

## ROLE OF VYANA VATA IN RASA SAMVAHANA

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## ABSTRACT

*Rasa Dhatu provides Prinana (nourishment) to the body and remains in continuous circulation throughout the system. The chief tool for this action is heart. Vayu plays the most important role in the circulation of blood and other liquids of the body. Vata has been divided into five, out of these Vyana Vata is located in the heart, moves all over the body at an enormous speed with performing all activities related with the body. It has been described as highly powerful and highly speedy in the movement. Kapha and Pitta cannot move without any external power, are moved and circulated with the help of Vata.<sup>[1]</sup> Gayadasa has explained Rasa Samvahana (circulation of Rasa Dhatu), Bhavamishra has added the word Adi(etc.) Though the text describes only Rasa Samvahana but the word Adi should*

be noted here and circulation of blood etc should be included. *Sushruta* outlined five different *Vata* acts, from which *Purana* (filling) should be interpreted as swallowing food, filling the stomach, and so on, as well as filling vessels like arteries and so on to maintain proper pressure.<sup>[2]</sup> The heart's conduction system, the vasomotor nervous system and the contraction and relaxation of muscle tissues can all be regarded as *Vyana's* apparatus. Though their dispersed appearance prevents us from conducting a thorough exploration, there are sufficient findings to establish the involvement of *Vyana* in *Rasa-Rakta Samvahana*. The goal of this article is to compile and reorganize the information for proper comprehension.

**KEYWORDS:** *Rasa, Rakta, Samvahana, Vyana vata, Hridaya.*

## INTRODUCTION

*Rasa Dhatu* is the first formed *Dhatu* derived from *Ahararasa* after proper digestion by *Jatharagni* and *Dhatwagni*. *Rasa Dhatu* is located in *Hridaya* and it serves as the primary nutritive fluid responsible for *Prinana* (satiation of tissues), *Pushti* (nourishment). the continuous circulation and distribution of this *Rasa Dhatu* throughout the body is termed *Rasa Samvahana*, which ensures uniform nourishment to all *Dhatu*s and maintenance of physiological equilibrium.<sup>[1]</sup>

*Vyana Vata*, one among the five subdivisions of *Vata Dosha*, is described as *Sarvashareera Vyapi* and is chiefly responsible for *Gati* (movement) and *Prasarana-Aakunchana* (circulatory activity).<sup>[2]</sup> Classical texts clearly attribute the function of *Rasa-Rakta Samvahana* to *Vyana Vata*, indicating its pivotal role in propelling *Rasa Dhatu* from the *Hridaya* to all parts of the body through the *Srotas*.<sup>[3]</sup> Thus, the harmonious functioning of *Vyana Vata* is essential for effective *Rasa Samvahana* and optimal *Dhatu Poshana*.

## CONCEPT OF RASA DHATU

According to Ayurveda, *Rasa Dhatu* is formed immediately after digestion of food, as stated that *Ahararasa* is converted into *Rasa Dhatu*, which circulates first before nourishing subsequent *Dhatu*s.<sup>[1]</sup> The *Nirukti* of the term *Rasa* is derived from the root “*Rasati iti Rasah*”, meaning that which flows or circulates continuously, emphasizing its dynamic and circulating nature.<sup>[5]</sup> Charaka describes *Rasa Dhatu* as the substratum for *Prana*, *Indriya Pushti*, and *Ojas* formation, highlighting its vital role in sustaining life.<sup>[2]</sup>

## SAMVAHANA

Root meaning of word *Samvahana* is “*Sam*” (together) + “*Vah*” (to carry).<sup>[21]</sup> According to *Shabdakalpadruma*, the word meaning of *Samvahana* means act of carrying, conveying or transporting, essentially referring to the action of carrying something from one place to another.<sup>[22]</sup> The word *Samvahana* has multiple meanings including, conduction, communication, connection and bearing.<sup>[23]</sup>

## ROLE OF SAMANA VATA

*Samana Vata* actively regulates *Ahara Grahana* and *Pachana*, ensuring effective *Sara-Kitta Vibhajana* at the level of digestion. It mobilizes the nutritive *Sara Bhaga* and propels it towards the *Hridaya*, the central seat of *Rasa Dhatu*. By coordinating digestive fire and directional movement, *Samana Vata* directly influences the quality and availability of *Rasa*.

