UDANA VAYU-PHYSIOLOGICAL UNDERSTANDING
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INTRODUCTION
Vata, the Yantradhara, is responsible for all functions in our body. Udana vata is considered as Pavanottama. It is a KantasthaVayu (around the throat region) essential for performing Bhashita, Geetaadi karma (speech, singing) etc: It cooperates with Praanavayu for performing most of its functions. Both Praana and Udana are needed for maintaining the normal functions as well as the homeostasis of upper part of the body.

ABSTRACT
Vata, the Yantradhara, is responsible for all functions in our body. Udana vata is considered as Pavanottama. It is a KantasthaVayu (around the throat region) essential for performing Bhashita, Geetaadi karma (speech, singing) etc: It cooperates with Praanavayu for performing most of its functions. Both Praana and Udana are needed for maintaining the normal functions as well as the homeostasis of upper part of the body.

Keywords: Udana vata, Praana vata, Kantastha vayu, Bhashita geetaadi karma

INTRODUCTION
Vata in its normal state makes all the organs in our body perform their functions. Hence it is called by the name Yantradhara.¹ It is considered as the Prâna (life) of all individuals.² It is responsible for the movement and functions of Pitta and Kapha just as the wind propels the clouds to different locations.³ In Puranas it is mentioned that Vayu is the Prana (vital part for life), Sugha and Ayu of an individual.⁴ From different contexts we will understand the different functions of Vata such as Vibhutwat (present all over the body), Asukaritwat (quick in action), Balatwat (it is strong in pitta and kapha), Anyakopanaat (it is vitiates other doshas), Swatantra (independent), Bahurogatvat (leads to several diseases) etc: It can control both manas (mind) and Indriya (sense organs) and helps in the enjoinder of their particular Indriyarthas. Vata coordinates the functions of Dhatu, Mala and brings different body parts together in their position. On the basis of Sthanas (locations) and Karmas (functions) Vata is classified into mainly five types such as Prâna, Udâna, Vyâna, Samâna and Apâna.⁵

Aim: The main aim of this article is to understand the various functions of Udana vata. The Vayu that moves upward around the Kantadipradesa (throat region) and makes other parts or organs to perform their functions is the Udana vata and it is most important than any other. The term Pavanottama has been used for describing Udana vata.⁶ It is considered as the Kantastha Vayu (around the throat region).

Location of Udana Vayu: Most Acharya have the same opinion that Udana is located in Uras (chest). There is another opinion that it is located in Puphusa (Lungs), which is in Urahpradesha only.⁷ Other stanaas are considered as its Sancharastanas (important region it covers while moving), such as Kanta (throat), Nasika (nose) and Nabhi (around umbilicus).⁵

Functions of Udana Vayu: Helps in VakPravruti (to speak or in speech mechanism), Prayatna (efforts), Oorja (provide energy), Bala (strength), Varna (helps in pronouncing different alphabets).⁵ They
helps in Bhaashtageetadi karma (singing, respiration etc) and is responsible for several UrdhvaJatrugataRogas (diseases affecting neck and above neck). Srotapreennana, Dhi, Dhriti, Smruti, Manobodhanaadi karma (functions of Mind such as consciousness, memory, talent etc).

Here we observed that the Sthaana mentioned for Udana are almost similar to that of Prana. The Sthaana for Prana is Moordha (head) and its Sancharasasthāna (passes through) are Kantā (neck), Jiḥwa (tongue) Nasika (nose) and Uraḥ (chest). The functions of Prana are Shteevanam (spitting), Kshavadhu (sneezing), Udgaara (belching), Swasa (inhalation), Annapraveshana (deglutition), Budhi, Hrudaya and mano dharana (maintains the normal functions of intellect Heart and mind) etc. The major difference between Prana and Udana is in their functions. Functions of Pranavayu indicates its direction is from outside towards inside as well as from inside towards outside of the body. It can directly act on Annapraveshanadi karma which is towards inside as well as on Shteevana, Udgaara etc: functions like expelling out, which is towards outside. Udana helps in exhalation, speech, singing, etc: in which the Vayu moves outside. Another difference is that Udana-UrdwamUpaiti (moves upward) while Prana-Urdwampratigacati (moves upward, crosses the kanta and reach upward in head region). For Udana, Uraḥ is the Āvasthitastānam and for Prana, Uraḥ is the Sancharasatanam. All these functions can be enumerated and explain like this

Uchwasā Karma: UdanaVayu directs itself upwards through Uraḥ. When it is exhaled through Nasa (nose), person realizes it. Udana in conjunction with Prana intern Svasanakarma (respiration)

Vakpravruttī: Route of UdanaVayu includes ura, kanta, mukha, nasa etc: through which the functions bhashita, geeta etc: occurs, that is they helps in Speech mechanism or in Sound mechanism. The coordinated action of Atma (soul), Budhi (intellect) and Mana (mind) stimulate Jataragini, which again stimulate the upward movement of Vata through the Urapradeshā and produces Sabda (sound). This Sabda due to the involvement of KantadiAvayavas (organs involved in speech-tongue, lips, palate etc) Varna Samamnaya (meaningful words) are uttered. Susruta mentioned different Varna (alphabets) that can be spoken with the help of different organs like lips, teeth, tongue etc. and the Sabda is created when this Vayu flows in spaces and different organs come in contact with such moving air. During inhalation, air flows through Nasa (nose), Talu (palate) and finally reaches the Uraḥ. During exhalation, the air from the Uraḥ flows out and comes in contact with talu, danta, osta, jiḥwafinally spoken words are formed.

