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Understanding *Prana* in Contemporary Times

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ABSTRACT

Generally, the term “*Prana*” means the vitae constituents or elements that exist in the body without which the sustainability of life would not be possible. The ancient science of life i.e. *Ayurveda* states the concept of the term ‘*Prana*’ in many ways. *Acharya Charaka* has mentioned “*praneshana*” (desire for living a healthy life) as one of the most important among the triad “*trayeshana*” (three desires of life). The term is synonymous with *vayu*, *rakta*, *ahara*. There has been mentioned of *dwadasha prana* (12 forms of life) that existed in *dasvidha pranayata* (10 dwelling sites) in our body. The *marma sthanas* (vital spaces) have also been considered as points where *prana* existed, any injury to them causes deformities or death. Among the *pranas*, *prana vayu* is majorly understood as ‘*prana*’. *Pranavaha srotasa* has been explained by the acharyas along with it’s root, causes of it’s vitiation & symptoms of injury and their responding treatment. Function of *Prana Vayu* has been co-related broadly with the functions of nervous system that are involved in the processes of respiration, digestion and supraclavicular reflexes. *Prana* resides in the *pranayatana*s and *marma-sthanas*, thus special measures should be taken while working in the close proximity of these points, so that any harm to them can be prevented

Key Words *Prana, Vayu, Prana vayu, Dwadasha prana, Pranayata*

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INTRODUCTION

Defining *Prana*

The term “*Prana*” which corresponds to the word “life” has many meanings, like vitality, the state of being alive, the state of existence determined by certain characters like growth, metabolism, reproduction & response to stimuli¹. It is the property that differentiates living organisms from the inanimate matter². In Sanskrit, the word “*Prana*” manifests as the breath of life, vitality, vital air, principle of life, inhaled air, energy, vigour, strength, power, the spirit or soul³.

The term *Prana* refers to vital force of the body that enters at the time of birth, is maintained throughout the life time and then leaves the body causing the death.

Acharyas have mentioned this term at several instances. The physical *vayu* has been called as ‘*prana*’ as it is chiefly responsible for all bodily activities and movements⁴. *Rakta* has been called as ‘*prana*’ that improves strength and complexion & increases happiness and longevity⁵. *Ahara* (diet) has also been called as

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'prana' by referring to its proper preparation that increases the life of human beings⁶.

MATERIALS AND METHODS

Literature and references related to proposed title are collected from classical texts of *Ayurveda*. Various publications, research papers, references from internet related to topic are considered.

RESULTS AND DISCUSSION

Sites of Prana in the body

The *prana* of all living beings as mentioned is residing in the *uttamanga shira* (cephalic region) along with *indriyas* and *mana*⁷. In modern times too, brain is the chief centre that control various body functions via nervous network throughout the body.

Acharya Sushruta has described *Dwadasha Prana* in human body which are *Agni-Soma-Vayu* (corresponding to three *sharira doshas* *Pitta-Kapha-Vayu*), *Satwa-Raja-Tama* (three *manasika doshas*), *Panchendriyas* i.e. *Srota-Sparsha-Chakshu-Rasan-Ghrana Indriya* (corresponding to the five sense organs concerned with perception of hearing, touch, vision, taste and smell) and the *Bhutatma* (the soul)⁸.

It has also been stated that *soma, maruta, teja, raja, satwa, tama, bhutatma* are the sites where *marmas* (vital points of human body) are situated. Injury to *marmas* leads to vitiation of these *pranas* and can lead to disability or death⁹.

'*Agni*' can be co-related with the *jatharagni* (digestive fire) or *pachaka pitta*. In modern times, it implies to presence of adequate amount of digestive enzymes. It has been stated that a person with good *agni* stays healthy, any vitiation of *agni* causes diseases and sometimes death.

'*Soma*' implies to the body fluids that are significant for maintaining homeostasis, transport of nutrients throughout body, metabolic reactions and temperature regulation. They consist of intracellular fluid and extracellular fluid (interstitial fluid & lymph, plasma, fluid in bones & connective tissue, transcellular fluid).

'*Vayu*' corelates with the nervous system concerned with all body functions, locomotion, transport & movement within body, metabolic activities and reflex activities.

