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# THE ROLE OF *INDRIYA* IN GYANOTPATTI: A CRITICAL REVIEW STUDY

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## ABSTRACT

*Indra* means *Atma* or soul. *Indriya* is its *sadhana* or instrument (tool) for getting the knowledge, which means *Indriya* is the source of *Atma* to perceive true and comprehensive knowledge. The *Atma* or soul experiences the knowledge we gain through *Pratyaksha* or *Indriyas*. We know that knowledge is gained through *Indriyarth Sannikarsha* i.e. the association of *Indriya* (sense organ) with the *Indriyarth* (sense object). This knowledge is taken by *Manas* and screened by *Buddhi* (intellect). But ultimately it is the *Indra* or soul which judges and enjoy knowledge in true sense. *Indriya* for the sense of objective understanding, here are justified with variety of receptor in terms of these functional capacities. The concept of *Indriya* and knowledge learning processes is much more beyond the present concept of receptors and neural biochemistry. Intellectual concepts of *Indriya* from gross to subtle level such as *Sukshma*, *Sukshma tanmatra* and *Sukshma Atma*. *Indriya Pancha Panchak*, one of the concepts in Ayurveda where the accuracy of receptor, its respective pathways and neural centres for perception of knowledge are easily understood by means of this topic.

**KEYWORDS*:*** *Indriya, Indriyarth Sannikarsh, Indriya Panchpanchak, Sukshma, tanmatra,* Receptor.

## INTRODUCTION

The basic introduction of a person's direct perception of the outside world is termed as *Indriya*. In other word we can say that knowledge (sensory or motor), which is perceived, analysed given or received by soul or *Atma* and the tool which is helpful in reception of the same is termed as *Indriya*. The knowledge is obtained by a human being by the conjoint action of *Atma*, *Indriya*, *Mana* and *Vishayas*. *Indra* means *Atma* or soul. *Indriya* is its *sadhana* or instrument (tool) for getting the knowledge, which means *Indriya* is the source of *Atma* to perceive true and comprehensive knowledge. The *Atma* or soul experiences the knowledge we gain through *Pratyaksha* or *Indriyas*. We know that knowledge is gained through *Indriyarth Sannikarsha* i.e. the association of *Indriya* (sense organ) with the *Indriya*rth (sense object). This knowledge is taken by Manas and screened by Buddhi (intellect). But ultimately it is the Indra or soul which judges and enjoy knowledge in true sense. *Indriya* for the sense of objective understanding, here are justified with variety of receptor in terms of these functional capacities. The concept of *Indriya* and knowledge learning processes is much more beyond the present concept of receptors and neural biochemistry. Intellectual concepts of *Indriya* from gross to subtle level such as Sukshma, Sukshma tanmatra and Sukshma atma. The Vishayas of gyanendriyas are shabd, sparsh, roop, ras and gandh. The *Indriya*s and vishayas work conjointly and after that human being respond quickly and accurately to events.

*Indriya* pancha panchaka, one of the concepts in Ayurveda where the accuracy of receptor, its respective pathways and neural centres for perception of knowledge are easily understood by means of this topic. Charaka defines "*Indriya* Pancha Panchaka" as a collection of 25 components associated to each *Indriya* (sensory organ). They briefly define the structural and functional components of *Indriya*s. Pancha *Indriya* (five sensory faculties), Pancha *Indriya* Dravya (five sensory materials), Pancha *Indriya* Adhishthana (five sense organs structural), Pancha *Indriya* Artha (objects of perception/five sensory stimuli), and Pancha *Indriya* Buddhi (five sensory perceptions) comprise "*Indriya* Pancha Panchaka."*Indriya* Buddhis are the fundamental intelligence or knowledge inherent in the *Indriya*s, allowing the *Indriya*s to perceive the knowledge of the linked object. The *Indriya* Buddhi assists an *Indriya* in seeing its associated information. Pancha

*Indriya* Buddhis include Chakshu Buddhi, Shrotra Buddhi, Ghraana Buddhi, Rasana Buddhi, and Sparshana Buddhi.

| Panch Indriya | Panch Indriya Dravya | Panch Indriya Adhisthan | Panch Indriya Artha | Panch Indriya Buddhi |
|---|---|---|---|---|
| Chakshu Indriya | Agni | Eye | Roopa | Chakshu Buddhi |
| Shrotra Indriya | Aakash | Ear | Shabda | Shrotra Buddhi |
| Ghraana Indriya | Prithvi | Nose | Gandha | Ghraana Buddhi |
| Rasana Indriya | Jala | Tounge | Rasa | Rasana Buddhi |
| Sparshana Indriya | Vayu | skin | Sparsha | Sparshana Buddhi |

## LITERATURE REVIEW

The role of *Indriya* in gyanotpatti (knowledge acquitisation) is mentioned in Ayurvedic text. *Indriya* is a word that has different meanings in different contexts but generally refers to the faculties or abilities that inable is to perceive and act upon the world.

