

## PHYSIOLOGICAL STUDY OF VYAAN VAYU W.S.R BLOOD CIRCULATION

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Article Received on 02/03/2021

Article Revised on 22/03/2021

Article Accepted on 12/04/2021

## ABSTRACT

*Vyana Vata* is described as *Mahajava* which is highly powerful. Therefore it keeps the *Rasa Dhatu* in circulation continuously and always throughout the life. *Vyana Vata* with its swift action performs all the functions in the body. All the three *Doshas* residing in *Hridaya* contribute directly or indirectly to the functioning of the body; but *vyana vata* has a unique role in carrying out the functions throughout the body while residing in *hrdaya*. Any obstruction to *vyana vata* leads to a disease that affects the whole body. Vitiating of *vyana vata* hampers its functions as well as nutrition and movements of the body. There are five types of *Vata Dosh* head region is called *prana vayu*. It controls activities, reflex activities and intellectual function of *Vyana Vata* is heart. It helps in the circulation of blood by become a prevalent part of people's lifestyle. This Stress can cause nervous system to produce Catecholamine *Vayu* covers the *Vyana Vayu* and causes cardio vascular diseases. A variety of treatments to manage stress have been found effective in reducing cardio vascular diseases.

**KEYWORDS:** *Vyana Vata*, *Mahajava*, *Doshas*, *Hridaya*, *prana vayu*, lifestyle.

## INTRODUCTIONS

*Ayurveda*, the science of life is based on the fundamental theory called the *tridosha* theory. The *tridosha* is derived from the Sanskrit word *tri* and *dosha* that means three pollutant or vitiated factors. These pollutant factors play a significant role in maintenance of health or well being and disease or illness. These three *doshas* do their function at various levels such as cellular, single system, organization level. Among these three *doshas*, *vata* is capable of keeping *pitta*, *kapha*, *dhatu* and *malas* in motion. *Vata dosha* is the controller and impeller of all mental functions, and the employer of all sensory faculties. *Vata* joins the body tissues and brings compactness to the body, promotes speech, origin of sound and touch sensation. *Vata dosha* is the root cause of auditory and tactile sense faculties, *Vata* is the causative factor of pleasure and courage, stimulates the digestive fire, and helps in the absorption of the *doshas* and ejection of the excretory products. *Vata* travels through all gross and subtle channels, gives the shape of embryo and is the indicator of continuity of life. *Vata dosha* has been divided into five types namely *prana*, *udana*, *samana*, *vyana*, *apana*. Among the sub-type of *vata*, *vyana vayu* is responsible for various movements taking place in our body. It performs the function *rasa rakta sambahana* till death. It is described as *mahajava* means highly powerful. The locomotion is the most important function of a living being. All movements are

effected through contraction and relaxation of muscle. It performs its function by the help of other *vayu*.

- *Vyana vata* always ejects the *rasa dhatu* from the heart simultaneously continuously and forcefully throughout the body.
- *Rasa* gets ejected out of the heart, moves all over the body through twenty four *dhamanias*. *Sushruta* has explained total numbers of *dhamanias* are twenty four, which means *rasa dhatu* is circulated throughout the body through all *dhamanias*.
- *Rasa dhatu* returns to the heart through the blood vessels called *sira*. So *sira* is originated at heart. *Samana vayu* governs the function of reentry of *rasa dhatu* to the heart.
- The nutrient portion of digested food is called *rasa* and waste undigested material is called *purish* and *mutra*. This *rasa* after being expelled by *vyana vata* nourishes the tissue.
- *Vyana vata* propel *rasa dhatu* inside the body in three directions upward, downward & sideward through all *dhamanias*.
- In the process of *rasa sambahana* Commentator *chakrapani* said that a physician should not take *rasa* into consideration. Blood and other fluid should be considered while reading about circulation of *rasa*. Entity which executes function of pumping in appropriate manner is known as *vikshepochitta*

karma. This is the function of *vyana vayu*. This circulation is accomplished in entire body simultaneously flown ceaselessly all the time all the way.

