

## A CRITICAL REVIEW OF THE ROLE OF VYANA VAYU IN RASA RAKTA SAMVAHANA

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### ABSTRACT

Ayurveda is a traditional system of medicine based on the concept of the three Doshas- Vata, Pitta, and Kapha- which govern an individual's physical and mental characteristics. The Vata dosha acts as the primary driving energy within the body. Vata dosha is divided into five parts: Prana, Udana, Samana, Vyana, and Ap-ana vayu. *Rasa* (nutrient food or plasma) and *Rakta* (blood tissue) provide *Prinana* (nourishment) and *Jivana* (life provided by oxygenation), and they remain continuously circulated throughout the body. Vata protects the body, giving up on it *Utsaha* (enthusiasm), expiration, and inspiration; all physical, mental, and vocal activities; initiation and execution of *Vega pravartana* (urges); regular movements and actions of Dhatus (various tissues), and proper functioning of sense organs. Vyana Vata, located in the heart, moves all over the body at an enormous speed, performing all activities related to the body. This article offers insights into the holistic understanding of the role of *Prana Vayu* in transporting nutrients and the crucial process of *Rasa Rakta Samvahana* in nourishing the body's tissues. Additionally, it explores the anatomical and functional aspects of the heart as described in Ayurvedic texts.

**Keywords:** *Vyana Vayu, Rasa Rakta Samvahana, Hridaya, Ayurveda, Vata Dosha*

## INTRODUCTION

Ayurveda is the science of life based on Tridosha's theory. The three Doshas are crucial in sustaining health and well-being and influencing disease or illness. Vata is particularly significant as it can regulate and maintain the balance of Pitta, Kapha, Dhatus, and Malas in their natural, healthy state (Prakrut Avastha)[1]. All mental activities are governed and stimulated by the vata dosha, which also employs all sensory senses. Vata unites the body's tissues, giving it compactness and facilitating speech, sound production, touch perception, and speech. Vata is essential for facilitating speech, generating sound, and enabling touch sensation. It plays a pivotal role in fostering joy and courage, igniting the digestive fire, and supporting the absorption and balance of Doshas. Additionally, Vata aids in the elimination of waste products, maintaining harmony within the body. Vata travels through all gross and subtle channels, gives the embryo shape, and indicates continuity of life. Vata Dosha is divided into five types: *Prana*, *Udana*, *Vyana*, *Samana*, and *Apana*. Among the sub-types of *vata*, *Vyana Vayu* is responsible for any movements in the body. *Vyana Vayu* is described as a *Mahajava*, which is highly powerful. It works the function of *Rasa Rakta Samvahana* continuously and throughout life.[2]

Rasa is the primary Dhatu formed from the ingested food. *Rasa Rakta Samvahana* refers to the system that transports Ahara Rasa (food extracts) through Strotas to all the body's Dhatus (tissues) for nourishment. This process encompasses the transportation and exchange of *Poshaka Rasa* from Ahara Rasa at the cellular level to the Dhatus. *Vyana Vayu* circulates the Rasa (nutrient fluid) continuously throughout the body due to its spreading nature (Guna)<sup>3</sup>. The function of *Rasa* is *Preenana* (nourishment), which varies with age. In childhood, it performs *Vardhana Karma* (growth), *Tarpana* (satisfaction) in adults, and *Yapana* (sustenance) in older people. The *Rasa Samvahana* is the circulation of *Rasa Dhatu* as a *Poshaka Rasa* that circulates within the *Rasavaha strotas* for the *Preenana of Poshya Dhatus*. *Poshaka Rasa* first goes to Yakrit and then to Hridaya. From

Hridaya, the *Vikshepana Karma* of *Vyana Vayu* will circulate throughout the body.

This article is an effort to elaborate on the role of *Vyana vayu in rasa rakta samvahana* according to Ayurvedic literature.

**Aim and objective:** This article explores the role of *Vyana vayu* in *rasa rakta samvahana* in ayurvedic physiology.

**Materials and Methods:** A comprehensive search for relevant information on *Vyana vayu* and *rasa rakta samvahana* was done by reviewing classical texts and research articles.

### REVIEW OF LITERATURE:

*Vyana Vayu* is considered a highly powerful Vata among all subtypes of Vata. It is responsible for vital functions such as movement (Gati)[2], the circulation of *Rasa* and *Rakta* (nutrient fluids and blood), the perception of taste (*Anna Aswadana*), and the release of sweat (*Sweda Sravana*), supporting the body's dynamic balance and sensory experiences.