Considering the Vakupatti as Speech Mechanism, we can explain the Physiology of Speech in brief.

The stages of Speech mechanism are:-

Breathing stage
Phonation stage
Resonation stage
Articulation stage

Breathing stage:- During Speech both inhalation and exhalation takes place, for maintaining the life. This is called Phonic respiration. Here inhalation time is reduced while exhalation time increased to 5-10 sec and it can go up considerably.

Phonation stage:- During speaking, voice is produced when the expiratory air streams from lungs, and goes up through Trachea, to the Larynx. The rapid vibration of vocal folds in the Larynx results in phonation.

We can feel this vibration when we talk by
holding index finger and thumb to our larynx.

Resonation stage: Resonation is the process of voice amplification and modification. Normally voice produced in phonation is weak. It becomes strong and rich only when amplified and modified by human resonators and they are: Upper part of larynx, oral cavity, pharynx, nasal cavity.

Articulating stage: Articulation occurs when the tone produced in the larynx is changed into specific sounds. This is the result of movement of articulators towards the points of articulation. Lips, Teeth, Hard palate, Soft palate and Uvula help in articulation.

There are a number of types of phonation. The vocal folds can operate in a number of different ways, resulting in different types of phonation such as Murmur, creaky voice, whisper etc:

- **Prayatna**: It can be the physical and mental effort to do something. Whatever imagined in mind, such things are made into function through the effort of Udanavayu or Udanavayu induces a person to do his work.

- **Urja**: Urja can be Energy. The Meaning of Urja explained in Chakradatta is Balavarmanishpaadanam(something that provide Bala and Varna). Urja provide Preenanam (nourishment) to the body. Udanavata helps in providing proper nourishment or Preenanam and there by Bala, Varna etc:

- **Bala**: Bala is strength. Udana provide bala to all dhatus for their proper circulation. It helps in the exchange of waste products in the form of CO₂, water etc. through respiration.

- **Varna**: Varna can be the luster of skin or it can be the different alphabets spoken during the air flow through oral and nasal orifices. Udana is responsible for dhatu circulations. Hence it can nourish the skin and provide luster.

**Dhi, Dhriti, Smruti**: They are the special functions of Manas(mind). Manas is situated in Hridaya. So Smruti can be connected with the functions of Udanavayu.

**SrotaPreenana**: Preenanam means Tarpanam (Nourishment). Udanavayu enters different Srotas(channels) for performing different Karmas like Indriyaprasadanam and provide preeti to Manas. From the Ahararasa, the first Dhatu Rasa will be formed, from which uttora-tharadhatu get originated. Their formation and circulation is assisted by Udanavayu by providing nutrients to Srotas of particular Dhatus.

**DISCUSSION**

Vata is necessary for doing all the karma of our body. Udana does the functions related to Urah and Manas. It has been mentioned that Udana has an upward motion. Pranavata also has similar upward movement. But it crosses the Kantapradesha and reaches the Moordha. This is the main difference between both Udana and Prana. Both are necessary for performing all the UrdwaJatrugata functions. Mainly Udana acts as a stimulant for Prana. Its Sanchaarasthana is similar to Prana except in Shiras. Both cooperate with each other for performing their own Karma. Both play an important role in respiration, speech and in providing Bala, Urja, Preenana etc: Both helps to control the Manas and its functions, since Manas is situated in Hridaya. Hridaya can be UroHridaya or ShiroHridaya.

The simultaneous actions of Prana and Udana co-ordinate the functions of Manas, Swasanadi karma, Annapraveshanadi karma etc: As if round shaped earthen pots are kept one on the top of other, their location in relation to house is similar, but each pot has different existence and different
functions. The location and areas of functions of Vayu are almost same but their functions are different. So it is clear that both are essential for maintaining the normal functions as well as the homeostasis of mainly the upper part of the body.

CONCLUSION

Functions of Udana are varied and not confined to any particular part or system. It is primarily responsible for Vagutpatti and its functions can be co-related with the functions of Glossopharyngeal nerve, Vagal nerve, Recurrent laryngeal nerve, Phrenic nerve. So diseases affecting these nerves and the associated parts can be managed by the management of Udanavayu. Hence it should be protected along with other doshas.

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