

A REVIEW ARTICLE AN OBSERVATIONAL STUDY ON FUNCTIONAL STATUS OF LUNGS IN DIFFERENT *DAIHIK PRAKRITI* W.S.R. TO PULMONARY FUNCTION TESTDr. Mahima Kashyap^{1*}, Dr. Gitanjali Sasmal² and Dr. Vinay Bhardwaj³¹P.G. Scholar, Dept. of Kriyasharir, Shri NPA Govt. Ayurved College, Raipur, C.G., India.²Professor & HOD, Dept. of Kriyasharir, Shri NPA Govt. Ayurved College, Raipur, C.G., India.³Reader, Dept. of Kriyasharir, Shri NPA Govt. Ayurved College, Raipur, C.G., India.

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ABSTRACT

Ayu or life can be defined in many ways. The creation and activities of life can be considered in two different ways i.e. normal (physiological or *Prakriti*) and abnormal (pathological or *Vaikrita*) *Ayurveda* deals with the maintenance of the positive health and curing the disease. *Ayurveda* holds that each person is unique. Each person is unique not only in terms of size and shape but also in terms of physiological and even psychological traits. This is due to the fact that their *Prakriti* (constitution), which is determined by the predominance of *Panchamahabhuta*, *Tridosha*, and *Triguna* at the moment of birth. Once this *Prakriti* is established, it remains in place for the person up until death. Breathing is an essential function for survival, and alterations in lung function can hinder quality of life and performance of activities in daily life. To maintain respiratory homeostasis, the structures that compose the respiratory system need to work in equilibrium, that is the lungs should be ventilated and the gases should diffuse through the alveolar-capillary barrier. *Prakriti* is an important factor for making correct diagnosis of the diseases and their proper treatment. So, by knowing the functional status of lungs in different *DaihiK Prakriti* it will be a great measure in both preventive and treatment purpose of different respiratory disorder.

KEYWORDS: *Prakriti, Vayu, Swasan*, Lungs, Vital capacity.

INTRODUCTION

Veda means knowledge. *Ayush* means life. Therefore, *Ayurveda* means the knowledge and understanding of life.^[1] *Ayurveda* is not only a medical science, but it is a science of life also.

The ancient, comprehensive medical system known as *Ayurveda*. It describes how to avoid and treat various ailments as well as the principles of good health. In the framework of *Ayurveda*, a person is regarded as healthy when all of his body's *Doshas*, *Agni*, *Dhatu*s, and *Malas* are in balance, as well as when his soul, mind, and other organs related to senses are in a state of happiness.^[2]

Ayu or life can be defined in many ways. The creation and activities of life can be considered in two different ways i.e. normal (physiological or *Prakriti*) and abnormal (pathological or *Vaikrita*) *Ayurveda* deals with the maintenance of the positive health and curing the disease.

Artha (having the necessary money using wise ways), *Kama* (gratifying desires), and *Moksha* (liberation/salvation). As a result, ancient philosophy—

the core knowledge of ancient India—serves as the basis for *ayurvedic* science.^[4]

The ancient text of *Ayurveda* mentions numerous properties of *Doshas* and how they affect a human being's physiology or *Prakriti* based on the dominance of one or more *Doshas*. The word *Prakriti* has varying meanings in different contexts e.g. *Samya*, *Arogya*, *Svabhava*, *Karana*, end stage of life bodily constitution.^[5,6,7] *Shukra* and *Shonita* present in the *Garbhashaya* combined with *Atma*, *Prakriti* and *Vikara* is known as *Garbha*. *Vayu Mahabhuta* divides this mass possessing *Chetna*, *Tejas Mahabhuta* transform it, *Aap Mahabhuta* moistens it, *Parthiva Mahabhuta* compact it and *Akasha Mahabhuta* enlarges it, developed in this manner, when it becomes endowed with hands, feet, nose, ears, buttocks, etc. then it derives the name *Sharira*.^[8]

Ayurveda holds that each person is unique. Each person is unique not only in terms of size and shape but also in terms of physiological and even psychological traits. This is due to the fact that their *Prakriti* (constitution), which is determined by the predominance of

Panchamahabhuta, Tridosha, and Triguna at the moment of birth. Once this *Prakriti* is established, it remains in place for the person up until death.