Any impairment of *Samana Vata* leads to defective *Rasa Utpatti* and subsequent *Dhatu Poshana* disturbances.

ACHARYAS	CHARAKA SAMHITA	SUSHRUTHA SAMHITA	ASTANGA HRIDAYA	ASTANGA SANGRAHA
<b>STHANA (Location)</b>	Vyana has swift movement and <b>spreads all over the body</b>	Vyana Vayu occupies entire living body. It helps in <b>circulation of Rasa throughout the body</b>	Vyana Vayu located in <i>Hridaya</i> and it travels along the whole body with very high velocity	<b>Located in heart</b> moves all over the body with great speed.

### ROLE OF VYANA VATA

*Vyana Vayu* is located in the heart, moves all over the body at a great speed, attends to functions such as walking, bringing the body parts downwards, opening and closing the eyes etc. *Vyana Vata* has been described as *Maha Javah* or highly powerful and highly speedy in the movement and it's at the heart. Its nomenclature *Vyana* is considered and can be described as *Nadimukeshu Vitanata Vyanah* and indicates that this type of *Vata* is responsible for the circulation of blood and other liquids of the body.<sup>[3]</sup>

### VIKSHEPA ACTION OF VYANA VATA

The *Rasa Dhatu* in the body is circulated in the body by the *Vikshepa* (throwing away) action in the method of *Yugpata* (simultaneously), *Sarvataha* (from all sides, everywhere, entirely), *Ajasram* (forever, constantly, perpetually), *Sada* (always, continually, for the whole life) The *Vyana Vata* keeps the *Rasa* in circulation in the whole body and is also circulated in the whole body through the medium of *Rasa* and *Rakta Dhatu*, when and where in the body the flow of the *Rasa Dhatu* is obstructed, disease may occur.<sup>[4]</sup>

### STHANAS OF VYANA VATA<sup>[5]</sup>

#### HRIDAYA

*Hridaya* is a conical, hollow muscular organ formed from *Rakta Dhatu* and *Kapha Dosha*. The term *Hridaya* is derived from *Hrahrane* (to carry or take), *Da Dane* (to give), and *Ya Gatau* (to move or goes), reflecting its sequential functions of receiving and distributing blood through rhythmic contraction and relaxation under the influence of *Vyana Vayu*.<sup>[6]</sup> *Charaka* describes ten vessels of great biological importance attached to the heart. He also mentioned the words *Mahat* and *Arta* have been used as synonym indicates its importance<sup>[7]</sup> He further states that *Hridaya* is the seat where *Rasa, Vatadi Doshas* resides.<sup>[8]</sup> *Hridaya* is

classified as a *Sira Marma* and *Sadya Pranahara Marma*, situated in the thorax.<sup>[9]</sup> Analogous to the central pillar supporting a structure, *Hridaya* serves as the substratum of vital entities and qualities, and even minor injury leads to fainting, while severe injury results in death.<sup>[10,11]</sup>

## MATERIALS AND METHODS

### SOURCE OF DATA

The present study is based on a comprehensive literary review. Primary data were collected from Ayurvedic classical texts including *Charaka Samhita*, *Susruta Samhita*, *Ashtanga Hridaya*, *Bhela Samhita*, and *Kashyapa Samhita*, along with their commentaries such as *Ayurveda Dipika* of Chakrapanidatta, *Nibandhasangraha* of Dalhana, and *Sarvanga Sundara* of Arunadatta.

