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## THE PHYSIOLOGICAL STUDY OF *PRANVAYU* W.S.R. TO RESPIRATION

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### ABSTRACT

The physiological process of respiration, which promotes gas exchange, depends on the appropriate operation and interaction of the respiratory drive, a central brain control system, sensory input systems, the lungs, and the respiratory muscles. The processes that enable gas exchange at the cellular level during respiration comprise taking in O<sub>2</sub> and expelling CO<sub>2</sub>.<sup>1</sup> According to *Ayurveda*, *Prana Vayu* is the foundation of human life. Because the respiration process is controlled by *Prana Vayu*. *Pranavayu* aids in creativity and evaporation. *Pranavaha Srotas* are the tracts (*Srotas*) through which *Pranavayu* runs.

Key Words: *Pranvayu*, *Pranvaha srotas*, Physiology, rate and regulation of respiration

### INTRODUCTION

Respiration is a vital sign of life. According to *Ayurveda* the human body is composed of *doshas*, *Dhatus* and *Mala*.<sup>2</sup> Out of *Tridosha*, *Vata* is a *Pradhan Dosha* which is said to be *Parana*. In *Ayurveda* *Pranvaha Srotas* has been described by *Charka* and *Shushruta*. *Pranavaha Srotas* are the tracts (*Srotas*) through which *Pranavayu* runs. *Prana Vayu* is compared to atmospheric oxygen, which is essential for carrying out life's essential processes. The features highlighted in the process of respiration in contemporary medical studies are clearly similar to the facts as described by *Ayurveda* experts far earlier.

*Prana, Apan, Udan, Saman, and Vyan* are the five different forms of *Vayu* that *Acharya Charak* has identified. It allows the body to move freely in various locations while maintaining good coordination. *Vayu* is life, power, and the source of all life. *Vayu* is everything; it is the supreme being.<sup>3</sup>

According to *Acharya Sushruta*, *Prana Vayu* is *Vaktra Sanchari* (circulate in oral cavity). Hiccup and *Swasa rog* are brought on by its vitiation. According to *Acharya Dalhan's* commentary, the heart, throat, head, and nose are all affected by the field and action of *Prana Vayu*.<sup>4</sup>

In *Astanga Hridaya*, *Acharya Vagbhat* has described that main place of *Prana* is *Murdha* and it travels in *Uras, Kantha, Hridaya* and it governs memory, heart, senses and mind.<sup>5</sup>

*Acharya Sharangdhar* provides a very excellent description of the physiology of respiration in *Ayurveda* in the *Sharangdhar Samhita*. According to him, *Prana Vayu* originates close to *Nabhi*, travels to *Hridaya*, and then emerges at the throat to take in *Vishnupadamrtam*. After consumption, the same quickly returns to nourish the entire body and to activate the *Jatharagni*.<sup>6</sup> *Ayu* is the result of the combination of *Sharir* and *Prana*. *Pancatva* is the term for the separation of these combinations.

#### Aims And Objective

- 1) Physiology of respiration according to *Ayurveda*.
- 2) Possible correlation of process of respiration with *Pranvayu* as per *Ayurvedic* and modern science.

#### Subtle *Prana*

Along with *prana Vayu* (a kind of *Vayu*), term *Prana* is also referred as a subtle vitality element too. This subtle *Prana* is said to be located at *Pranayatana* (10 special sites of *Prana*). It is also reside at *Marmas* (vital points), along with *Rakta*, particularly in *tri Marma* (three vital organs) and at *Nabhi*. There is also a unique conceptualization of the twelve *Prana* in *Sushruta Samhita*.

#### *Sthan and Karma of Pranvayu*

According to the classical text, *Prana Vayu* is said to be placed at the *Murdha* (head), *Urah* (chest), *Kantha* (throat), *Aasya* (mouth), and *Nasika* (nose)<sup>7</sup>. According to *Ravi Dutt Tripathi* (2009), it is the cause of *Stheevana* (spitting), *Kshavathu* (sneezing), *Udgara* (belching), *Shwasa* (respiratory phenomena), and *Aahar karma* (deglutition of food). Similar ideas have been explained by *Vagbhata*. He asserts that *Prana Vayu* travels via the chest and neck and resides at *Murdha*. It is in charge of the honourable *Dharana* of *Buddhi, Hridaya, Chitta, and Indriya*.

## Pranavaha Srotas

Srotas are the structure or channel through which Sravanam Karma, or the flowing, moving, oozing, and penetration of various body components and nutrients, takes place. The Pranavaha Srotas is undoubtedly the system for transporting Prana, which has been described as the vital air (vital breath) that is inhaled as well as the vital energy that powers each and every activity of a living being. As a result, in the context of these facts, the idea of Pranavaha Srotas is also comprehended. One of the five forms of Vayu has the term "Prana," which is frequently employed and seems fitting. This Prana Vayu denotes atmospheric air, which is necessary for breathing and maintaining life's vitality.

### Functions of *Pranavaha Srotas*

*Prana* is most importance in our body. *Prana* performs bodily movements, the contraction and relaxation of the *Dhatus*, and heartbeat, and *Pranavaha Srotas* holds the power of *Prana*. The proper operation of the *Pranavaha Srotas* is necessary for the body's activities. *Panchabhautik Ahara* and *Ambarpiyusha* are used to make up for the losses experienced throughout various forms of *Sharira Kriya*, and *Pranavaha Srotas* also accept the *Ambarpiyusha*. *Phupphusa* and other related muscles are crucial for the acceptance of *Ambarpiyusha* as well as for the contraction and relaxation of the *Mahaprachira Peshi*. The source of this stimulation is *Abhyantara Prana*.