'*Satwa, raja and tama*' are the three mental qualities that are concerned with psychological control of bodily functions. '*Satwa*' is the factor concerned with gaining of knowledge which enlightens the living beings and promotes a positive attitude in individuals. '*Raja*' is the initiator of all activities of the body whether mental or physical, without which any of the functions would fail to occur. '*Tama*' is the factor which inhibits functioning of body and promotes sleep, thus helping for cooling down the body to prevent over-exertion. All these above factors are meant for maintaining a healthy living status.

'*Panchendriyas*' refers to the five special sense organs that are concerned with receiving various stimuli and responding accordingly.

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'*Bhutatma*' or the soul is the factor responsible for living status of an individual.

The '*Dash Pranayatana*' or the residence of ten *pranas* are; '*shankha dwaya*' (temporal region), '*marma traya*' *shira-hridaya-basti* (three major marma i.e. head-heart-bladder), '*kantha*' (neck region), '*rakta*' (blood), '*shukra*' (reproductive tissue), '*guda*' (anal region) and '*oja*' (essence of all *dhatu*s). It has also been stated that the clinician who possesses proper knowledge of these *pranayatana*s, is capable of proper treatment¹⁰.

At other instance, *pranayatana*s have been described with a slight difference i.e. *nabhi* (umbilicus) and *mamsa* (muscular tissue) in place of temporal region as above¹¹.

Acharya Vagbhatta mentioned *dash pranayatana* under the title of '*Dash Jivita Dhama*' with *nabhi* and *jihva bandhan* (tongue ties) in place of temporal region¹².

Out of these, *shankha*, *shira*, *hridaya*, *basti*, *kantha*, *guda*, *nabhi* are known as *Sadyo-pranahara marma* (vital points which cause immediate death on being injured). Any injury to these *marmas* leads to instant death or death within 7 days. *Oja* has been described as the essence of all *dhatu*s in the body. It is also correlated with immune strength of an individual. *Acharya Chakrapani* has categorized *oja* into *para* and *apara* types. The amount of *para oja* which resides in heart is 8 drops and its vitiation leads to death.

Network of Prana in the body

The *Pranavaha Srotasa* or channels carrying the vital force of life throughout the body are described in *ayurveda*. As described by *Acharya Charaka*, *hridaya* (heart) and *mahasrota* (central cavity or alimentary canal) are the sites of origin of *pranavaha srotasa*¹³, whereas *Acharya Sushruta* mentions *hridaya* and *rasavahi dhamani* (channels circulating fluids in body) as the sites from where the *srotasa* arises¹⁴.

The *pranavaha srotasa* gets vitiated by nutritional deficit, suppression of natural urges, increased dryness, exercising when hungry and heavy exertion. The characters of the vitiation are manifested as too long or too short, shallow or frequent breath along with sound and pain. Injury to the *srotasa*, causes crouching of body accompanied by fainting, giddiness, trembling or death. The *pranavaha srotasa* when vitiated can be treated by following the guidelines for management of *shwasa* (dyspnoea / bronchial asthma).

The network of *prana* in human body is within,

1) Nervous System

Karma of *vayu* correlate with the functions of nervous system. The functions of *vayu* as described maintains the body and body parts, initiates body functions, controls *mana* or mind, promotes functioning of *indriyas* or sense organs, interlinks the body systems, responsible for excitement and happiness, increases the digestive fire, eliminates vitiated *dosha-dhatu-mala*, functioning of body tracts, development of foetus which correlate with functions of nervous system¹⁵.

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Vayu is a factor though unseen but can be ascertained with its visible effects which seems synonym with the neural transmission¹⁶. It is transported throughout the body via *Vatavahani Siras* (vessels carrying *Vata*) which correlates with the nervous network¹⁷.

The nervous network consists of Central Nervous System (consisting brain & spinal cord) and Peripheral Nervous System (consisting somatic & autonomic nervous system), which coordinates all the activities of the body and responds & adapts to changes. Central nervous system is the main centre for control of body functions and Peripheral nervous system transmits the impulses to the body parts.

