International Journal of Health Sciences and Research
[Indexed, Peer-Reviewed Journal]
Volume 15; Issue: 6; June 2025
Website: www.ijhsr.org
Review Article *ISSN: 2249-9571*

Vyana Vata: A Comprehensive Review of Its Ayurvedic Foundations and Neurophysiological Role in Circulation and Movement

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DOI: https://doi.org/10.52403/ijhsr.20250613

ABSTRACT

Background: In Ayurvedic physiology, *Vata Dosha* is the primary force responsible for movement and neurological control. Among its five subdivisions, *Vyana Vata* governs circulation, locomotion, and coordination. It is pervasive and swift, rooted in the heart, and responsible for distributing nutrients throughout the body.
Objectives: This review aims to analyze *Vyana Vata* in detail through *Ayurvedic* classical references and establish its relevance and correspondence with modern anatomical and physiological systems, especially the peripheral and autonomic nervous systems.
Methods: An extensive textual analysis of *Ayurvedic Samhitas*, *Sanskrit* commentaries, and modern anatomy and physiology texts was conducted. Correlative mapping was done with the nervous system, circulatory system, and muscular functions.
Results: *Vyana Vata* is responsible for complex physiological actions including cardiac function, circulation of *Rasa* and *Rakta*, muscular contraction, voluntary movements, and reproductive functions. It overlaps conceptually with the somatic and autonomic divisions of the nervous system in modern science.
Conclusion: Understanding *Vyana Vata* offers a unique insight into the integrated view of movement and circulation in Ayurvedic and modern medicine. It can serve as a diagnostic and therapeutic foundation in managing neuromuscular and circulatory disorders.

Keywords: *Vyana Vata*, *Ayurveda*, Peripheral Nervous System, Circulation, Somatic Nervous System, Autonomic Nervous System, *Rasa Rakta Samvahana*, *Hridaya*

INTRODUCTION

Ayurveda, the wisdom of life, introduces a holistic model of human physiology governed by three doshas: *Vata*, *Pitta*, and *Kapha*. *Vata*, the most powerful of the three, is responsible for all kinds of movement. Its five subdivisions—*Prana*, *Udana*, *Samana*, *Vyana*, and *Apana*—govern specific areas of the body[1]. The distribution of nutrients and impulses throughout the body, which promotes homeostasis and systemic function, is the responsibility of Vyana Vata. *Vyana Vata* is the dynamic force of the body responsible for movement,

circulation, regulation, and coordination. It links the heart, brain, musculoskeletal system, reproductive organs, and digestive system — making it one of the most crucial subtypes of Vata dosha for sustaining life and activity. *Vyana's* classical *Ayurvedic* concept can be meaningfully correlated with the peripheral and autonomic nervous systems, highlighting an integrative model that bridges traditional and modern science.

Etymology and Conceptual Framework

The *Sanskrit* root *Va*, which signifies Gati (movement) and *Gandhana* (carring sensation), is where the word *Vata* comes from. Further, *Amarkosha* expands *Gandhana* interpretation as *Utsah, Himsa*, and *Suchan*. Vyana's name comes from the verb "*Vitananat*," which means to disseminate (via the channels' openings). This prolixity of *Vyana* through all *Nadi* (channels) makes it the most pervasive among the five *Vata*.