*Vyana vata* has been described as '*maha javah*' or highly powerful and highly speedy in the movement and its site is at the heart.[2] Its nomenclature, *Vyana*, is considered Termed *nadimukheshu vitananata Vyanah*; this specific form of Vata governs the vital circulation of blood and bodily fluids, playing a key role in sustaining the flow and distribution of essential elements within the body.[4] The locomotion is the most critical function of a living being. The movements are effected through relaxation and contraction of the muscle. The function is performed with the help of other *vayu*. *Vyana Vata* consistently propels the *rasa dhatu* from the heart, distributing it forcefully and continuously throughout the body. [8]. *Rasa* is expelled from the heart and circulates throughout the body via the twenty-four dhamanis. Sushruta has described twenty-four dhamanis through which the *rasa dhatu* circulates across the body.<sup>5</sup> The *rasa dhatu* then returns to the heart via the blood vessels known as *sira*, originating from the heart. [6]. *Samana vayu* regulates the function of re entry of *rasa dhatu* to the heart. The nourishing component of digested food is called *rasa*, and waste undigested

products are termed *purisha* and *mutra*. After being expelled by *Vyana Vata*, this *rasa* nourishes the tissues. *Vyana vata* propel *rasa dhatu* inside the body in three directions: upward, downward & sideward through all *dhamanis*[7]. In the process of *rasa samvahana*, the commentator Chakrapani stated that a physician should not focus on *rasa*. Blood and other fluids should be considered while reading about the circulation of *rasa*. The entity responsible for adequately performing the pumping function is called *vikshepochitta karma*. This is the function of *vyana vayu*. This circulation is accomplished simultaneously in the entire body, flown ceaselessly all the time.[8]

#### **The role of Vyana Vayu in the functioning of the other vayus:**

The primary functions of *Vyana Vata* can be summarised as follows:

**Gati**– It involves the movements of the skeletal musculature, including *Prasarana*(extension), *Akunchana* (contraction), *Vinamana* (bending), *Unnamana* (upward movement) and *Tiryag Gamana* (lateral movement).[2]

Circulation of *Rasa* and other *Drava dhatus* like *Raktha*.

Effecting the outflow of the blood from the body.

Effecting the outflow of sweat.

Separation of the essence of food from waste matter.

Deposition of semen inside the vaginal cavity[9]

Although *Vata* is divided into five subtypes, their functions are interconnected and rely on one another.

Situated in the head region, *Prana Vayu* is responsible for food intake. The perception of taste, which is vital for food ingestion, is facilitated by *Vyana vayu*.

*Prana Vayu* exercises control over all the senses (*Indriyas*), while the movement of these senses is made possible with the assistance of *Vyana Vayu*.

*Sroto Preenana*, a function directed by *Udana Vayu*, signifies the widespread circulation reaching every cell. This widespread distribution is made possible by *Vyana Vayu*, which carries the essence of food throughout the body. *Udana Vayu* is also responsible for respiration, and the facilitation of this respiratory

movement is made possible with the assistance of *Vyana vayu*.

#### **Vyana vayu and Samana vayu**

Located near *Agni*, *Samana Vayu* plays a role in digesting food and separating it into its essential and waste components. The transportation of the food essence throughout the body, crucial for nourishment, is facilitated by *Vyana vayu*. Additionally, *Samana Vayu* preserves the integrity of *Swedavaha Srotas*, while *Vyana vayu* aids in sweat expulsion.

#### **Vyana vayu and Apana vayu**

*Apana Vata* governs all excretions, notably the expulsion of semen. With the assistance of *Vyana Vata*, the ejaculated semen can be directed towards the *yonis*. While *Apana Vata* controls the expulsion of semen, *Vyana Vata* may influence the voluntary act of intercourse. [10]

**Sthana of Vyana vayu:** According to *Ayurveda*, *Vyana Vata* is located at the *Hridaya*, symbolising the core or essence. According to *Acharya Charak*, The air which pervades the whole body, whose movement is fast, that is, fast, is the *Vyana* air. It is the conductor of the actions of the body, such as movement, propagation, acceleration, moment, etc. By the action appropriate to the disturbance of the taste-metal by exertion. In modern anatomical terms, the spinal cord serves as the pathway for transmitting sensory input to the brain and motor output from the brain. The gray matter of the spinal cord contains anterior horns, which house somatic motor nuclei responsible for skeletal muscle contraction, and lateral horns, which contain autonomic motor nuclei that regulate the function of cardiac muscle, smooth muscle, and glands. These spinal cord regions' combined functions collectively regulate *Vyana Vata's* activities. Thus, regarding the spinal cord as the *Hridaya* aligns with the central or core role attributed to *Vyana Vata* in *Ayurveda*. [11]