- Role of *vyana vayu* in functions of other *vayu*: All the types of *Vata* while executing its functions seems that they are interdependent on each other. *Vyana Vata* performs the functions in conjugation with other types of *Vata Doshas*.
- *Prana vata* which is situated in head region perform the function of ingestion of food. *Vyana vata* helps in the perception of taste (*anna aswadan*) if it is tasty and palatable then *prana vayu* helps in ingestion of food. Ingestion of food is due to *prana vayu (annapraveshana)*. If the pleasant flavor of food is not worked with the help of *vyana vayu (annaswadana)* it will be vomited. Hence function of *prana* need cooperation of *vyana vayu*.
- *Srotovisodhana* and *samvahan* is the function of *vyan vayu* through this, it reaches to tissue level. Nutrient portion at tissue level because of *Srotoprinana* function of *udana vayu* which means 'tarpana' nourishes to the entire cell.
- This function is performed by the *vyana vayu* with the help of *udana vayu* which carries essence food material throughout the body. *Samana vayu* moves through *swedavaha srotas*. In *swedavaha srotas* it helps in the formation of excretory product called *sweda* due to its *sara kitta vibhajana* function which has to be expelled out from the body.
- *Vyana vayu* helps in removal of *sweda* through *swedavaha srotas*. *Apana vayu* helps in all type of excretion including semen ejaculation. The voluntary act of intercourse is under the control of

*vyana vayu*. So both *vyana* and *apana vayu* coordinative performs the function *sukra pratipadana*.

- Basically the most important function of *vyana vayu* is movement. Contraction and relaxation of muscle causes all type of movement. Each type of *vata* has specific type of function which is caused by contraction and relaxation of muscle. So *vyana vayu* helps in every function of other *vayu*.

## MATERIAL AND METHODS

### ➤ Site of *Vyana Vata*

The active site of *Vyana Vata* is *Hridaya*. The word *Hridaya* can be considered as center or the core or the essence. In the contemporary science, 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 coordinates all the functions of *Vyana Vata*. So it is justifiable to assume the location of *Vyana Vata* in the spinal cord as *Hridaya*.

### ➤ Site of *vyana vayu* by different *Acharya*

No.	Acharya	Sthana (Location)
1	Charak	<i>Vyana</i> has swift movement and spreads all over the body
2	Sushrut	<i>Vyana vayu</i> occupies entire living body. It helps in circulation of <i>rasa</i> throughout the body
3	Laghu Vagbhata	<i>Vyana vayu</i> located in <i>hridaya</i> and it travels along the whole body with very high velocity.
4	Vardh Vagbhata	located in heart moves all over the body with great speed

### ➤ Function of *vyana vayu* by different *Acharya*

No.	Acharya	Karma (Function)
1	Charak	responsible for gait, flexion, extension, twinkling etc.
2	Sushrut	responsible for sweating, blood circulation, and five type of movement like expansion, contraction upward, downward and oblique movements along with blinking and opening of eyelids
3	Laghu Vagbhata	All motor functions of the body such as <i>mahajava</i> (rapid movement), <i>gati</i> (movement), <i>avakshepa</i> (flexion), <i>utkshepa</i> (extension), <i>nimesha</i> (closure of eyelid/ being not responsive to movement), <i>unmesha</i> (opening eyelids/ staying responsive).
4	Vardh Vagbhata	Responsible for movement, expansion, contraction, upward movement, downward movement, opening and closing of eyelids, yawning, feeling the tastes of food, clearing of the channels, causing the flow of sweat and blood, bringing the male reproductive tissue into the uterus, separating the nutrient portion and waste portion of the food (after its digestion) and supplying nourishment to all the <i>dhatu</i> s.

➤ 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. Any quickest response like involuntary reflexes, just as observed in palpebral reflex or equilibrium reflex is due to Vyana Vata. Sensations like proprioception, balance, respiratory, circulatory, secretory reflexes are in jurisdiction of vyana. Vyana Vata is primarily responsible for all the movements of the body.

➤ 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 ascribed to Vyana Vata as movements

➤ Relation with Vyana Vata and other types of Vata.