*Indriya* literally means ‘belonging to Indra.’ Indra is associated with supermacy dominance and control which are also reflected in the meaning of ‘power strength.’ In Ayurveda there are five gyanendria, five karmendria and ubhay-*Indriya* Man. Five gyanendria are Chakshu-*Indriya*, Shrotendriya, Ghranendriya, Rasnendriya and Sparshendriya which sites on our five sense organs eyes, ears, nose, tongue and skin respectively and the five action organs hands, feet, genitals, anus and mouth are mentioned under Karmendriyas. *Indriya* are part of the human system that interacts with the external and internal environment through Prana (life force) and Manas (mind).

Modern scince believes that receptors do play an important role in perception, receiving and sensing the change in the environment to let the body know the change internally. As per the theory of Ayurveda discipline the same role of an instrument or equipment is considered to be played by Indra.

According to Acharya Charak by means of *Indriya*, intellect is generated. In these panchendriya acc. to their functions there is increase in one-one Mahabhuta respectively. Acc. to Ayurveda *Indriya* are Panchbhautika were as Sankhya Sidhant considered them

as Aahankarik. For eg. In Shrotendriya there is dominance of Aakash Mahabhuta and has quality of Shabd guna but as we say 'Sarvam Dravyam Panchbhautikam.' It constitutes of other four Mahabhutas, similarly in Chakshu-*Indriya* there is dominance of Tejo Mahabhuta, In Ghranendriya there is dominance of Prithvi Mahabhuta, Jala Mahabhuta in Rasnendriya and Vayu Mahabhuta in Sparshanendriya.

## CONCEPT OF PERCEPTION OR GYAN GRAHANA

According to Ayurveda sensory organ receive knowledge which is conveyed to mind and soul.

Soul or *Atma* is *Chetana Dravya* of the body. Soul receives knowledge with the help of mind and sense organs.

आत्मा मनसा संयुज्यते मन इन्द्रियेण इन्द्रियमर्थेन ततः प्रत्यक्षम ् । **(**Tarksangrah, Deepika vyakhya**)**

Perception depends on the Sannikarsha of mind and sense organs with their concerned objects and this type of knowledge is called as 'Pratyaksha Buddhi' which is related to only present events.

आत्मेन्द्रिय मनौर्थानां सन्निकर्षात प्रवर्तते । व्यक्ता तदात्वे या बुद्धि प्रत्यक्षम् सा निरुच्यते।। (ch. Su. 11/20)

## RELATIONSHIP BETWEEN MANA AND BUDDHI (MIND AND INTELLECT)

Buddhi is the decision making capacity of the individual. Pragya is the synonyms of Buddhi and Hridaya is a location of Atma its guna and mind, To recall past experiences is called as Smriti. Dhee decides and analyses what is right and what is wrong which is also called Adhyavasaya. Dhriti is the power which controls mind (su.sh.1/17; Dalhan).

Due to sattva guna, dhee-dhriti-smriti analyse the knowledge perceived and control mind and convey the analysed knowledge of Atma.

## PHYSIOLOGICAL CONSIDERATION OF BUDDHI

When examining Buddhi physically, we might examine the Jnanotpatti process. Jnanotpatti is the same as the procedure for Manobuddhi development or the process of genesis knowledge. Jnana is acquired by soul touch with the *Indriya* and their Artha through mental presence Involvement in the elements Artha, *Indriya*, Mana, Buddhi, and Atma are also found in the birth of knowledge. According to Acharya Charaka, Atma the empirical soul is endowed with the power of perception, when it is associated with instruments (Karana). The Karanas (instruments) are Manas, Buddhi, Gyanendriya,

Karmendriya. Acharya Charaka explains the perceptual process, stating that *Indriya* establishes touch with *Indriya*rtha in the presence of Manas (Samanaskena). The Artha's Manas decides whether it is Guna or Dosha. Buddhi then accepts the Artha if it is Guna or rejects it if it is Dosha - this is called as Nishchayatmaka Buddhi. The Buddhi determines the practical benefits and drawbacks (intellect). Every action is integrative and interpretive. Such an interpretation is deliberate - Buddhipoorvakam.

## GYANOTPATTI IN NEUROPHYSIOLOGICAL VIEW

The nervous system analyses millions of incoming signals via receptors, which are then transferred to sensory and integrating regions. Muller's law states that each type of receptor is extremely sensitive to only one sort of stimulation. This capacity of each receptor to respond solely to a certain stimulus is analogous to each *Indriya* responding only to the Artha that corresponds to its Bhuta structure. As an example, Touch, pressure, pain, heat, and cold are examples of somatic senses. Vision, hearing, taste, and smell are examples of special senses (Rupa, Shabda, Rasa, Sparsha and Gandha).