When *Shukra* (sperm/spermatozoan) and *Shonita* (ovum) merge, *Doshika* (the type of personality that defines a person) predominates. The person is known as a *Vataja Prakriti*, and such a person has physical and psychic (mental) traits consistent with the preponderance of *Vata Dosh*, for instance, at the time of gamete union, when *Vata Dosh* is prevalent in comparison to *Pitta* and *Kapha*. To maintain good health, each person needs to be aware of their *prakriti*. If proper care is not taken, predominant *Dosha* may lead to some diseases. For instance, *Vata Prakriti Purusha* who consumed more *Vatika Ahara* Vihara in *Vata-Vardhak Kala* would experience *Vataja Vyadhis*.^[9] For an appropriate disease diagnosis as well as course of treatment, *Prakriti* is also crucial. In reality, no one is the same as the others. Thus, there may be an infinite variety of people or an infinite number of *Prakriti*. But for practical purpose *Prakriti* has been classified as follows

1. *Daihih Prakriti*.
2. *Manas Prakriti*.
3. *Jatyadi Prakriti*.
4. *Panchabhautika Prakriti*.

In comparison to the categories listed above, *Daihih Prakriti* is more useful for everyday use. When the male and female gametes unite, the *Doshaja Prakriti* is characterized as the *Daihih Prakriti* depending on the *Dosha* predominance.

Acharya Charaka has described the benefits of *Vayu* and said that *Vayu* is life, strength and sustainer of creature, *Vayu* is the entire world and it is the master of all. The person whose *Vayu* is with unimpeded movements and in normal state lives long for hundred years devoid of disorders.^[10]

Acharya Sharangdhara has described that the *Ayu* is nothing but combination of the body and *Pranavayu* (Oxygen), and due to period, its detachment is death.^[11]

In *Ayurveda* it is stated that Lungs are made from foam of blood.

The important sites of *Prana Vayu* are throat & thorax, and its various functions are related to trachea, salivary glands, Pharynx, stomach, heart & lungs.

Respiration is the movement of oxygen from the outside environment to the cells within tissues, and the transport of carbon dioxide in the opposite direction. Physiological respiration involves respiratory cycles of inhaled and exhaled breaths. Inhalation (breathing in) is usually an active movement. The contraction of the diaphragm muscle causes a pressure variation, which is equal to the pressures caused by elastic, resistive and inertial components of the respiratory system. In contrast,

exhalation (breathing out) is usually a passive process. Breathing in, brings air into the lungs are simply gaseous Exchange Apparatus. This gaseous exchange occurs within lungs between inspired air & blood. All the alveoli of both the lungs are synchronously filled with air during inspiration and empty during expiration. Lung volumes are also known as respiratory volumes. It refers to the volume of gas in the lungs at a given time during the respiratory cycle. Lung capacities are derived from a summation of different lung volumes. Lung capacities are of four types.

They are Inspiratory capacity, Vital capacity, Functional residual capacity & Total lung capacity. The average total lung capacity of an adult human is about 6liter of air. The factors affecting lung capacities are sex, body built, posture, athletes & occupation. Breathing is an essential function for survival and alterations in lung function can hinder quality of life and performance of activities in daily life. To maintain respiratory homeostasis, the structures that compose the respiratory system need to work in equilibrium, that is, the lungs should be ventilated and the gases should diffuse through the alveolar-capillary barrier.

Lungs are the important organs of Respiratory system. Respiration is the movement of oxygen and carbon dioxide between atmosphere, lungs alveoli and body tissues. So, lungs condition is assessed by its capacity. Lungs volume are also known as respiratory volumes. It refers to the volume of gas in the lungs at a given time during the respiratory cycle. Lung capacities are derived from a summation of different lung volumes. Pulmonary function test are noninvasive tests that show how well the lungs are working. The tests measure lung volume, lung capacity, rates of flow, and gas exchange. It is based on the measurement of volume of air breathed in and out, in quiet breathing and forced breathing. Lung function test are of two types.