### SUPPLEMENTARY LITERATURE

Relevant references were also reviewed from

- Contemporary Ayurveda texts on *Vata Dosha* physiology and *Dhatu Samvahana*.
- Modern medical physiology textbooks (Guyton & Hall, Tortora & Derrickson, etc.) for correlating *Vyana Vata* with cardiovascular and nervous system functions.
- Peer-reviewed journals, dissertations, and digital databases (PubMed, DHARA, Google Scholar) using keywords: *Vyana Vata*, *Rasa Samvahana*, *Rakta* Circulation, *Hridaya*, *Ayurveda* Physiology, Cardiovascular system correlation.

## DISCUSSION

### CIRCULATION OF RASA DHATUS

*Rasa Dhatu*, being the first formed *Dhatu* from *Ahara Rasa*, acts as the primary circulating nutritive medium of the body. Functionally, it can be compared with plasma and interstitial fluid, as it serves as a carrier of nutrients and life-sustaining components; however, *Rasa* is not merely a transport fluid but possesses *Prinana* and *Tarpana* functions essential for tissue sustenance. *Rasa* exists in *Sthula Pramana* as the circulating nutritive fraction and in subtle form as *Asthayi Poshaka Dhatu Rupa*, which continuously supplies the *Poshaka Bhaga* to all subsequent *Dhatus* according to classical *Dhatu-Poshana Nyayas*. Its circulation and uniform distribution are governed by *Vyana Vata*, and any *Tridosha Vaikrita* - *Vata* causing depletion, *Pitta* causing qualitative alteration, or *Kapha* causing stagnation, directly impairs *Dhatu* nourishment.

The concept of blood circulation in Western medicine was first established in 1628 AD by William Harvey and further developed in 1661 AD by Malpighi with the discovery of capillaries.<sup>[24,25]</sup> However, long before this, Ayurvedic literature had already described the fundamental idea of circulation through the concepts of *Rasa* and *Rakta Samvahana*.

The first reference of systemic circulation can be traced to *Bhela Samhita*, where it is explained that *Rasa Dhatu* circulates from the heart to the periphery and returns back to the heart.<sup>[26]</sup> The description highlights the dual flow from *Hridaya* to *Sharira* and from *Sharira* back to *Hridaya*. Here, the *Hridaya* is understood etymologically as: *Hra - Harane* (to carry blood and nutrients), *Da - Dane* (to give), *Ya - Gatau* (to return back to the heart).<sup>[27]</sup> Thus, *Hridaya* is described as both the seat and controller of circulation.

In *Rasa Samvahana*, the *Hridaya* plays a central role by virtue of its inherent rhythmicity, conductivity, and contractility, which together facilitate the continuous circulation of *Rasa Dhatu*. These functional attributes of the heart provide an appropriate structural and kinetic basis for the *Pravrtti* of *Vyana Vata*, whose chief function is *Vikshepana* and *Samvahana* of *Rasa* throughout the body. The rhythmic contraction and relaxation of the *Hridaya* ensure uninterrupted *Gati* of *Rasa*, while conductivity enables coordinated transmission of movement, allowing *Vyana Vata* to act uniformly. Contractility generates the necessary *Bala* for propulsion of *Rasa* into the *Dhamanis*, wherein the characteristic *Dhmana* (pulsatile expansion and recoil) is observed. This pulsatile movement of the *Dhamanis* represents the dynamic interaction between *Hridaya* and *Vyana Vata*, ensuring effective distribution of *Rasa* to all *Srotas* and maintaining systemic nourishment and physiological balance.

Further, *Chakrapani* described *Dasha Dhamanis*, which can be correlated to the major arteries and veins including the pulmonary artery, aorta, coronary artery, carotid, subclavian, brachiocephalic arteries, vena cavae, and pulmonary veins.<sup>[29]</sup> These descriptions show a remarkable understanding of systemic and pulmonary circulation prior to modern discovery.