Sthan and *karm* of *Vyana Vata*

	***Charak*[2]**	***Sushrut*[3]**	***Astang hriday*[4]**	***Astang sanhrah*[5]**
Sthan	*Vyana* (Vayu) is present throughout the body	*Vyana* (Vayu) travels all around the body.	Located in *Hridaya* and travels alog whole body.	Resides in the heart Pervades the entire body with faster speed than other *Vata*.
Karm	It is always responsible for actions such as movement, extension, contraction, blinking, and similar activities.	It is engaged in the circulation of *Rasa* (nutritive fluid). It also facilitates the excretion of sweat and blood, and it performs five types of movements (Extension, flexion, bending forward, raising upward, and lateral/ oblique movements).	Movements such as *Gati* (locomotion), *Utkshepa* (extension), *Avakshepa* (elevation), *Nimesha* (blinking), and *Unmesha* (opening of the eyes) — indeed, almost all bodily activities in living beings — are dependent on it.	It is responsible for actions such as movement, extension, contraction, lifting, lowering, blinking, opening of the eyes, yawning, tasting of food, purification of bodily channels, sweating, blood excretion, and other such functions. In the reproductive organs, it facilitates the ejaculation of semen. It also separates the essence (*Sara*) of food from the waste (*kitta*), and then sequentially nourishes the bodily tissues (*Dhatus*).

Ayurvedic textbooks unanimously position *Vyana* in the *Hridaya*:

In Ayurveda, the heart (*Hṛidaya*) is regarded as the central organ responsible for the circulation and nourishment of the body through the transport of *Rasa* (nutritive plasma) and *Rakta* (blood). As described in the *Sushruta Samhita* after the digestion of food, the most subtle and luminous essence, known as *Rasa*, is formed and primarily resides in the heart. From there, it enters 24 main *Dhamanis* or channels – ten ascending, ten descending, and four lateral – which distribute it throughout the entire body[6]. This distribution nourishes, sustains, and supports the bodily tissues daily, playing a vital role in maintaining life. *Vyana Vata*, one of the five subtypes of *Vata Dosha*, facilitates the movement of *Rasa*. It originates in the heart and controls the propulsion and circulation of both *Rasa* and *Rakta*. According to *Chakrapani* commentary on *Rasa vikshepkarma*, even the other tissues like *Rakta* (blood) also have the heart as their primary site of activity, further highlighting the organ's comprehensive circulatory role[7]. *Aacharya Bhel* explains that *Rasa* flows outward from the heart through the *Siras* (veins or fine vessels) and eventually returns to the heart, depicting a continuous loop of circulation similar to modern understanding of blood

flow. Together, these descriptions reveal that the heart in *Ayurvedic* physiology is not only a physical organ but also the energetic center from which the vital fluids are circulated, ensuring nourishment, growth, and maintenance of the entire body. Through the coordinated action of *Vyana Vata* and the network of *Dhamanis*, the heart ensures the continuous nourishment and maintenance of all tissues, emphasizing its vital part in health and homeostasis.

Physiological Functions of *Vyana Vata*

The classical texts describe numerous physiological actions attributed to *Vyana*:

1. *Rasa-Rakta Samvahana*[4,5]

Vyana distributes *Rasa* (nutrient plasma) simultaneously throughout the body. It facilitates the circulation of *Rasa dhatu* (nutrient fluid derived from digested food), ensuring nourishment reaches all tissues[8]. This is a process analogous to cardiac output and systemic blood flow. According to *Acharya Chakrapani*, *Vyana Vata* plays a crucial role in the distribution of *Annarasa*—the nutrient fluid derived from digested food—which nourishes all subsequent dhatus, beginning with *Rakta* (blood). *Aacharya Chakrapani* raises a rhetorical question: "Who propels the nutrient essence to the various tissues like blood and others?" The answer is obvious- The force that is in charge is *Vyana Vata*. *Chakrapani* elaborates that the term "*Rasa*" refers to the fluid nutritional essence, and also encompasses all other liquid dhatus, such as *Rakta*, because they too participate in the nourishment and circulation processes[9]. The core function of *Vyana*, he explains, is *vikshepa*[8], which means propelling, projecting, or distributing. This is its natural, physiological action—an inherent trait of *Vyana Vata*. It is *Vyana* that moves the nutrient fluids simultaneously to every part of the body at the same moment. Throughout life, this circulation occurs constantly and without interruption. Thus, *Vyana* ensures that the process of nourishment and energy distribution is uninterrupted and occurs in all directions and all tissues of the body. Through this insightful explanation, *Chakrapani* clarifies how *Vyana Vata* functions as the dynamic circulatory power behind the nourishment, vitality, and systemic balance of the body. His commentary enriches our understanding by emphasizing *Vyana's* nonstop, full-body operation in propelling essential fluids to support physiological health. This action supports various physiological processes like blood circulation, heart function, movement, and coordination. *Vyana Vata* governs the circulatory system, ensuring the proper and continuous distribution of nutrients, energy, and impulses throughout the body.