1. Static lung function tests.
2. Dynamic lung function tests

NEED OF THE STUDY

Breathing is an essential function for survival, and alterations in lung function can hinder quality of life and performance of activities in daily life. To maintain respiratory homeostasis, the structures that compose the respiratory system need to work in equilibrium, that is the lungs should be ventilated and the gases should diffuse through the alveolar-capillary barrier. *Prakriti* is an important factor for making correct diagnosis of the diseases and their proper treatment. So, by knowing the functional status of lungs in different *Daihih Prakriti* it will be a great measure in both preventive and treatment purpose of different respiratory disorder. This study also helps with assure in the treatment of unknown lungs disorder in future. Keeping all these views in mind selected the topic for research.

HYPOTHESIS

- **Null hypothesis(H₀)**- There will be no relation of *Daihik Prakriti* and functional status of lung.
- **Alternative hypothesis(H₁)**- There will be relation of *Daihik Prakriti* and functional status of lung.

AIM AND OBJECTIVES

- **Aim**
 - To establish relationship between functional status of lung and different *Daihik Prakriti*.
- **Objectives**
 - Conceptual study of *Daihik Prakriti*.
 - Conceptual study of respiratory system and Pulmonary function test.
 - Assessment of functional status of lungs in different volunteer.
 - To establish relationship between functional status of lung and different *Daihik Prakriti*.

Ayurvedic philosophy states that there is a total of five elements, or *Panchamahabhutas*, that make up everything in the universe.^[11] All of the treatment's elements are supported. Different chemicals are created when these are combined in varied ratios. These five *Mahabhutas* are also the components of individual bodies; they continue to exist as *Paramanus* and have distinct identities. There are three biological units of the body formed by the integration of these *Mahabhutas* in different ratios: *Vata*, *Pitta*, and *Kapha*. These play an active role in physiology. *Tridoshas* have evolved as a result of *Vayu* and *Akasha Bhutas'* *Vata* dominance, *Agni Bhutas'* *Pitta* dominance, and *Jala* and *Prithvi Bhutas'* *Kapha* dominance, in this way *Tridoshas* are evolved. The whole physiology, pathology and treatment depend upon *Tridoshas*.^[12,13]

During the time of fertilization, i.e. the union of *Shukra* and *Shonita* in the *Garbhashaya*, the minute *Atma* enters the fertilized ovum; from this the *Shareera* forms composing of 24 *Tatvas*. With gradual evolution at *Ashta Prakriti* (*Avyakta*, *Mahan*, *Ahankara*, *Panchatanmatras*) and *Shodasha Vikaras* (*Pancha Gyanendriyas*, *Pancha Karmendriyas*, *Manas*, *Panchamahabhutas*), this embryonic man lying in the *Garbhasaya* is considered as *Garbha*. In short, combination of *Panchamahabhutas* and *Atma* is termed as *Purusha* or *Shareera*. The nature of this *Panchabhautik Shareera* is known as *Deha-Prakriti* or *Dosha-Prakriti*.^[14,15,16]

According to the *Doshas*, the *Prakriti* of the man is labelled as *Vatika*, *Paittika* or *Kaphaja* & bears peculiar characters due to the predominance of particular *Doshas* in the body.^[17] Status of *Dosha* at conception determines *Prakriti*. Though *Dosha* are dominant, they do not cause diseases but they are well tolerated being congenital in nature. *Charaka* specifies *Sama Dosha* as *Sama Prakriti*, in which *Dosha* are in state of equilibrium. Others are not termed as *Prakriti* but called as *Vatala*, *Pittala* and *Shleshmala* (and not *Vata Prakriti* etc.) *Dosha* are