2) Digestive System

Vayu is described as being responsible for physiological functioning of body. The *Vayu* is divided into five subtypes which are *Prana*, *Udana*, *Samana*, *Vyana*, *Apana*. *Prana vayu* is majorly indicative of vital force. It resides in cephalic and thoracic region & is concerned with control and functioning of mana, happiness and excitement, control of perception of special senses, maintaining the functions of body and body organs¹⁸.

Prana Vayu circulates in the facial region and is responsible for deglutition of food, thus controls the life force as intake of food is mandatory for life¹⁹.

The process of deglutition consists of three stages, oral, pharyngeal & esophageal. The oral stage is voluntary but the pharyngeal & esophageal stages are carried out via deglutition

reflex. When food reaches the oropharyngeal region, the oropharyngeal receptors are stimulated which pass the afferent impulses via glossopharyngeal nerve to the deglutition centre situated at floor of fourth ventricle in medulla oblongata of brain. Efferent impulses from the centre travel via glossopharyngeal & vagus nerves to the pharynx & esophagus respectively²⁰.

3) Respiratory System

Prana Vayu resides in heart and is responsible for the process of inhalation and exhalation. The process of respiration is described in ayurvedic literatures as “The *prana vayu* residing in the umbilical region moves along the inner surface of heart and out of the body through the respiratory tract. It exchanges with the pure oxygen from the external surroundings and then re-enters the body. And thus, it nourishes the body lifelong”²¹.

In contemporary times, the regulation of respiration is explained via nervous and chemical mechanisms. *Prana vayu* can be correlated with the nervous control of respiration which is carried out through respiratory centers in brain which are the Medullary centers (Dorsal and Ventral respiratory group of neurons) and Pontine centers (Apneustic and Pneumotaxic centers). Dorsal respiratory group of neurons are called the inspiratory center and are responsible for basic rhythm of respiration. Ventral respiratory group of neurons stimulate inspiratory and expiratory muscles during forced breathing. Apneustic center increases depth of respiration by acting on dorsal group of neurons. Pneumotaxic center

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inhibits Apneustic center so as to inhibit the dorsal group of neurons which inhibits inspiration and initiates expiration²⁰.

The *prana* inside the living beings is supplemented by the *prana* in the environment and thus helps in maintaining the *panchbhautika sharira* (body made up of the five basic elements)²². This statement implies that the *vayu* or vital air has been considered as *prana*. This relates to respiration at pulmonary and cellular level. At pulmonary level, the carbon-di-oxide from deoxygenated blood is exchanged via alveoli with the oxygen from environment. At cellular level, the oxygen from blood is exchanged with carbon-di-oxide from cells²⁰.

4) Reflexes of Supraclavicular region

The functions of *Prana Vayu* are described as the act of *ksthivana* (spitting), *kshavathu* (sneezing), *udgara* (burping), *shwasa* (inhaling-exhaling) and *ahara karma* (intake of food)¹⁸. Five *upavayus* or minor *vayus* have been described in *Puranas* and *Upanishadas* which are *Naga*, *Kurma*, *Devdatta*, *Krikala* and *Dhananjaya*. The functions of these are similar to some functions of *Prana Vayu* like *Naga upvayu* is responsible for *udgara* (burping) and *Krikala upvayu* is responsible for *kshavathu* (sneezing).

The superior and inferior salivatory nuclei in medulla oblongata control secretion of saliva and spitting. The center for sneezing reflex is present in motor nucleus of Trigeminal nerve. The respiratory centers in pons and medulla are responsible for inhalation-exhalation. The deglutition center in medulla regulates

pharyngeal and esophageal stages of deglutition²⁰.

CONCLUSION

'*Prana*' or the vital energy mandatory for life is understood in many ways as per *Ayurveda*, but is broadly synonym with the *Prana Vayu*. *Prana vayu* mainly residing in cephalic region is the controller of all bodily functions. It's properties co-relate with the functioning of nervous system, respiratory system, digestive system and some supraclavicular reflexes. The vitiation of this *vayu* leads to anomalies of nervous system, respiratory and gastro-intestinal ailments. The *prana vayu* also resides in the *pranayatanas* and *marma-sthanas*, therefore special measures should be taken while carrying out any invasive procedures, so that these vital points of the body remain protected from any possible injury which can otherwise leads to death.

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