2. *Gati*[4,6,7] – Movement or locomotion

a. Enables walking, running, and all physical mobility.

3. *Prasarana*[4] – Extension

a. Stretching of limbs or expansion of muscles.

4. *Aakshepa*[4,6] – Contraction or withdrawal

a. The pulling or contracting of body parts.

5. *Nimesha*[4,6] – Blinking of eyes

6. *Adikriyah sada*[4] – And other constant activities

Refers to all continuous physiological movements, both voluntary and involuntary.

7. *Kunchana*[7] – Contraction

8. *Srotovishodhana*[7] – Cleansing of bodily channels (*srotas*)

9. *Annasya vibhajana*[7] – Separates essence (*Sara*) from waste (*kiṭṭa*) in food

10. *Yonau ca shukra-pratipadana*[7] – Ejaculation or movement of semen in the reproductive tract

11. *Dhatu tarparna*[7] – Provides nourishment to the seven dhatus (body tissues) gradually.

12. Annasvadana[7] – Tasting of food

13. *Sveda-asrik-sravana*[5,7] – Responsible for sweating and blood flow

a. *Vyana* plays a key role in sweating (*Sveda*) and circulation or discharge of blood (*Asrik*), contributing to temperature regulation and blood movement.

Modern Correlation with Neurophysiology

Peripheral Nervous System (PNS) The PNS carries sensory input from periphery to the CNS and motor output from CNS to muscles.

Vyana Vata mimics the functions of:

A. Somatic Nervous System (voluntary control)
B. Autonomic Nervous System (involuntary control)

This system coordinates:

- Reflexes
- Muscle contractions
- Circulatory modulation

Vyan Vata can be correlated with the peripheral nervous system that transmits signals between the CNS, organs, limbs, and skin.

A. Somatic Nervous System

The peripheral nervous system's somatic component is in charge of voluntary motor control, particularly the skeletal muscle movements required for locomotion (walking), limb extension, and other activities. This control pathway involves four major steps:

1. Sensory Input (Afferent Pathways)[9]:

- Proprioceptors in muscles, joints, and tendons continuously monitor the position and movement of the body.
- Touch, pressure, pain, temperature, and joint position are all sensed by sensory receptors.
- These signals travel via afferent (sensory) neurons to the spinal cord and brain, providing real-time feedback about the body's status during movements like walking, stretching, or bending.

2. Integration in the Central Nervous System (CNS)[10]:

- The brain, especially the cerebral cortex and cerebellum, integrates this sensory feedback.
- The primary motor cortex plans and initiates voluntary movements based on goals (e.g., take a step, lift an arm).
- The cerebellum and basal ganglia regulate motor signals to guarantee fluid, well-coordinated movements.
- The brain determines whether to initiate:
  - Locomotion (walking/running)
  - Extension (straightening of a limb)
  - Flexion (bending of a limb)

3. Motor Output (Efferent Pathways):

- Motor commands are sent from the primary motor cortex via upper motor neurons down the spinal cord.
- These connect with lower motor neurons in the anterior horn of the spinal cord.
- Lower motor neurons exit the spinal cord through spinal nerves and directly innervate specific skeletal muscles.
  - For locomotion, signals go to muscles in the legs, hips, and trunk.
  - For extension, signals target extensor muscles like the triceps or quadriceps.
  - For flexion, signals target flexor muscles like the biceps or hamstrings.

