

# Physiological Concept of Vata Dosha in Relation to Autonomic Nervous System

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## ABSTRACT

The name *Ayurveda* means "Knowledge of Life." Alternative medicine used from ancient times in the Indian subcontinent is known as ayurveda. The roots of our body are *Dosa*, *Dhatu*, and *Mala*. They are known as *Dhatu* because they maintain our body's homeostasis and keep it functioning normally. They are referred to as *Dosa* when there is an imbalance (increase or reduction). The biological forces known as doshas operate through the use of malas and dhatus. The structural elements are the dhatus and malas, and the energy forms are the *Doshas*. To reach the intended organ throughout the body, the *Vata* must pass via the *VataVahaSrotas*. These channels are split into two categories based on whether they serve motor or sensory purposes. Every Ayurvedic idea is predicated on and defined in terms of the *Panchmahabhutas*; the *Doshas* stand in for the *Panchmahabhutas* physical presence in our bodies. And everything in the universe is *Panchmahabhautika*. One of the three basic *Humours*, *Vata*, has a significant impact on both health and sickness. The majority of the *Vata* disorders mentioned in Ayurveda are classified by current science as neurological ailments. We must thus comprehend the physiological concept of *Vata* in this study with particular reference to the neurological system.

**KEYWORDS** - *Ayurveda*, *Vata*, *Dosa*, Nervous system, *Humors*, *Paraná*, ANS.

## INTRODUCTION

The basis for all Ayurvedic principles related to physiology, pathology, diagnosis, prognosis, medicine, and therapeutics is the three-fold management system known as *Tridosha* theory, which consists of *Vata*, *Pitta*, and *Kapha Dosas*. Different physiological and physical aspects represent each *Dosa*. In essence, *Vata*, *Pitta*, and *Kapha* are three regulatory systems that regulate input/output, turn over, and storage, respectively. This makes them common characteristics of all living systems *Vata* is unquestionably the most essential and important dosha for survival out of the three.<sup>i</sup>The fundamental terms *Gati* (movement) and *Gandhana* are combined to form the word *Vata* (senses)<sup>ii</sup>*Vata* dosha is *Daruna* (with severe consequences), *Bahu-Ighra*, and *Anavasthita*, just as nerve impulses instantly transmit information from one bodily area to another (constantly moving)<sup>iii</sup>*Vata* is the primary force underlying normal sensory and motor functions for survival and maintenance of normal health (homeostasis). Notably, impaired *Vata Dosha* is directly correlated with serious neurological disorders<sup>iv</sup>. Therefore,

ayurvedic texts provide a firm basis for a physiological and functional link between *Vata Dosha* and the nervous system.

Ayurveda connects a balanced *Vata Dosha* with processes controlling homeostasis and fundamental survival. As a result, the terms "*Aashukari*" and "*Pranamscha Uparunadhi*" denote the harmful effects of defective *Vata Dosha* and suggest that a healthy amount of *Vata Dosha* is necessary for living.<sup>v</sup>

Similar to this, normalcy is maintained by the "*Tantra Yantra Dhara*" or "homeostatic" actions of the *Vata Dosha*. The ANS regulates survival and homeostasis unconsciously ('automatically'), without our conscious effort. The circulatory, gastrointestinal, excretory, and reproductive systems are all controlled by the ANS. With few exceptions, the sympathetic and parasympathetic parts of the autonomic nervous system (ANS) respectively switch "on" and "off" these critical activities.<sup>vi</sup>

## RELATION OF AUTONOMIC NERVOUS SYSTEM WITH VATA SUB-TYPES

**PRANAVATA**– *Praana Vata* controls the necessary for survival defensive responses. As a result, *Praana Vata* is linked to the ANS's involuntary survival mechanisms (pupil response, sneezing, swallowing, and vomiting). *Praana Vata* regulates breathing, heart rate, and blood pressure via stabilising cardiac functions and circulation. Diseases of the upper respiratory tract, the cardiovascular system, and death are all caused by impaired *Praana Vata*.<sup>vii</sup> When viewed in its entirety, *Vata* performs two types of functions:

Higher brain processes, such as *prana Vata*, which directs the intellect, mind, sense organs and their operations, and awareness, are governed by these forces. When the *Prana Vata* is active in the brain, it performs certain *Prana Vata* functions.

Lower functions outside of the brain include those connected to the salivary glands, such as spitting or creating oral secretions, the nasal mucosa, such as sneezing, the gastric system, such as food ingestion and stomach reception, and the pharynx, such as belching and chest motions. These processes take place when *Prana Vata* is moving and circulating in other body regions, such as the chest and neck.

