

## **VYANA VATA- PHYSIOLOGICAL UNDERSTANDING: A REVIEW**

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### **ABSTRACT**

Tri *doshas* are functional entities of our body. They can be known through the functions they perform in our body. Among these three *doshas*, *Vata* is more important as , only it is mobile and it is capable of keeping *Pitta*, *Kapha*, *Dhatu*s and *Malas* in motion. Among the subtypes of *vata*, *Vyana* is responsible for various movements taking place in our body; it keeps *rasa dhatu* in circulation till the death. It is described as *Mahajava* means highly powerful. Vitiating of *vyana vata* affects its functions with nutrition and movements of the body. The paper describes the physiological aspect of *vyana vata* in accordance with modern view. The physiological aspect includes the location, functions and dependency of other sub types of *Vata* to *Vyana Vata* which is discussed along with its contemporary understanding.

**Keywords:** *Doshas*, *Vyana vata*, *Mahajava*

### **INTRODUCTION**

All three *doshas* are present in *hridaya*. Yet all contribute their own share of work directly or indirectly. *Vyan vayu* is directly located in heart. The specific function of *Vyana vayu* is to circulate the *rasa dhatu* throughout the body. *Vyana vayu* is continuously doing this job. All other functions of body depend on how *rasa dhatu* is circulated throughout the body. Commentator narrates, while reading about circulation of *rasa*, blood and other body fluids should be considered. The locomotion is a visible movement and

it is one of the most important functions of a living being. All movements are effected through the contractions and relaxations of the muscles. Among the sub types of *Vata*, *Vyana Vata* is mainly responsible to bring about various movements in the body along with other functions.

### **MATERIALS AND METHODS**

For this study, the basic and conceptual materials have been collected from the ayurvedic clas-

sics, i.e. *Brihatrayee* and *Laghutrayee* mainly the *Susruta Samhita*, *Charak Samhita* and other classics with the available commentaries, as well as various reference books to be reviewed.

## DISCUSSION

### A] *Sthana* of *Vyana vayu*-

*Charaka* describes as, since this type occupies entire body it is known as *Vyana*. According to *Susruta*, *Vyana* occupies entire living body as it induces circulation of *Rasa*. Commentator *Dalhana* explains this as it becomes responsible for diseases related to any location of whole body. *Acharya Vagbhata* defines heart as the principal location of *Vyana Vata* and it circulates in the entire body performing the various functions

The active site of *Vyana Vata* is *Hridaya*. The word *Hridaya* can be considered as centre or the core or the essence. According to modern physiology the spinal cord is the pathway for sensory input to the brain and motor output from the brain. The gray matter on each side of the spinal cord is subdivided into regions called horns. The anterior gray horns contain somatic motor nuclei, which are clusters of cell bodies of somatic motor neurons that provide nerve impulses for the contraction of skeletal muscles. Between the posterior and anterior gray horns are the lateral gray horns, which are present only in the thoracic and upper lumbar segments of the spinal cord. The lateral gray horns contain autonomic motor nuclei, which are clusters of cell bodies of autonomic motor neurons that regulate the activity of cardiac muscle, smooth muscle and glands. The functions executed by the anterior and lateral horns coordinate all the functions of *Vyana Vata*. So it is justifiable to assume the location of *Vyana Vata* in the spinal cord as *Hridaya*.

### B] *Vyana vayu karma* –

As this *vayu* occupies entire body it is known as “*Vyana*”. It is very speedy. Various motions of body, relaxations, contractions, eyelid reflexes etc. are due to this type of *Vatadosha*.<sup>1</sup> In this regard the word “*Gati*”, means commentator wants to add many actions taking place in living body. Every quickest response, like involuntary reflexes, just as observed in palpebral reflex or equilibrium reflex is due to *Vyana*. Sensations like proprioception, balance, respiratory, circulatory, secretory reflexes are in jurisdiction of *Vyana*. This includes many actions responsible for physiology of whole body.

The functions of somatic nervous system can also be described as *Vyana vata* as movements like flexion, extension, opening and closure of eyelids have said to be under its control.

According to *Susruta*, *vyana vata* is responsible for sweating, various secretions and five types of motions like relaxations, contractions etc. If this *Vata* type gets vitiated, it becomes responsible for diseases related to any location of whole body.<sup>2</sup>

Commentator *Dalhana* describes five types of motions as relaxation, contraction, downward movement, and upward movement, movement in any direction. Other commentator describes these words as motion, relaxation, upward movement, opening of eyelid, closing of eyelid etc. commentator explains *Susruta*-statement about *sthana* of *Vyanvayu* as “*sarvadehaga*” is about diseases i.e. diseases affecting entire body like fever, diarrhoea, which show manifestations in whole body.