In terms of functional physiology, *Rasa* and *Rakta Dhatus* are the primary circulatory fluids. Both are mobile, both circulate through *Hridaya*, but differ in their *Panchabhautika* constitution. *Rasa Dhatu* has a predominant *Jala* and *Apya* component, while *Rakta Dhatu* is dominated by *Teja* along with *Jala*.<sup>[30,32]</sup> The *Rakta Dhatu* carries *Prana* (*Pranaha Shonithamanuvartante*).<sup>[31]</sup> while the *Apya* portion of *Rasa Dhatu* provides the nourishing aspect.

The force behind this circulation is *Vyana Vata*, one of the five major *Vata* subtypes. Described as *Sarvatah Pravartaka*, *Vyana Vata* spreads throughout the body, enabling simultaneous (*Yugapat*), perpetual (*Ajasram*), uninterrupted (*Sada*), and cyclic (*Cakravat*) movement of *Rasa-Rakta*.<sup>[33]</sup> Thus, while *Hridaya* provides the structural seat and *Dhamani-Sira* provide the channels, it is *Vyana Vata* that energizes and propels the circulation. Without *Vyana Vata*, *Rasa-Rakta Samvahana* would not be possible.

*Ayurvedic* texts also highlight the relationship between respiration (*Shvasa-Prashvasa*) and circulation. *Vivekamartanda* explains that circulation is controlled by respiration, which clearly points to the concept of pulmonary circulation.<sup>[28]</sup> This also establishes the link between *Prana Vata* (respiration) and *Vyana Vata* (circulation) both working in coordination for sustaining life.

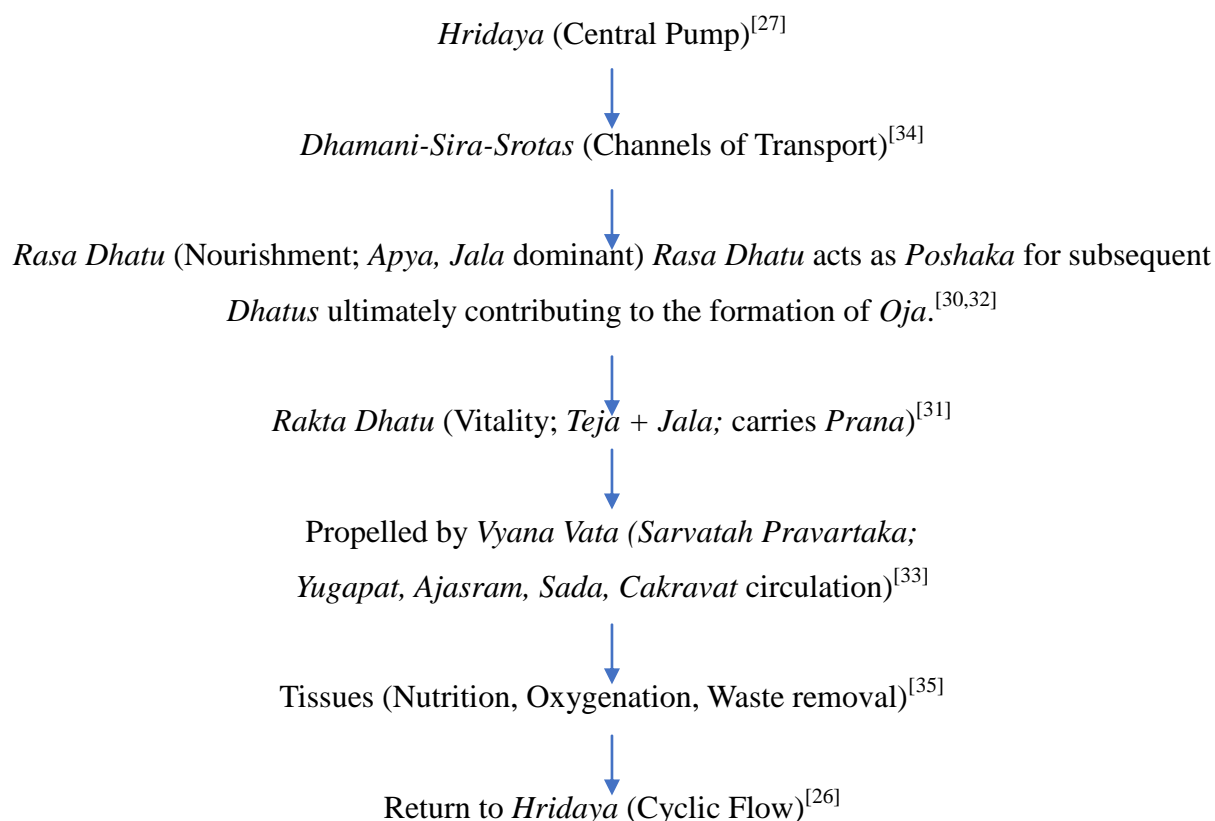
Moreover, the structural understanding of channels has been expressed through the concepts of *Dhamani*, *Sira* and *Srotas*, each having unique sites of origin, pathways, and functions<sup>34</sup>. The coordinated functioning of these channels ensures that tissues receive proper nutrition while waste products are eliminated. This aligns with the modern cardiovascular physiology, where arteries, veins and capillaries maintain a closed-loop system of circulation.<sup>[35]</sup>