4. Neuromuscular Junction:

- Acetylcholine (ACh) is released by motor neurons at the neuromuscular junction.
- An action potential is produced in the muscle when ACh binds to receptors on the muscle fiber.
- This triggers muscle contraction, resulting in the desired movement—whether it's taking a step (locomotion), straightening the arm (extension), or bending the knee (flexion).

The Somatic Nervous System's functions are in fact consistent with those *Vyana Vayu* outlined. This indicates that the physiological explanations provided by ancient *Aacharya* about the *Vayan Vata Karm* a significant similarity to the theoretical framework of modern neurophysiology. In this way, the functions of *Vyana Vayu* as described by various *Acharyas*—such as movement, projection, elevation, and the five types of motor activities—all share similarities with the functions of the somatic nervous system.

B. Autonomic Nervous System (ANS)

The Autonomic Nervous System is a subdivision of the peripheral nervous system that regulates involuntary physiological functions. The efferent autonomic signals are transmitted to the various organs of the body through two subdivisions called the sympathetic nervous system and parasympathetic nervous system[11].

Vyana aligns with ANS in involuntary actions such as [12,13]:

1. Blood Pressure Regulation

- **Sympathetic:** Increases blood pressure by vasoconstriction (narrowing blood vessels) and increasing cardiac output.
- **Parasympathetic:** lowers heart rate, which indirectly lowers blood pressure.

2. Heart Rate and Force

- **Sympathetic:** Stimulates β1-adrenergic receptors in the heart → increases heart rate and force of contraction.
- **Parasympathetic:** Via the Vagus nerve → decreases heart rate and slightly reduces contractility.

3. Blood Vessel Dilation and Constriction

- **Sympathetic:** Causes vasoconstriction in skin, kidneys, and GI organs (α1 receptors), and vasodilation in skeletal muscles during exercise (β2 receptors).
- **Parasympathetic:** Minimal effect on most systemic blood vessels (except in certain glands like salivary).

4. Digestion

- **Sympathetic:** Inhibits digestive activities (reduces enzyme and acid secretion, decreases GI blood flow).
- **Parasympathetic:** Stimulates digestive functions including secretion of digestive enzymes and gastric acid.

5. Gastrointestinal Tract (GIT) Motility

- **Sympathetic:** Reduces GI motility and peristalsis → delays digestion.
- **Parasympathetic:** Enhances peristalsis and motility → promotes digestion.

6. Urinary Bladder Muscle (Detrusor) Relaxation and Contraction

- **Sympathetic:** Relaxes the detrusor muscle (via β2 receptors) and contracts the internal urethral sphincter → inhibits urination.
- **Parasympathetic:** aids urination by relaxing the sphincter and contracting the detrusor muscle.

7. Vasoconstriction and Vasodilation of Salivary Glands

- **Sympathetic:** Causes vasoconstriction → dry mouth (less saliva).
- **Parasympathetic:** Causes vasodilation → promotes watery saliva production.

8. Pupil Dilation and Constriction

- **Sympathetic:** improves vision in low light by activating the iris's radial muscles, which causes the pupil to dilate (mydriasis).
- **Parasympathetic:** Activates circular muscles of iris → constricts pupil (miosis) for close vision and bright light.

9. Adrenal Secretion

- **Sympathetic only:** Increases the sympathetic response by stimulating the adrenal medulla to produce norepinephrine and adrenaline into the bloodstream.

10. Bronchiole Dilation and Constriction

- **Sympathetic:** Stimulates β2 receptors in bronchial smooth muscle → bronchodilation → increases airflow.
- Parasympathetic: Causes bronchoconstriction and promotes mucus secretion.

11. Sweating

- **Sympathetic (cholinergic fibers):** Stimulates eccrine sweat glands (using ACh instead of NE) → cooling through sweating.
- **Parasympathetic:** No significant role.

12. Ejaculation

- **Sympathetic:** Responsible for ejaculation in males (via contraction of reproductive ducts and glands).
- **Parasympathetic:** Facilitates erection through vasodilation (point and shoot: Parasympathetic = erection, Sympathetic = ejaculation).