*Ashtang-samgraha* adds more functions. In addition to five types of motions, movements of eyelids, he adds yawning, enjoying flavour of food, penetrating all intra and inter cellular spaces, sweating, bleeding, deposition of semen in vagina after coitus, *sara* and *kitta* separation (separation of absorbable and not absorbable part of digested food). Chronological nourishment of *dhatvah* is included in specific function of *Vyana*.<sup>3</sup> It can be concluded that *Vyana* type of *vata dosha* must be indulging in almost all functions of body.

Due to excess blood flow to a particular area especially after exercise, *sweda sravana* occurs which in turn is function of *Vyana vata*. The skin is supplied by the muscular arteries. When temp rises in the active muscles, the blood is warmed in the muscles and is immediately transported to the skin where it is radiated in the form of sweat.

According to *Ashtanghridaya*, *Vyana* is located in heart. It circulates through entire body. It is great in speed. It is responsible for almost all actions of body like motion, downward movements, upward movements and closing and opening of eyelids.<sup>4</sup>

Commentator explains meaning of “*Mahajava*”. *Maha* is great. *Java* is speed. Hence it is a type of *vata* having ultrafast action. Yawning, enjoying flavour of food, a few specific actions should be considered. All the versus have almost similar information.

As per the *Asraya Asrayibhava*, *Vata* resides in *Asthi* and the movements are possible with the help of *Vyana Vata*. So *Vyana Vata* residing in the *Asthi* brings about the movements. The functions of somatic nervous system can also be de-

scribed to *Vyana Vata* as movements like flexion, extension; opening and closure of eyelids have said to be under its control. Conduction velocity is maximum in alpha group of motor neurons, which supply all these skeletal muscles. The function *Asruk Sravana* is possible by the stimulation of the sympathetic supply to heart. This depends not only on the effective contraction of heart but also on the calibre of the blood vessels. Apart from the contracting force of the heart, the outflow of blood is also under the control of *Prana Vata* performing the function of *Dhamani Dharana*. In *Shukra Prathipadhana* the actual outflow of semen is under the control of *Apana Vata*. But the voluntary act of intercourse may be under the control of *Vyana Vata*.

### C] *Rasa – Rakta Paribhraman* in Ayurveda-

One of the chief functions of *Hridaya* is to circulate *Rasa* in body in cyclical order. *Rasa* is circulated throughout the body, which is pumped by heart.

According to *Bhel samhita* *Rasa* is expelled through heart and from there it is circulated everywhere in entire body. For this, *Charak samhita* describes two words. One is continuous (*santatya*) and the other is cyclical (*chakravat*). Commentator further explains meaning of word *Parivritti* as *Vikshepan* and *Samharan*. Meaning of *vikshepan* is process of *Rasa* thrown out of heart and *samharan* as process of *Rasa* coming towards heart.<sup>5</sup>

*Vyana*, chief amongst five types of *vata dosha*, circulates *Rasadhatu*. This *Rasa* is circulated in entire body (*sarvata*), at a time (*yugpata*), ceaselessly (*sada*), without taking a single seconds rest (*ajastram*). Commentator narrates, that one

should not take only *rasa* in to consideration, but also blood and all other fluids should be considered while reading about circulation of *Rasa*. Commentator describes the meanings of different words. They are as follows –

Word which executes function of pushing and pumping in appropriate manner is known as, “*vikshepochita karma*”. This is function of *Vyana*. This circulation is accomplished in entire body, simultaneously flown ceaselessly, all the time all the way. This is systematic as well as pulmonary circulation. *Susruta Samhita* has given examples to describe the fashion of circulation. This circulation is reached to micro capillaries. The circulatory process is compared with sound to indicate that sound reaches to any depth in any direction. It is compared with flames to indicate upward direction. It is compared with water to indicate downfall means downward direction. Different kind of velocity is also indicated here. Sound is faster than flames and flames are faster than waterfall. Hence circulation is in all directions in body and is maintained in different velocities. This indicates microcirculation of body, different velocities of blood at different places and pumping in all directions.<sup>6</sup>

#### **D] Control of circulation**

*Charaka* describes that “*Vyana Vayu*” a component of *Vayu*, continuously ejects the blood out of the heart and distributes it all over the body. *Vagbhata*, in *Ashtanga Hridaya* further clearly stated that the “*Prana Vayu*,” located in the head, controls the activities of the heart. In this context, *Vyana Vayu* and *Prana Vayu* denote the nervous control of circulation because *Vayu*, in general, represents all neural mechanisms.