*Charaka* has also described the quantitative aspect of circulation, stating that blood volume is approximately eight *Anjalis*.<sup>[36]</sup> The efficiency of this limited volume in performing unlimited functions is due to the continuous recycling nature of circulation, aided by organs like lungs, liver, and spleen for purification, storage, and distribution.<sup>[35]</sup>

From the *Ayurvedic* standpoint, it can thus be summarized that

- *Hridaya* acts as the central pump.<sup>[27]</sup>
- *Dhamani-Sira-Srotas* form the channels of transport.<sup>[34]</sup>
- *Rasa* and *Rakta Dhatu* are the circulating nutritive and vital fluids<sup>[30,32]</sup>
- *Vyana Vata* is the governing force that propels circulation in a rhythmic, perpetual, and systemic manner<sup>[33]</sup>

Therefore, *Vyana Vata* holds a pivotal role in *Rasa-Rakta Samvahana*, harmonizing structural and functional aspects of the cardiovascular system. Its activity reflects not only the mechanical propulsion of fluids but also the subtle regulation of life-sustaining processes establishing a holistic vision of circulation much before modern discoveries.

**Flow of Rasa-Rakta Samvahana governed by Vyana Vata****CONCLUSION**

Circulation of *Rasa Dhatu* from heart to periphery and from periphery to heart is called as *Rasa Samvahana*.<sup>[37]</sup> *Charaka* and *Sushruta* have mentioned references of dhatu being transported through *Hridaya*.<sup>[38,39]</sup> but *Raktavaha Sira* or the blood vessels have not been mentioned directly but *Chakradutta* in his commentary on *Charaka Samhita* has mentioned that *rasa* is *Drava Dhatu* so when *Rasavaha* is mentioned, it includes all other liquid dhatus like *Rakta* through vessels<sup>[40]</sup> *Rasa* and *Rakta Dhatus* are circulated together, so we have used the term *Rasa- Rakta Samvahana* (not only *Rasavahana* or *Raktavahana*). *Rasa* and *Rakta* provide *Prinana* (nourishment) and *Jeevana* (life providing by oxygenation) respectively as well it remains continuously circulated throughout the body<sup>[41]</sup> *Vyana Vata* is described as highly powerful and highly speedy in the movement and is responsible for the circulation of blood and other liquids of body (*rasa-rakta samvahana*).<sup>[42]</sup> *Hridaya* plays an important role in the circulation. It is liable for the contraction and relaxation of muscular tissues and maintenance of blood pressure.<sup>[43]</sup> The vasomotor nervous system and conduction system of heart can be believed as apparatus of *Vyana Vata*.<sup>[44]</sup>

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