13. Glandular Secretion

- **Sympathetic:** Generally, reduces secretion from digestive glands but

increases secretion from sweat and adrenal glands.
- **Parasympathetic:** Stimulates secretion from salivary, lacrimal, gastric, and intestinal glands.

The sympathetic and parasympathetic branches collectively parallel *Vyana's* roles in maintaining homeostasis and systemic circulation.

Structural Comparison

Ayurvedic View	Modern View	Function
Vyana Vata	Peripheral Nervous System	Sensory/motor transmission
Hridaya as Sthana	Cardiac Pacemaker + Central Nervous System	Origin of rhythmic contraction
Rasa Samvahana	Blood Circulation	Distribution of nutrients
Prasarana & Akunchana	Voluntary Muscular Movements	Skeletal muscle activity
Shukra Pravartana	Reproductive Neuromuscular Reflex	Ejaculatory pathway control

Clinical Importance

When *Vyana Vayu* is aggravated, it causes diseases that generally affect the entire body[14].

Vyana Vata's dysfunction can lead to:

Circulatory Disorders – Hypertension, ischemia

Neuromuscular Disorders – Paralysis[15], spasticity

Cardiac Dysfunctions – Arrhythmia

Reproductive Issues – Erectile dysfunction, infertility

Autoimmune Diseases – Possibly due to impaired sensory-motor regulation

Eyes- Ptosis (due to damage to nerve innervation), Horner`s syndrome (because of the sympathetic supply being damaged)

Future Perspectives and Integration

An integrative medical model can involve:

Pulse diagnosis (*Nadi Pariksha*) to assess *Vyana* imbalances

Neurophysiological studies (e.g., EMG, nerve conduction tests)

Ayurvedic neurotherapy (*Shirodhara*, *Marma Chikitsa*) for *Vata* regulation

Research-based pharmacology combining Ayurveda and neurobiology

CONCLUSION

Vyana Vata, as described in classical Ayurvedic texts, is not only a fundamental regulator of circulatory and motor activities but also a subtle force that integrates physical, physiological, and even psychological domains of health. Its seat in the *Hridaya* and its pervasive action across the entire body emphasize its central role in maintaining homeostasis. *Vyana Vata* is the silent force behind all life, from the heartbeat to eye blinking, limb stretching, and the distribution of essential nutrients. As described by all major acharyas — *Charaka*, *Sushruta*, and *Vagbhata* — *Vyana* is central to both gross body functions and subtle physiological processes.

Modern correlations with the peripheral nervous system—especially the somatic and autonomic divisions—further validate the ancient understanding of *Vyana Vata* as a controller of both voluntary and involuntary functions. From muscle contraction, eye movements, and vascular tone to the regulation of sweat, reproductive secretions, and systemic circulation, *Vyana Vata's* role is undeniably comprehensive. Thus, across all classical texts, *Vyana Vata* emerges as the integrative force that coordinates the nervous, circulatory, muscular, metabolic, and reproductive systems. It is indispensable for sustaining life through its continuous support of movement, nourishment, and internal regulation, making it one of the most vital aspects of the *Vata dosha* system.

In contemporary clinical practice, recognizing dysfunctions in *Vyana* can aid in diagnosing a wide array of conditions including hypertension, arrhythmias, neuropathies, and movement disorders. When integrated with modern diagnostics, these approaches could enhance treatment outcomes.

The convergence of ancient *Ayurvedic* physiology with modern neurophysiology and systemic biology opens promising new frontiers in integrative and preventive medicine. Continued empirical research into the functional dimensions of *Vyana Vata* could not only validate traditional practices but also contribute to innovative, sustainable healthcare solutions.

In conclusion, *Vyana Vata* serves as a conceptual and functional bridge between *Ayurveda* and modern biomedical sciences, underlining the timeless relevance and applicability of classical knowledge in today's medical paradigm.

