

## ORIGINAL RESEARCH ARTICLE - LITERARY REVIEWS

## Physio-Anatomical Study of Respiratory System to Evaluate *Bahya Prana and Abhyantar Prana*

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### ABSTRACT

As the global scenario is changing rapidly & our body is getting more exposure towards various environmental hazards like air pollution and *Pranvaha Srotas* is especially vulnerable from them. Prana is the life giving force, the universal energy without which even single cell cannot survive. In the universe nutrition has been classified into three types as *-Prana vayu* (gaseous state), *drava* (liquid state), and *ahara* (solid state). These can be considered as *bahya Prana* which is essential to all living beings but in this context *bahyaprana* is mean to *Pranavayu* (oxygen). *Ayurveda* explains the twelve factors which constitute the *Prana* that is *Prana* can only exist in combination and integrated function of the 12 factors like *Agni, Soma, Vayu, satwa, raja* and *tama*, the five sense organs in the form indriyas and the structurally in combination of subtle form of the *Panchamahabutas*. Proper functioning of *Pranvaha Srotas* is very essential for human health. So the proper knowledge of *Bahya Prana* and *Abhyantar Prana* related with modern systemic anatomy is very needful.

**Keywords :** Prana pranavaat Pranavayu nervous respiratory and circulatory system

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### Introduction:

#### Aims and objectives:

To explore and analyze the *Samhitas* of *Ayurveda* to find the Concept of *prana* and its Anatomical, clinical & diagnostic relevance in the field of medicine and surgery of *Ayurveda* and its in future prospective to develop the Indian System of Medicine.

#### Materials and Methods:

References related to proposed title are collected from classical texts of *Ayurveda* especially *Samhita*. Various publications, internet, books related to the history of modern Anatomy, research papers and proceedings of seminars related to the topic are collected and their critical analysis and evaluation is done. Relevant ideas from allied sources on the subject are also supplemented. Humble and honest efforts are made to find some clear

concept in Anatomy.

### **Prana<sup>[4]</sup>**

*Prana* is the life giving force, the universal energy without which even single cell cannot survive. In the universe nutrition has been classified into three types as *-Prana vayu* (gaseous state), *drava* (liquid state), and *ahara* (solid state). These can be considered as *bahya Prana* which is essential to all living beings. *Ayurveda* explains the twelve factors which constitute the *Prana* that is *Prana* can only exist in combination and integrated function of the 12 factors like *Agni* (body metabolism) *Soma* (fluid system) *Vayu* (Nervous control) *satwa*, *raja* and *tama* (limbic, hypothalamus) the five sense organs in the form indriyas and the structurally in combination of subtle form of the *Panchamahabutas*.<sup>[2]</sup> *Pranayatanas* which are considered as vital areas of body where *Prana* is located and injury to these points may prove fatal. Hence *Prana* is related to each cell of the body.<sup>[3]</sup>

### **pran, atma and chetna<sup>[4]</sup>**

**Atma-** *Atma* is the first principle, the true self of an individual beyond identification with phenomena, the essence of an individual. In order to attain salvation (liberation), a human being must acquire self-knowledge (*atma jnana*), Self Consciousness, which is to realize that one's true self (*Atma*) is identical with the transcendent self *Brahma* (or *paramatma*).

**Chetna-** In the manifest world we see, some objects possess *Chaitanya* (consciousness) and some do not. Those with *Chaitanya* are called as *Chetana* and those devoid of *Chaitanya* are called as *Jada* objects.

**Prana-** *Prana* is the thing that you can feel. it is actually a motion, a motion of breath, motion of heart, blood. *Prana* is a life, sort of energy (you can feel energy). you can feel it, where as *atma* cannot be felt. You cannot anyway feel *atma*. It is *atma* that feel other things but no one can feel *atma* as you cannot see your face through your own eyes. *Atma* cannot feel itself, what you feel is *Prana*, what feels is *atma*. You need *darpan* (mirror) to see your face.

### **Internal and external prana<sup>[5]</sup>**

Internal prana getting support from the external prana

(strength of the body etc) which maintain s the body composed of the five primary elements without the opposition.

### **Prana as subtype of vata dosha<sup>[6]</sup>**

The bodily *Vata* is classified as *Prana*, *Udana*, *Samana*, *Vyana* & *Apana*. These five types of *Vata* located in their specific region contribute towards the integration & maintenance of the body.

### **Site of Pranavata :<sup>[7][8]</sup>**

*Prana* is located in the head & moves in the chest, throat, supports (attends to) the mind, heart sense organs & intelligence, attends to expectoration, sneezing, belching, inspiration & swallowing of food.

*Prana* is located in the *murdha*, *ura*, *kantha*, *jihva*, *asya*, and *nasika* mentioned in *Charaka chikitsa*.

### **Functions of Prana Vata<sup>[9]</sup>**

To maintain the proper and smooth activity of *Buddhi* (intelligence), heart, mind and sense organs, mental functions like *dhi* (selection of good and bad), *dhriti* (courage) and *smriti* (memory). To perceive the sensation and to stimulate motor functions, Inspiration and deglutition are most important functions of *Prana*. Pure air and food (external *Prana*) are taken in the direction and *Prana* activity is from nature to body (external to internal). If these inwards movements get obstructed problems like asthma begins. Spitting, sneezing and belching are comparatively less important functions.

### **Pranavaha Srotas and its moola**

*Pranavayu* carrying srotas called *Pranavaha srotas* having srotomoola are *Hridaya* and *Mahasrotas*<sup>[10]</sup> and *rasavahini dhamni*.<sup>[11]</sup> According to *Acharya Charaka Hridya* and *Mahasrotas* are the *Moola* and according to *Acharya Sushruta Hridya* and *rasavahini* are the *Moola* of *Pranavaha Srotas*.