No.	Combination of vata	Between relation
1	Vyana Vata + Prana Vata	Prana Vata residing in the region of head performs the function of ingestion of food. Vyana Vata helps in the perception of taste which helps Prana Vata for the ingestion of food. Prana Vata controls all the Indriyas. The movement of the Indriyas is possible with the help of vyana vata.
2	Vyana Vata + Udana Vata	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. The process of respiration is also the function of Udana Vata and this movement can be made possible with the help of Vyana Vata.
3	Vyana Vata + Samana Vata	Samana Vata residing in the vicinity of Agni helps in the digestion of food and separation of food into essence and waste. The essence of food is transported all over the body only with the help of Vyana Vata for nourishment. Samana Vata maintains the integrity of Swedavaha Srotas and Vyana Vata helps in the excretion of sweat.
4	Vyana Vata + Apana Vata	Apana Vata is the controller of all the excretions especially ejection of semen. The semen ejected can pass to the yoni with the help of Vyana Vata. 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.

## DISCUSSIONS

Vyana Vata as Mahajava, Vata is having the properties like rough, laghu, cold, rough, subtle, movement along with Yogavahi that is spreads throughout the body. Vyana vata endowed with the Chala and Yogavahi Guna is capable of performing the functions throughout the body in swift manner. Basically Vata, Pitta, Kapha constitute three regulatory systems i.e. nervous, endocrine and immune system respectively of all living systems. Among tridoshas the supremacy of Vata is explained by all our Acharyas. Vata is the natural pacemaker from where all the activities are initiated and controlled. It is the basic humoral element which controls all the function of the body. Among the five type of vata, Vyana vayu is the most important vata dosha. It performs

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 Asrk 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 caliber 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. Due to the excess blood flow to a particular area especially after exercises, Sweda Sravana occurs which in turn is the function of Vyana Vata.

➤ The skin is supplied by the muscular arteries. When the temperature rises in the active muscles, the blood is warmed in the muscles and is immediately transported to the skin where it is radiated out in the form of sweat. 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.

the function rasa rakta sambahana which may be compared with blood circulation in modern medical science. All other functions of vata depend upon the blood circulation. Ashraya sthan of vyana vayu is hridaya and its sanchara is in all over the body. Vyana vayu is spreaded everywhere. Function of rasa dhatu is prinana. The swarup of rasa dhatu is drava which can easily circulate by vikshepana karma of vyana vayu. From the above details the functions of Vyana vayu, described by acharyas can be compared with the physiological functions of somatic nervous system, autonomic nervous system, primary motor cortex, pre-motor area, supplementary motor area, cerebellum, basal ganglia, neuronal circuits of the spinal cord, 3 rd, 5th,

and 7th cranial nerve, anterior hypothalamus pre-optic area, chorda tympani nerve and glossopharyngeal nerve.

## CONCLUSIONS

According to *Ayurveda Sira*, *hridaya* and *basti* are the three *marmas* of the body. Among all the *marmas*, *bheda* (injury) to these 3 *marmas* (*hridaya*, *shiras* and *basti*) leads to sudden death. Its injury leads to severe disease manifestation. Hence, these should be especially protected against external injury and *vatadi doshas*. These *marmas* have to be protected especially from *anila* (*vata*), as *vata* is the prime factor or cause for the aggravation of *pitta* and *kapha* and also it is the cause of *prana* (life) and is best treated by *basti*. Hence, there is no treatment better than *basti* to maintain the *marma*. *Avarana* is the key factor in the mechanism of pathogenesis. The function of *vyana vayu* is to eject the *rasa* forcefully out of the heart and makes it circulate throughout the body. *Prana vayu* maintains the proper functioning of *buddhi*, *hridaya*, *indriya* and *chitta*. When the *prana vayu* covers the *vyana vayu*, the function of *vyana vayu* is hampered and causes cardiovascular diseases. So *prana vayu* and *vyana vayu* has an important role in cardiovascular system. *Vyana Vata* is considered as the highly powerful *Vata* among all the sub types of *Vata*. *Vyana Vata* residing in *Hridaya* performs the functions in the body like *Gati* (all movements), *Rasa-Raktha Paribhramana* (circulation of nutrients), *Sweda Srava* (excretion of sweat), *Anna Aswadhana* (appreciate taste) and *Shukra Pratipadhana* (carrying semen). The function of *Rasa Raktha Paribhramana* is mainly responsible for all other functions to happen. Any occlusion to the flow leads to disease. The treatment should aim to rectify the cause. The function of *Vyana Vata* is interdependent on other sub types of *Vata*. In the contemporary view the site of location of *Vyana Vata* can be related to heart and also the anterior and lateral horns of gray matter that execute the functions with respect to *Vyana Vata*.

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