**Rasa Rakta Samvahana** - *Rasa* is the primary *Dhatu* formed from ingested food. *Rasa Rakta samvahana* refers to the system that transports *Ahara Rasa* (food extracts) through *Srotas* to all the body's *Dhatus* (tissues) for nourishment. The *Acharyas* have described

the functions of Vyana Vayu as the projection of blood and blood throughout the body. This happens in Rasa Rakta Samvahana through the heart. Acharya Bhel has also given another description of this: the fluids from the heart deliver nutrients to the entire body through the arteries and carry the waste products of the body from the tissues and come back to the heart through the veins, due to which the nerves are also said to originate from the heart. That is, blood circulation through the heart takes place through Vyana Vayu. [12]

According to Acharya Charaka, through the action of dispersion (Vikshepana karma) of Vyana Vayu, Rasa and blood are simultaneously given to the entire body. Vyana makes the blood circulate by doing the required work to expel the air and nutrition simultaneously reaches the body through the circulation of Rasa. Rasa keeps circulating throughout the body, in the body parts, in the entire body system, and the cells. The Rasa circulates continuously, and its purpose is to provide nutrition to the body. It also expels the wastes generated by Dhatupaka from the cells and sweat, urine, waste, etc., from the body. Life depends on these works. [12]

Charak has said that the process of Rasa transport is cyclical, i.e. it happens continuously. Chakrapani has called it 'Chakravat Parivritti', which means continuous generation of Rasa, and Ranjit Rai Desai has called it moving from the place of heart and returning to the same place again. The Rasa Dhatu from the heart gets sterilized and supplies nutrients to the whole body through the arteries. Thereafter, it takes the waste products produced from the whole body and comes back to the heart through the veins, due to which the veins are also said to originate from the heart. Are. That is, blood circulation through the heart occurs due to the greatness of Vyana-Vayu.

Acharya Dalhana compares the circulation of Rasa to three elements: Shabda (sound), Agni (flame), and Jala (water), based on the differing characteristics such as direction, motion, and the formation of the Dhatus.[13] Sound waves travel quickly in a circumferential direction. They are produced rapidly, similar to Shabda Santanavata Rasa, which circulates at high

velocity, laterally, and forms rapidly due to a high Agni content (Tikshanagni). Flames move upward at a moderate speed and are not formed as quickly. Likewise, Agni Santanavata Rasa moves upward with a moderate velocity compared to sound waves and forms at a moderate speed due to moderate Agni content (Madhyamagni). This description suggests a theoretical model of Rasa Dhatu's transportation in the body, drawing parallels to the flow of Shabda (sound), Archi (flame), and Jala (water). Just as water tends to flow downward at a slow velocity, Jala Santanavata Rasa similarly circulates slowly and downward within the body. These Jala Santanavata Rasa have the lowest Agni content, as they form during Mandagni (low digestive fire).[14] Agni influences the circulation of Rasa. The strength of Agni determines the amount of food that should be consumed and the formation of Rasa. Stronger Agni leads to better digestion and a more significant amount of Rasa, which increases the flow rate. Conversely, weak Agni results in lower Rasa formation and a decreased pulse rate. Our health relies on how well Poshaka Rasa is formed, its uninterrupted circulation throughout the body, and its ability to nourish the Dhatus. Insufficient Rasa Rakta Samvahana can lead to symptoms such as palpitations, a feeling of emptiness in the heart, vision darkness, and cardiac pain. These issues can be caused by starvation, improper diet, Mandagni (poor digestion), or any obstruction in the Rasavaha Strotas.

#### **Functions of Samana Vayu and Vyana vayu in the conveyance of Rasa:**

After the digestion of food, the Aahara Rasa is transported to the heart through Samana and Vyana Vayu, which continuously circulate the Rasa and Rakta throughout the body.[15]

**Role of HRIDYA in Rasa Rakta Samvahana:** *The heart is an organ made of muscle tissues that serve as the primary basis for circulation in the body. It is named as follows:*

(Hru) – *Harati* – It takes blood throughout the body.

(Da) – *Dadati* – It supplies blood to the entire body.

(Ya) – *Yachchhati* – It provides motion or movement.