*Sushruta* explains that, after the complete digestion of food, the absorbed material known as *Rasa* reaches the heart and thereafter, is distributed to all other parts of the body with the initiating act of *Vyana Vayu*.<sup>7</sup>

Role of *Vyana Vata* in *Rasa- Raktha Paribhramana*: *Vyana* makes *Rasa* to get forcefully ejected out of the heart and makes it circulate throughout the body. So, sympathetic and parasympathetic control of heart can be included under *Vyana Vata*. Sympathetic function in the medulla oblongata, which is concerned with the control of heart, is vasomotor centre. Hypothalamus and other cortical areas in turn influence this. *Vyana Vata* is indicative of all these functional entities.

#### **E] To Understand Interrelation of Vyana with other Types**

##### **i) To correlate karma between Vyana and Prana:**

*Prana* controls all “*indriya*” (*indriya dhruk*). This function is described in details in specific functions of *Prana*. To cite an example, biliary sphincter is under control of *Prana* since it comes under action of “*indriya*”, as it is sensitive to stimulations through mucous membrane lining (touch sensation) or *dnyanendriya*. It has to work in conjunction with *Vyana* since contraction and relaxation of sphincter is in jurisdiction of *Vyana* (*Panchadha chesta*). This action of sphincter is completed only when both *Vyana* and *Prana* work together.

Ingestion of food is due to *prana* (*annapraveshakruta*). If the pleasant flavour of food is not worked out with the help of *Vyana* (*Annaswadan*) it will be vomited. Hence

function of *Prana* needs supplementation of output of *vyana* function. They work hand in hand. Any harmful, dirty, odorous food is thus avoided.

### ii) To correlate karma between *Vyana* and *Udana*:

From above it is clear that *Vyana* controls circulation of entire body (*krutsana dehacharo ras-samvahana*). Its main location is heart. It circulates throughout the living body. It has to be extremely active for this reason. If it acts slowly it may lead to serious circulatory syndromes. *Udana* is related chiefly to expiratory efforts. A few body functions like talking, strenuous exercises, defecation, delivering a baby or any kind of “bearing down” etc. depend on expiration. Respiratory system and circulatory system work hand in hand. These are greatly interdependent system. One fails without other. *Srotopreenana* is a function destined to *Udana Vata* which indicates the extensive circulation to every cell, which is possible only through the *Vyana Vata* which carries the essence of food throughout the body.

### iii) To correlate karma between *Vyana* and *Samana*:

Division of digested food material in absorbable and non-absorbable parts is one of the functions of *Vyana*, as well as *Samana*. Function of *Samana* is restricted to digestive aspect. It is intra-luminary division of digested food. *Vyana*, by way of circulatory efforts and movements of cellular membrane helps division of digested food. One function many times needs more than one type of actions. If absorption, which also is division of absorbable and non-absorbable food, by way of cellular selection is hampered, further

digestion stops. Both these actions are hand in hand. If circulation (*samhanana*) stops, if cellular movements (*tiryaggaman*) stop, digestion (*pachan*) can not progress. All these functions are complex combinations of actions of *Vyana* and *Samana*. *Samana Vata* maintains the integrity of *Swedavaha Srotas* and *Vyana Vata* helps in the excretion of sweat.

### iv) To correlate karma between *Vyana* and *Apana*:

Deposition of Semen in vagina is one of the functions of *Vyana*. *Apana* is responsible for ejaculation of semen (*shukranishkramana*). If *Apana* fails to work, *Vyana* can not function. If conveyance of this deposition of semen in female body towards uterine cavity is not in proper fashion, there is no use of simply ejaculating the semen in female vagina. For conception it is highly needed that both *Vyana* and *Apana* work hand in hand to let deposited semen carry towards fallopian tube for successful conception. The voluntary act of intercourse may be under *Vyana vata*.

## CONCLUSION

*Vyana*, one of the five types of *vata* have active site *hridaya* but occupies entire body. Specific function of *Vyana* is to circulate the *rasa dhatu* throughout the body. It is responsible for various movements of body. Various motions of body, relaxations, contractions, eyelid reflexes etc. are due to this type of *Vata dosha*. It is also responsible for sweating and various secretions. Yawning, enjoying flavour of food, penetrating all intra and inter cellular spaces, sweating, bleeding, deposition of semen in vagina after coitus, *sara – kitta* separation, chronological nourishment of *dhatvah* are specific functions of *Vyana*. It can be concluded that *Vyana* type of



*vata dosha* must be indulging in almost all functions of body. The function of *Vyana vayu* is interdependent on other subtypes. Anterior and lateral horns of grey matter execute the functions with respect to *Vyana vata*.

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