**UDAANAVATA** – *Udaana Vata* governs the intellect, speech, and vitality in the chest. Since healthy cardiac and respiratory systems are necessary for strength and speech. *Udaana Vata* aids in maintaining homeostasis by controlling breathing and heart rate. Production of speech is synchronized by audio-sensory, audio-psychic and audio-motor centers of cerebral cortex. Impaired *Udaana Vata* results in speech difficulties, memory deficits, and altered sensory perception.

**VYANAVATA**- *Vyana Vata* regulates willpower and is necessary for the circulation of peripheral blood, it is crucial to the development of *rasa Samvahan* (peripheral circulation). The *Vata* known as *Vyana* is thought to be quite strong (*Mahjava*). With this ability, this *Vatasub-type* maintains continuous, uninterrupted circulation of *rasa* tissue throughout life. One of the main purposes of *Vyana Vata*, according to *Sushruta* and *Vagbhata*, is the ejaculation of semen during coitus. By considering the entire explanation provided above, the heart's conduction system and vasomotor nerve system can be directly compared to the functions of *Vyana Vata*.

**SAMANVATA**- Gastrointestinal functions are constituted by *Samana* and *Apana Vata*. *Samana Vata* is mentioned by *Susrutha* as the foundation for *Viveka* (digestion, absorption and segregation of waste).

*Samana Vata* has a significant impact on digestion since the ANS regulates it. Reduced digestive ability and gastrointestinal motility are brought on by *Samana Vata* impairment. In the alimentary tract, close to the digestive system, the *Samana Vata* is frequently compared to the Auerbach's plexus of nerves, which constitutes the main nerve supply to the gastrointestinal tract. Between the muscularis externals inner circular and outer longitudinal layers is where this plexus is situated. These nerve cells are a component of the enteric nervous system that causes peristaltic motions. Its alternate name is myenteric plexus. They are a component of the autonomic nervous system.

**APANAVATA** – *Dharana* (controller of natural urges/excretory reaction) is attributed to *Apana Vata*. Autonomic pelvic reflexes necessary for urination and sexual activity are an *Apana Vata* trait. Impairment of *Apana Vata* leads to diseases of the lower gastrointestinal and genitourinary tracts. Defecation reflex, micturition reflex, foetal ejection reflex, menstruation etc may be associated to *Apana Vata* functions.

## DISCUSSION

Fundamentally, *Vata*, *Pitta*, and *Kapha* make up the neurological, endocrine, and immunological systems—respectively—of all living systems. Acharyas provide an explanation of *Vata's* dominance over the other *Tridoshas*. The natural pacemaker from which all activities are started and managed is *Vata*. It is the fundamental component of humour that governs all bodily functions. Movement, communication, transportation, breathing, circulation, excretion, and thought are all governed by the primary force of *Vata*.

In living cells, *Vata* regulates communication, motility, and transportation. It controls how molecules travel within biological structures. It also regulates how the body moves. Nerve impulses from the brain to other bodily parts and from organs to the brain are influenced by *Vata*. Without *VATA*, cellular division is not possible. It is necessary for tissue development and cellular organisation. To combine *Kapha* molecules and cells into tissues, it brings them together. *Vata* therefore plays a more significant role in the body.

## CONCLUSION

The nervous system is the functional seat of *Vata*, according to the study mentioned above. *Vata's* effects and the neurological system's effects are somewhat related. To make the connection, it is vital to comprehend the nature of the organ. It should be noted that the neurological system, an important location for *Vata*, has properties that are the opposite of *Vata*, with *Vayu* and *Akasha Mahabhuta* predominating. Despite the nerve tissue's 70–80% water content, the main characteristic is the high cholesterol and phosphorus lipid content, as opposed to the white matter's higher lipid concentration. It is obvious that substances with properties that are the opposite of those stated for *Vata*, i.e., *Ruska Guna*, enter into the construction of the structures that are fundamental to the manifestation of this somatic humour. Additionally, more investigation is required to thoroughly assess the increase and decline phases of *Vata* in both physiological and pathological aspects for the benefit of humanity. *Vata* has its primary seat in the nervous system, which also serves as the conduit for its two primary roles—the motor and sensory functions.

To go to the desired organ throughout the body, the *Vata* must pass via the *Vatavaha Srotas*. They carry out the motor activities that started in the brain and ended up in the connective tissues or other muscles. The cognitive organs follow sensory processes all the way to the corresponding *Buddhi*. Because the conative and cognitive organs' functions extend to the mind, the mind is the controller of all sensory organs; both of these channels travel through the mind. Therefore, the *Vata* is the source of all bodily functions.

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