In the section on vital points in the chest, Maharishi Sushruta describes the heart as being situated in the middle of both breasts below the chest. It is considered the abode of *Satva*, *Raja*, and *Tama Gunas* (qualities) and is located near the entrance of the Amashaya (stomach). All six body constituents—intelligence, senses, sense objects, the embodied soul with attributes, the mind, and its objects—reside in the heart.

While modern scholars claim the mind is located in the brain, Acharya Bhela also subscribes to this view because the brain controls all physical activities. However, Maharishi Charaka considers the heart the sanctuary for all these elements. This is because when the functions of the heart are obstructed, all physical activities automatically cease. As long as the heart functions, all entities remain established in their respective functions. Therefore, the superiority of the heart in the body is established. Under the protection of this heart are the Pranavaha Dhamanis (channels carrying vital air). Below the heart, on the left side, are the spleen and the lungs, while on the right side, the location of the liver and the gallbladder are described. The heart is considered the abode of consciousness, and hence, when it is covered by darkness, sleep occurs. Consciousness is synonymous with life. Such a place can be called the seat of consciousness. The body remains alive as long as there is pulsation in the heart. The best sign of death is the cessation of the heart's pulsation. Therefore, the heart is also considered the abode of consciousness.

In the chapter titled "*Artheshwara Mahamooliya Adhyaya*," Charaka mentions two synonyms for the heart: "Mahat" and "Artha." Additionally, he describes ten main arteries originating from the heart, which are primary and secondary. The heart is considered the abode of consciousness as well as vigor. Thus, those vessels in the body that carry vigor while sustaining it are referred to as providers of great benefits. The term "Mahamool" signifies that the heart is the root of these ten arteries.[16]

In Ayurveda, the heart is compared to a downward-facing lotus[17], with its peak positioned downwards. It remains expanded in the waking state and contract-

ed during sleep. During wakefulness, the heart's activity is vigorous, so it is considered to be expanded, while during sleep, its activity slows down due to the attainment of health. Hence, it is considered contracted, so its activity is inhibited.

It is said regarding the functions of the heart that the heart, along with Vyana Vayu, facilitates the circulation of lymph and blood throughout the entire body.[18] In other words, through the propulsion action of Vyana Vayu, both lymph and blood are distributed simultaneously in the whole body. Vyana Vayu propels blood circulation while lymph is distributed throughout the body via the circulation of lymphatic fluid. The lymph circulates throughout the entire body, all organs, limbs, and cells. Lymph circulation occurs continuously at a constant pace, and its purpose is to nourish the body, deliver life force, and eliminate waste products generated by tissue metabolism, which are expelled from the body through sweat, urine, breath, etc. Life depends on these activities.

In other words, the heart sends nutrient-rich blood through arteries to nourish the entire body. Subsequently, the veins return the waste materials the body produces back to the heart, where they are sent out for disposal. This blood circulation by heart with the help of Vyana Vayu is what constitutes blood circulation.

## DISCUSSION

The Ayurvedic understanding of Vyana vayu involves numerous physiological functions correlating with contemporary medical knowledge. Vyana vayu plays a crucial role in the circulation of Rasa dhatu, which is essential for nourishing tissues and maintaining overall health. After food is digested, the juice is transported to the heart through Samana and Vyana Vayu, and the vehicle keeps circulating the Vayu juice continuously throughout the body.

This aligns with modern knowledge of the heart's electrical conduction system, the regulation of heart function by the sympathetic and parasympathetic nervous systems, and hormonal influences on cardi-



ovascular activity. Moreover, the involvement of Vyana vayu in bodily movements, such as skeletal muscle contraction and eyelid movement, corresponds to the functions of the somatic nervous system, cranial nerves, and motor areas of the brain, like the primary motor cortex and supplementary motor area.

## CONCLUSION

Vyana Vata is regarded as the most potent subtype among all Vata classifications. It undertakes vital functions such as Gati (movement), Rasa-rakta paribhramana (circulation of lymph and blood), Anna aswadana (taste perception), and sweda sravana (sweating). The operations of Vyana Vata are intricately connected with other Vata subtypes.

The circulation of Rasa, Rakta and other body fluids, termed Rasa-Rakta Samvahana, is vital for nourishing the body's tissues and maintaining overall health. The process of Rasa Rakta Samvahana is operated by Vyana vayu. The Hridaya, situated at the body's core, serves as the primary organ for circulation and the seat of consciousness. The functions of Vyana Vayu, as described in Ayurvedic scriptures, highlight its significance in sustaining life and well-being. Thus, understanding and nurturing these aspects of Ayurveda can contribute to a holistic approach to health and vitality.

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