classified in two components: *Prakrita* and *Vaikrita Dosha*. *Prakrita Dosha* are congenital, maintain homeostasis, regulate physiological processes and responsible for health. *Vikrita Dosha* are generated in metabolic processes and are responsible for diseases. *Prakrit Dosha* is responsible for *Prakriti* hence it is unchangeable and constant nature of an individual. *Dosha*, though dominant is in physiological limits in *Prakriti*, abnormal (*Kshaya*, *Vridhhi* or *Prakopa*) in diseased state and completely changed in *Arishta* (alarming signs of death or grave prognosis of disease). According to *Asthanga Hridaya*, in any *Prakriti*, *Dosha* are elevated but well tolerated and do not cause abnormality.

TYPES OF LUNG FUNCTION TEST

Lung function tests are of two types

1. Static lung function tests
2. Dynamic lung function tests.

1. **Static lung function tests** – Static lung function tests include static lung volumes and static lung capacities.
2. **Dynamic lung function tests** – Dynamic lung function tests are useful in determining the severity of obstructive and restrictive lung disease.

STUDENT SPIROMETER

Spirometry is the method to measure lung volume and capacities. An instrument used for this purpose is called Spiro meter, which are mainly two types computerized Spiro meter and Simple student Spirometer. Residual volume and capacity cannot measure by Spiro meter. Volume and capacities, which cannot be measured by Spirometry are measured by nitrogen washout technique or helium dilution technique or by body Plethysmograph Student Spirometer. Student Spirometer is made up of metal and it contains two chambers namely outer chamber and inner chamber. Outer chamber is called the water chamber because it is filled with water. A floating drum is immersed in the water in an inverted position. Drum is counter balanced by a weight. Weight is attached to the top of the inverted drum by means of string or chain.

A pen with ink is attached to the counter weight. Pen is made to write on a calibrated paper, which is fixed to a recording device. Inner chamber is inverted and has a small hole at the top. A long metal tube passes through the inner chamber from the bottom towards the top. Upper end of this tube reaches the top portion of the inner chamber. Then the tube passes through a hole at the top of inner chamber and penetrates into outer water chamber above the level of water. A rubber tube is connected to the outer end of the metal tube. At the other end of this rubber tube, a mouthpiece is attached. Subject respire through this mouthpiece by closing the nose with a nose clip. When the subject breathes with Spiro meter, during expiration, drum moves up and the counter weight comes down. Reverse of this occurs when the subject breathes the air from the Spiro meter, i.e. during

inspiration. Upward and downward movements of the counter weight are recorded in the form of a graph. Upward deflection of the curve in the graph shows inspiration and the downward deflection denotes expiration.

Spirometer is used only for a single breath. Repeated cycles of respiration cannot be recorded by using this instrument because carbon dioxide accumulates in the Spirometer and oxygen or fresh air cannot be provided to the subject.

Pulmonary function test

Pulmonary function tests or lung function tests are useful in assessing the functional status of the respiratory system both in physiological and pathological conditions. Lung function tests are based on the measurement of volume of air breathed in and out in quite breathing any forced breathing. These tests are carried out mostly by using spirometer.

LUNG VOLUMES

Static lung volumes are the volumes of air breathed by an individual. Each of these volumes represents the volume of air present in the lung under a specified static condition.

Static lung volumes are of 4 types

1. Tidal volume
2. Inspiratory Reserve volume
3. Expiratory Reserve volume
4. Residual volume

Volume

Changes brought about by inspiratory and expiratory efforts are termed volumes.

Tidal volume

The volume of air taken in or exhaled during ordinary quiet breathing is called the tidal volume it is approximately -500ml

Complete mental air or Inspiratory Reserve volume

The maximum amount of air that can be inspired by the deepest possible inspiration after an ordinary expiration is called complete mental air it amounts to **3300 ml**.

Supplemental air or reserve air or Expiratory Reserve volume

After an ordinary expiration the maximum amount that can be expelled out by the deepest expiration is called supplemental air. it is **1000 or 1100 ml**.

