thus, they are completely similar with respect to the five basic elements with their *Bhutagni* in our body cells as well in all the outside nutrient, that we ingest for the nutrition of our body. Acharya Charak has mentioned that the five *Bhutagni* digest their own part of the element present in the food materials. After the digestion of food by the *Bhutagni*, digested materials containing the elements and qualities similar to each *bhutas* nourish their

own specific *bhautika* elements of the body (Cha. Chi. 15/13, 14).<sup>[21]</sup> These *Bhutagnis* act after the *Jatharagni* present in the stomach and duodenum, acting on the food and causing their disintegration. In the modern physiological perspective, the action of *Jatharagni* can be equated with the digestion in the stomach and duodenum, and the action of the *Bhutagni* can be equated with the conversion of digested materials in the liver.

### **Dhatvagni**

All the seven *Dhatu*s (seven element tissues of the body) contain their own *Agni* to metabolize the nutrient materials supplied to them through their own *Srotas*.

- Rasagni* present in the *Rasa Dhatu*.
- Raktagni* present in the *Rakta Dhatu*.
- Mamsagni* present in the *Mamsa Dhatu*.
- Medagni* present in the *Meda Dhatu*.
- Asthyagni* present in the *Asthi Dhatu*.
- Majjagni* present in the *Majja Dhatu*.
- Shukragni* present in the *Shukra Dhatu*.

Each *Dhatvagni* or the bioenergy present in each *Dhatu* synthesizes and transforms the essential *Rasa Dhatu* required for that particular *Dhatu* or cell from the basic nutrients present in the *AnnaRasa* or essence of the diet that we consume. Each *Dhatvagni* has got a speciality to synthesize and transform the constituents suitable to its particular *Dhatu*. This action is a sort of selective action. Acharya Charaka has mentioned the fact that the seven *dhatu*s that are a support of the body contain their own *Agni*, and by their own *Agni* they digest and transform the materials supplied to them to make the substances alike to them for assimilation and nourishment (Cha. Su. 28/15).<sup>[22]</sup>

### **Conclusion**

After a detailed discussion on *Pitta* and *Agni*, it is concluded that all theories in their regard have their own importance, and it is very difficult to conclude which theory is more appropriate. But, one conclusion that can be drawn after going through the details is that in regard of treatment, *Pitta* and *Agni* are the same, whereas in accordance to their, build they differ from each other.

Explaining briefly the digestive and metabolic functions of *Agni*, Acharya Charaka has mentioned that various types of dietic materials are digested by their own *Agni* (*Bhutagni*), encouraged and enhanced by *Antaragni* (*Jatharagni*), which is further digested and metabolized by *Dhatvagni* to associate the body with the nutritional strength, complexion and happy life along with providing energy to the seven *dhatu*s.

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## हिन्दी सारांश

# अग्नि का शारीरक्रियात्मक अध्ययन

आकाश कुमार अग्रवाल    सी. आर. यादव    एम. एस. मीना

विभिन्न आयुर्वेदीय ग्रन्थों में अग्नि का बृहत् विवेचन मिलता है । अग्नि द्वारा शरीर आहार का पाचन होता है । आहार पाचनोपरान्त निर्मित आहार रस से शरीरस्थ धातुओं को पोषण और ऊर्जा प्राप्त होती है, जिसके द्वारा धातुएँ अपने-अपने कर्मों को करने में समर्थ होती है । अग्नि के रहने पर ही जीवन होता है और अग्नि के शान्त हो जाने पर मनुष्य मृत्यु को प्राप्त होता है । विभिन्न ग्रन्थों में अग्नि का अनेक प्रकार से वर्गीकरण भी मिलता है जैसे- जठराग्नि, भूताग्नि, धात्वाग्नि, समाग्नि, विषमाग्नि, तीक्ष्णाग्नि, समाग्नि ।