If there is contamination in the nutritive *Vayu* or less in amount or disturbance in its passage, *Prana Vayu* provides the sustenance for the remaining *Vayus*. Then, other *Vayu's* functions are also affected. As a result, ailments in the body are caused by disturbed *Dhatu* and *mala* functioning. When food is digested, *Vayu* yields *mala Vayu*, which is *Niyanta*, a *praneta* of *sharir* and *mana*.

### Physiology Of Respiration

The two primary sites of *pran vayu* are the head and chest. Sites of *pranvayu* also include the head, neck, mouth, tongue, nose, heart, mind, and intelligence. Living things' *pranas* remain in the umbilicus, and the umbilicus depends on *pranas*. Similar to how the wheel's nave is encircled by spokes, the umbilicus is surrounded by *siras*.<sup>8</sup>

The physiological process of normal breathing has been characterised by *Acharya Sharangdhar* in *Purvakhanda* as the entire process of normal breathing to distant transportation of organ to the tissue and the cells. He stands with the belief that the *prana Vayu*, which is located in the *Nabhi Pradesha* (centre of the body), emerges through the neck, touches the lotus-like heart, and then reenters forcefully after becoming soaked with *Vishnu Padamrata* (O<sub>2</sub>) from atmospheric air. According to this, breathing begins at the *Nabhi*, which might be regarded as the umbilical region and is supported by the abdominal muscles. The diaphragm plays a significant part in the breathing process. Where the diaphragm touches *Hrut Kamalantram*, it causes the expiratory and inspiratory processes of respiration to occur. The lungs are where gaseous exchange occurs after the inhaled air has passed through the trachea. The heart (*Hridaya*) and *phapphus* are constantly pumping out a particular amount of blood (lungs). This blood removes its waste CO<sub>2</sub> through exhalation while absorbing *Ambarpiyush* (O<sub>2</sub>) from the air that is present inside.

## Rate of Respiration

'*Swasanamana*' refers to a number of respirations per day. *Yoga Chudamani* counts twenty one thousand six hundred respirations (21600) per day. Converting this to hours & minutes, it becomes fifteen respirations per minute (15/ min).

## Regulation of Respiration

The neurological system's control of ventilation is referred to as the activities of *Prana* and *Udanavata*. *Udana Vata* controls the activity of exhalation, and *Prana Vata* controls the activity of inspiration. Neurons in the medulla and pons control the fundamental aspects of breathing. Both excitatory and inhibitory inputs can cause the respiratory centres in the medulla and pons to respond. the centre for pneumotaxic inspiration. The *Pranvayu*, which is seated at the head or brain, regulates *Swasa*, or perspiration, as well as its various modifications, such as sneezing, etc. The interior covering (*Avarana*) of *Vayu* dosa is where the quantity of *Swasanas* (respiration) increases and decreases, according to *Charka Samhita*. As a result, the *Pranavayu*, which is seated at the *Murdha* (brain), governs *Swasana karma* in life.

## CONCLUSION

*Murdha* is the primary location of *Prana Vayu* (head). Head in this sense refers to the brain and brainstem, and according to all *Acharyas*, *Prana Vayu* is responsible for performing *Swasa Karma*, which is quite similar to the respiratory centre in the medulla and pons of the brain stem, which performs respiration. A human person may exist without their eyes, hearing, legs, etc., but not without breathing and eating, according to *Chandogyopanishad*, one of the oldest *Upanishads*. Life stems from these two elements and is entirely dependent on them. This is the life force (*Prana*) or vital energy that resides within them. The organs that aid in the exchange of gases are the lungs. The vital life force, known as *Prana*, and the gases are transported through the respiratory system. Therefore, maintaining the respiratory system is crucial. Poor food, seasonal fluctuations, dirty air, and a lack of exercise can all contribute to respiratory tract issues. Controlled diets can enhance respiratory health. The best course of action is to stay away from fried foods and eat light for breakfast and dinner. Having a glass of warm water might relieve chest congestion. complete body warming Another method for maintaining respiratory health is through yoga, meditation, and *Pranayama*.

## REFERENCES

1. Brinkman JE, Sharma S. Physiology, respiratory drive. Treasure Island: Stat Pearls; 2020.
2. Dr. Ambika Dutt Shastri Sushrut Samhita, sutra sthan 15/3, Ayurved Tatva Sandeepika Hindi commentary, Published by Chaukhamba Sanskrit Sansthan, Varanasi. Reprint 2018.
3. Charak Samhita-English Translation by Prof. P.V.sharma, Vol 1&2, Chaukhamba Orientalia, Varanasi, 1983.
4. Sushruta Samhita-Prof. K.R. Srikantha Murthy Vol.(1&2), Chaukhamba orientalia Edition, 2008
5. Astang Hridaya - English Translation by Prof. K.R. Srikantha Murthy, Krishnadas Academy, Varanasi Edition, 2000; 1 &2.
6. Sharangdhara Samhita-Prof. K.R. Srikantha Murthy, Chaukhamba orientalia Edition, 2009.
7. Agnivesha, Charak Samhita, Vidyotini, Chikitsasthana 28/5 by Pandey K, Chaturvedi G, editors, Varanasi: Chaukhamba Bharati Academy; Reprint 2009. P 775
8. Dr. Shelja Shrivastva Sharangdhara Samhita, purvakhand 5/50, Jivanprada Hindi commentary, Published by Chaukhamba Orientalia, Varanasi. 2003.