Residual volume

The amount of air that remain in the lungs even after the maximum expiratory effort is called the residual air. It amounts to about **1000 to 1200 ml** and has individual variations.

Minute volume

It is the amount of air breathed per minute. it amounts to $500\text{ml} \times 18$ (Tidal air) resp./min.

Minimal air

The amount of air that remains in trapped in the lungs even after the complete collapse of the same is called the minimal air. This amount of air is concerned with buoyancy (floating capacity) of lung tissue minimal air normal amount 300 ml.

LUNG CAPACITIES

Capacities- volumes brought about by the size of the lungs and thorax are termed capacities. Static lung capacities are the combination of two or more lung volumes.

Static Lung Capacities are of four types

1. Inspiratory capacity,
2. vital Capacity,
3. Functional Residual capacity,
4. Total Lung Capacity.

These are important to see physiological as well as pathological conditions of Lungs as well as Respiratory system.

Inspiratory capacity

It is the maximum volume of air that is inspired after normal expiration. It includes tidal volume and inspiratory reserve volume.

Normal value

$TV + IRV, 500 + 3300 = 3800$.

Vital capacity

Vital capacity (VC) is the maximum volume of air that can be expelled out forcefully after a deep inspiration. VC includes inspiratory reserve volume, tidal volume and expiratory reserve volume.

The maximum amount which the lung can hold is 4600 to 4800 ml.

DISCUSSION & CONCLUSION

Prakriti in health and diseases

Knowledge about *Prakriti* is prerequisite for assessment of *Vikriti* (pathology) hence it is reverse pathology and restores *Prakriti*.

Primary objective of *Prakriti* assessment is to estimate *Bala Pramana* and *Dosha Pramana* of an introduction. *Bala Pramana* refers to judgment of physical and psychological potential that illustrates status of *Dosha, Dhātu, Mala* and related organs.

Diagnostic aspect and *Prakriti* forms basis for understanding *Samprapti* (pathology), extent and *Vikalpana* (combinations) of vitiated *Dosha* and status of host factors. Prediction of proneness and severity of

disease can be speculated that helps in prognosis judgement.

Prakriti and Prognosis

Prakriti is important for judgement of prognosis. If *Vikaara Prakriti* (nature of disease) and *Prakriti* are similar then disease is difficult to manage (*Kashta saadhya*).

When *Prakriti* and disease is of different origin, it is easy to manage (*Sukha saadhya*).

Kashyap Samhita has defined role of season (*Kaala Prakriti*) in relation *Prakriti*. If season, disease and *Prakriti* are of same *Dosha*, disease untreatable and has bad prognosis. Any two of these if similar, make disease difficult to treat.

Role of Prakriti in Treatment

Though treatment design is based on multiple variables, *Prakriti* has a role in selection of drug, dose, *Anupaana* (vehicle) and *Samskaara* (processing). Considering *Prakriti* (coupled with other factors) some drugs or procedures are Indicated (*Ghrita* for *Vata* and *Pitta Prakriti*) or contraindicated (*Swedana* for *Pitta Prakriti*). *Prakriti* of an individual illustrates numerous physiological functions, as *Agni* (digestive and metabolic capacity), *Koshtha* (digestive and excretory functions), *Bala* (Strength of tissues) and lifespan are specific for each *Prakriti*.

Systematic objective clinical evaluation is essential for understanding of *Prakriti*. *Prakriti* assessment with other factors of *Dashavidha Pariksha* should be contemplated for total understanding of patient or healthy individual.

Prakriti and lifestyle

Prakriti and lifestyle are natural phenomena as well as occur essentially. All the physiological process is directly controlled by *Vata-Pitta* and *Kapha* and *Mansika Doshas* (functional psychic factors) thus by the predominant *Dosha* is a particular type of *Prakriti*.

The principles of maintaining a proper well-being of the body and lifestyle are two folds- the observance of personal, moral, seasonal conduct and for maintaining way of life it must be opposite to *Prakriti* of an individual as the objective of the science is establishing equilibrium of the body. *Prakriti* based guidelines for diet and lifestyle result in healthy tissues and homeostasis of *Doshas*.