Declaration by Authors
Ethical Approval: Not Applicable
Acknowledgement: None
Source of Funding: None
Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Pandey K, Chaturvedi G, eds. Vatavyadhi Chikitsa Adhyaya, Charaka Samhita Chapter 28 verse 5. Varanasi, India: Chaukambha Bharati Academy; 2018.pg-775 Reprint.
2. Pandey K, Chaturvedi G, eds. Vatavyadhi Chikitsa Adhyaya, Charaka Samhita Chapter 28 verse 9. Varanasi, India: Chaukambha Bharati Academy; 2018.pg-777 Reprint.
3. Shastri A.D. eds,Vatavyadhi Nidana Adhyaya, Ayurveda Tatwa Sandipika Hindi Commentary, Susruta Samhita Chapter 1 verse 17-18, Varanasi (India): Chaukhamba Sanskrit Sansthan; Edition-2019.pg-297.
4. Vaidya Yadavaji Trikamji Acharya, Ashtang Hrudaya Samhita Varanasi: Chaukhambha Prakashan. Chapter 12, Sutra Sthana, shloka, 2015; 7.
5. Gupta A.D. Eds, Doshabhediya Adhyaya, Astanga Sangraha, Varanasi, India: Chaukambha Krishnadas Academy; 2012: 160 Reprint.
6. Shastri A.D. eds, Shonitvarniya Adhyaya, Ayurveda Tatwa Sandipika Hindi Commentary, Susruta Samhita Chapter 14 verse 3, Varanasi (India): Chaukhamba Sanskrit Sansthan; Edition-2019.pg-61.
7. Dvivedi L., Dvivedi B.K.,Goswami P.K., Ayurvedadeepika Sanskrit Commentary by shri Chakrapanidatta, Tattavaprakashini Hindi Commentary of Ayurvedadeepika, Varanasi (India): Chaukhamba Krishandas Academy; Krishandas Ayurveda Series-117, Edition-2023.pg-523.
8. Pandey K, Chaturvedi G, eds. Grahnidosh Chikitsa Adhyaya, Charaka Samhita Chapter 15 verse 36. Varanasi, India: Chaukambha Bharati Academy; 2018.pg-458 Reprint.
9. John E. Hall, guyton and hall textbook of medical physiology a south Asian edition, Somatic Sensory Pathway, Elsevier publisher, 2021; 863.
10. John E. Hall, guyton and hall textbook of medical physiology a south Asian edition, Somatic Sensory Pathway, Elsevier publisher, 2021; 864.
11. John E. Hall, Guyton and hall textbook of medical physiology a south Asian edition, the Autonomic Nervous System, Elsevier publisher, 2021; 984.
12. John E. Hall, guyton and hall textbook of medical physiology a south Asian edition, the Autonomic Nervous System, Elsevier publisher, 2021; 988.
13. Sembulingam K, Sembulingam P. Essentials of Medical Physiology. 9th ed. New Delhi: Jaypee Brothers Medical Publishers; 2023. Section 10, Nervous System, Chapter 161, pg.881
14. Shastri A.D. eds,Vatavyadhi Nidana Adhyaya, Ayurveda Tatwa Sandipika Hindi Commentary, Susruta Samhita Chapter 1 verse9, Varanasi (India): Chaukhamba Sanskrit Sansthan; Edition-2019.pg-297.
15. Chobhe, Swati, and Priti Baburao Harkal. "Physiological Review Of Coordination Between Pran And Vyan Vayu With Respect To Pakshaghat." (2022).

How to cite this article: Priyanka Yadav, Ankita, Yashpal Singh, Balkrishan Panwar. *Vyana Vata*: a comprehensive review of its ayurvedic foundations and neurophysiological role in circulation and movement. *Int J Health Sci Res.* 2025; 15(6):99-105.
DOI: *https://doi.org/10.52403/ijhsr.20250613*

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