### **Functions of Pranavaha Srotas<sup>[12]</sup>**

*Prana* is most important in our body. The actions like movement of body circulation of *Dhatu*s, contraction and

relaxation, pulsation are done by *Prana* and the strength of *Prana* is holding by *Pranavaha Srotas*. The bodies functions are depend on normal functioning of *Pranavaha Srotas*. The energy loss during different types of *Sharir Kriya* is replace by *Panchabhautik Ahara* and along with the *Ambarpiyusha (bahyaprana)* is also accepted by *Pranavaha Srotas*. For the acceptance of *ambarpiyusha* contraction and Relaxation of *mahaprachira peshi, phupphusa* and other related muscles are important. This stimulation is given by *Abhyantara Prana (Pranavata)*. If there is unbalance in energy created by food and energy lost during different body actions, result increasing in contraction and relaxation of *Pranavaha Srotas* and hence it is responsible for disturbance in *Pranavaha Srotas*..

#### Discussion:

**Prana Vaat: Moordha-** In *Vagbhata Samhita* it was mentioned that *Murdha* (head) is the seat (*murdhanyavasthit*) of *pranavaat* and *pranavaat* shoots out or diverge from this center controlling the life. *Pranavata* (impulses) initiates from *Siras* and travels through nose, tongue, pharynx, neck till *uras* understood as reticular formation from medulla oblongata with higher center connected especially “respiratory center” which promotes intake of air, food and gas (respiration)

with the help of muscles of mouth, nose, throat and thorax. *Pran Vaat* controls heart, senses and mind. It suggests the brain centre in medulla oblongata does the control of respiration. So, here by it is crystal clear that *Moordha* is the seat of *Prana*.

**Pranavayu:** *Pranavayu* carrying srotas called *Pranavaha srotas* having srotomoola are *Hridaya* and *Mahasrotas* and *rasavahini dhamni*. The phupphus can be considered as *Mahasrotas* not GIT. In the context of *Pranavaha Srotas* the word *Mahasrotas* itself points to *phupphus* (lungs) which provide large area for gaseous exchange (*srawan karma* of *Pranavayu*) through alveoli. *Prana vayu* reach to the every corner of the body by heart through *rasavahi dhamani* . So *Pranavayu* carries right from tip of nose through lungs, heart and vessels (*moolasthan*) upto each and every cell of the body.

There is a technical difference between *Prana vayu* (the subtype of *vata*) and the *Prana vayu* (the air we inhale). The *Prana vayu* we inhale is the life giving force that is external to the body and goes into the body. It is converted/ processed/ absorbed in the *Mahasrotas* with the action of respiration.

The *Prana vaat* which is the subtype of *vata* is the ‘force’ that does the process of ‘taking in’... especially. air, water, food... all the factors that are responsible for keeping ‘life’

Abhyantar Prana (Pranavata which is a subtype of Vata dosha)	Bahyaprana (inhaled Pranavayu, the oxygen)
<i>Pranotra murdhagah.....</i>	<i>Nabhisthah Prana-pavanah.....peetva cha amverpiyusham....pre-enayan dehakhilam....</i>
Controls actions of respiratory centres along with medulla oblongata and <i>hridaya (vagus nerve), nervic innervations to nose mouth larynx and thorax (diaphragm-phrenic)</i> <sup>[13][14]</sup>	Conduction route; Moves to every cell of the body with <i>rasa-rakta dhatu</i> in <i>rasavahini</i> right from the tip of nose through <i>moolasthan</i> .
Responsible for the act of breathing	Actually enters the body during breathing

#### Conclusion:

*Abhyantar Prana (Pranavata* which is a subtype of *Vata dosha*) may be assumed as nervous system involving respiration and *Bahyaprana (Pranavayu)* is the life giving force that is inhaled through breathing and disperse by heart all over in the body may be assumed as

respiratory system along with circulatory system.

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## सारांश:

जिस तेजी से वर्तमान भौगोलिक परिदृश्य बदल रहा है एवं हमारा शरीर विभिन्न भौगोलिक प्रदूषण के प्रभाव में आ रहा है, जिसके फलस्वरूप प्राणवह स्रोतस ही प्रभावित हो रहे हैं। जीवन को गति देने वाली एक वैश्विक ऊर्जा जिसके बिना कोई कोशिका भी जीवित नहीं रह सकती, वह प्राण ही है। वैश्विक तौर पर पोषण को तीन तरह से विभाजित किया जाता है – प्राण वायु (वायवीय स्वरूप), द्रव (जलीय स्वरूप), और आहार (ठोस स्वरूप), जिनको हम बाह्य प्राण कह सकते हैं परन्तु इस सन्दर्भ में बाह्यप्राण से प्राणवायु (आक्सीजन) का ग्रहण किया गया है जो कि सभी जीव जन्तुओं के लिये आवश्यक है। आयुर्वेद में बारह प्रकार के प्राण— अग्नि, सोम, वायु, सत्व, रज और तम पंच इन्द्रिय (ज्ञानेन्द्रिय) एवं पंचमहाभूत माने गये हैं प्राण का अस्तित्व इनके समूह में होने व सामुहिक कार्य प्रणाली पर निर्भर है। मानवीय शरीर का स्वास्थ्य प्राणवह स्रोतस की उचित कार्य प्रणाली पर निर्भर करता है। इसी दृष्टिकोण में बाह्य एवं आभ्यान्तर प्राण का ज्ञान आधुनिक तन्त्रीय रचना के परिप्रेक्ष्य अत्यन्त आवश्यक है।