Every healthy individual should know about his/her *Prakriti*, so that one can know which are the healthy lifestyle and eating habits for him, by adopting which he can maintain his healthy state and prevent any disease which may come. For e.g., if a person is found to have *Pitta* predominant *Prakriti* he is advised all those food stuffs which produce more heat in the body. It is because he is having already increased heat in the body and by

taking more heat producing regimens, he may acquire many diseases.

This can be done only if we know the *Prakriti*. By knowing the *Prakriti* one will know about the strength of a person to combat with the lifestyle diseases. Out of rest six types, *Prakriti* with one *Dosha* (*Prakriti* formed from one body humor) have better resistance than two *Dosha Prakriti* (*Prakriti* formed from two body humors). *Vata-Pitta-Kapha Prakriti* is susceptible to disease in decreasing order. In general, by knowing your *Prakriti* you can be aware of the do's and don'ts for daily routine and to be in healthy state you can be aware of, what type of disorders or ailments your body can have in future, so that you can change your lifestyle.

The present context of description of *Prakriti* (constitution) is in context to the body constitution i.e. *Deha Prakriti* (physical constitution). The approach of Ayurveda on the subject of *deha prakriti* (physical constitution) is quite detailed and vivid. Ancient scholars have enumerated a number of factors, which together lay the psychological and physical make up of an individual. The combination of these factors and the escalated state of *Doshas* in *Shukra* (sperm) and *Artava* (ovum) at the time of conception determines the *Prakriti* (constitution) of a person. Though intensified *Doshas* are capable of inducing destruction, but during formation of *prakriti* (constitution), there is '*Sahaja Satmya*' of *Doshas*, which does not cause any harm to body. Hence constitution is emerged in balanced or *Satmyaja* or *Sahaja* increased state of *Doshas*, although this increased status of *Doshas* has superior and inferior effects on psyche and body, on the basis of which independent or mixed *Prakriti* (constitution) gets materialized.

IMPORTANCE OF PRAKRITI

- The study of *Prakriti* helps in preventive aspects of treatment.
- The selection of drug and its doses etc. needs consideration of *Prakriti*.
- *Agni*, *Koshtha*, *Bala* etc. of the individuals are depends on their *Prakriti*.
- *Prakriti* plays an important role in the immunity of individual body as well as in the disease producing phenomenon.
- Relative susceptibility of persons of the different *Prakriti* to different types of diseases is one of the aspects of the study of *Prakriti*.
- The knowledge of *Prakriti* is utilized for predicting the proneness, severity prevention of diseases.

Applied Aspect of Prakriti

- Disease susceptibility or predictive medicine: *Prakriti* assessment aids in determining susceptibility to various diseases as well as preventing disease development from progression towards severity.
- Prophylaxis or preventive medicine: *Prakriti* determination aids in medicine's preventive element.

- Prognosis: In ancient Ayurvedic literature, the concept of curability or incurability of disease is described. It further depends on the individual's *Prakriti*. Disease prognosis is widely recorded in the text and is dependent on etiological factors, *Dushya* (pathology's substratum, *Dhatu*), causative *Dosha*, *Dosha* of physical constitution, onset, and place or habitat.^[18]
- Selection of individualized treatment modalities or correct therapeutic agent.
- Selection of correct dietary and lifestyle habits.
- Assessment of drug response.

Normal Respiration as per Ayurveda

- For knowledge of any pathology, first knowledge of its physiology is necessary. Normal breathing process is being discussed "*Pranavalambana*" (support of life) has been directed the normal function of *Pranavayu* in *Ayurveda*.^[19]
- The vital elements communicate life in the body from birth till death, and which presence is the cause of life and absence indicates death. In *Charak Samhita*, the words "*Prana*" and "*Apana*" are used for "*Uchhavas*" (Inhalation/Breath in) and "*Nih Shwasa*" (Exhalation/Breath out). The "*Shwasan Kriya*" (Breathing process) is one of the normal functions of "*Pranavayu*".^[20]
- The inhalation of "*Prana vayu*" from outside into the lungs and exhalation of "*Apana vayu*" from the lungs to outside. Exchange of these both type of *Vayu* is known as "*Shwasan*". *Acharya Charak* has used both these words "*Prana*" and "*Apana*" regarding "Trading of life".
- *Acharya Chakrapani*, has given the meaning of "*Prana*" and "*Apana*" in the sense of inhalation and exhalation, respectively. In this way, the description of "*Shwasan Kriya*" (Breathing Process) in symbolic form is available in *Ayurveda Samhitas*.^[21] "*Swasan Prakriya*" (Respiration) has been described in detail, clearly and scientifically by *Acharya Sharangdhar*, which is completely compatible with modern Respiration.
- That is the *Prana vayu* located in the *Nabhi* (Navel), touching the inner part of *Hridaya* (heart), and comes out of the *Kantha* (Gorge) to drink *Vishnu Padamrita* (Oxygen). Soon after drinking of *Akashamruta*, it enters the body and nourishes the entire body and kindly *Jatharagni* (Digestive fire).^[22]
- To explain the *Shwasan Prakriya* (Respiration) described by *Acharya Sharangdhara*, to equate modern Respiration by giving detailed explanation of the *Ayurvedic* terminology and trying to make equity by elaborating the definitions.
- The *Shwasan Prakriya* explained by *Acharya Sharangdhara*, can be equated with modern respiration. For equity, the explanation for *Ayurvedic* terminologies and the elaboration of definition will be described below:

- *Nabhistha: Acharya Sharangdhara*, has stated in relation to the exit of *Prana vayu*, here the *Prana vayu* rise up from *Nabhi* (Navel) and put pressure on the "*Maha Prachira Peshi*" (Diaphragm) and comes out to the environment via *Kantha* (Larynx). Here, it is necessary to first clarify the meaning of *Nabhi*. In many places in *Ayurveda*, *Nabhi* has been used in the sense of *Hridaya* (Heart), the same meaning is described here. In *Sushruta Samhita* the *Dhamni* (arteries) are called "*Nabhi Prabhava*".^[23] Therefore, it is reasonable to take meaning of the *Hrudaya* (Heart) as *Nabhi*. According to *Acharya of Astanga Hrudaya*, there are twenty-four *Dhamni*'s (Arteries) in human body which originates from *Nabhi*.^[24]
- Here, the meaning of *Hrudaya* (Heart) should be taken as wide sense of *Uraha Pradesha*, after taking this into account, from this, "*Urastha Pranavaha Srotasa*" (*Phuphusa* or Lungs) can be taken.
- *Prana Pavana*: That "*Prana Samyukta Vayu*" (Air containing oxygen) which is the basis of life and holds the "*Panchbhautika Sarira*" (Physical body) uninterrupted by sustaining inside and outside the body.
- Thus, the '*Shwasan Kriya*' (Breathing process) is clarified by *Acharya Sharangdhara*, that the *Prana-vayu* rise up from *Nabhi* and touches the *Hrudaya* (Heart) and its surroundings structures include lungs) and comes out via *Kantha* (Trachea) to drink *Vishnu Padamruta*. And after drinking '*Ambarpiyusha* (Air with rich oxygen), it enters into the *Phuphusa* (lungs) forcefully and nourishes (internal respiration and metabolism) the *Jatharagni* and entire body.
- Thus, it is clarified that how much the scientific studies and investigations done by Ancient *Acharyas* are precise. In normal respiration the outer air containing oxygen (O₂) enters into the lungs via nasal route is known as inhalation and release out of internal air containing carbon-di-oxide (CO₂) is known as exhalation, Inhalation and exhalation is the very necessary processes of the life by this process oxygen (O₂) is provided to the cell for metabolism and carbon-di-oxide is produced which is released by exhalation.

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