## SAMYOGA IN COMPARISON TO SYNAPSE

Information is mostly transferred as impulses across a series of neurons at the synapse. Synapses are the building blocks of all sensory impressions. Gyanotpatti requires a connection or Samyoga between Artha, *Indriya*, Mana, and Buddhi. Sannikarsha in Jananotpatti is analogous to nervous system synapses. Crude discrimination of senses happens along the route of sensations from receptors to the spinal cord and thalamus. It is referred to as *Indriya*. This is referred to as Nirvikalp Gyana (knowledge received via direct touch with things). After critical study of sensations and discrimination of distinct information, localization and interpretation of sensations happen in the cerebral cortex, which may be regarded as Savikalpa Gyana Vichara (Role of Manas involved). It can be considered as Manobuddhi. After deciphering sensory information from respective cortices Manobuddhi evolved. Manobuddhi is the ultimate outcome of knowledge which is formed in association cortices. There are mainly 3 association areas in the brain. Parieto-occipitotemporal association area, which has several functional subareas such as analysis of spatial, coordinates of body, Wernicke’s area for language comprehension and in angular gyrus it helps in the initial process of reading and interprets visual information. The Prefrontal association area / orbitofrontal cortex it helps to plan complex patterns and sequences of motor movements provides thought processes in the

mind and elaboration of thoughts. Prefrontal Areas (9, 10, 11, 12, 13, 14, 23, 24, 29, 32); which are responsible for higher functions (learning, memory, emotions, social behaviour), personality of individuals, autonomic changes during emotional conditions. It is also called centre for planned actions and Seat of intelligence (Organ of Mind).

## MODERN CONCEPT OF GYANOTPATTI OR PERCEPTION

Sense organs are specialized organs that help to perceive the world around us. They are an integral part of our lives and it is the only way that enables us to perceive the environment. Sense organs provide the required data for interpretation through various organs and a network of nerves in response to a particular physical phenomenon. There are five sense organs, namely Eyes, Ears, Nose, Tongue and Skin. Each of these sense organs contains receptors that relay information through the sensory neurons to the appropriate places within the nervous system. The receptors could be classified into two parts, the general and special receptors. The former is present throughout the body while the latter includes chemoreceptors, photoreceptors and mechanoreceptors. Sensation is a process by which neutral impulses are created by stimulation of sensory neurons that results in awareness of conditions inside or outside the body. Perception refers to the elaboration and interpretation of these sensory experiences. It is governed with our past and present experiences.

**Perception of Vision**-Perception of vision is the ability to interpret the surrounding environment using light in the visible spectrum reflected by objects in the environment. It involves the eye, the brain, and various cognitive processes that transform sensory inputs into meaningful perceptions. Perception of vision is not the same as visual acuity, which is how clearly a person sees. The human visual system is a complex network of organs and cells that work together to process visual information. Light enters the eye through the cornea and is focused by the lens onto the retina, a light-sensitive membrane at the back of the eye. The retina serves as a transducer for the conversion of light into neuronal signals. This transduction is achieved by specialized photoreceptive cells of the retina, also known as the rods and cones, which detect the photons of light and respond by producing neural impulses. These signals are transmitted by the optic nerve, from the retina upstream to central ganglia in the brain. The lateral geniculate nucleus, which transmits the information to the visual cortex. Signals from the retina also travel directly from the retina to the superior colliculus. The resulting perception is also known as

vision, sight, or eyesight (adjectives visual, optical, and ocular, respectively). Perception of vision is influenced by prior knowledge, expectations, and context, which can lead to different interpretations of the same stimulus.

**Perception of Hearing-** The perception of hearing is the ability to perceive sounds through an organ, such as an ear, by detecting vibrations as periodic changes in the pressure of a surrounding medium. The sound waves are carried away from the object to the ears through the air which acts as the medium. The sound produced is in the form of vibration. It first enters the ears through the funnel-shaped outer part of the ear. It moves down through a canal till the eardrum (the thin membrane is stretched tightly). Eardrum plays an important role in the functioning of the ears. The vibrations produced by the objects reach until the eardrum through the air. These vibrations produced to make the eardrum vibrate. And then the vibrations are passed to the inner ear through middle ear bones or ossicles. The shape of the inner ear is like a snail. The inner ear is also termed as the cochlea. There are a numerous number of tiny hair cells present inside the cochlea. These hair cells convert the vibrations into electrical signals which are then transferred to the brain through the auditory nerve. This is how we detect sound or noise.

**Perception of Smell** - The sense of smell, or olfaction, is the ability to detect and identify molecules in the air that have a certain scent. The sense of smell works as follows, an odour molecule enters the nose through the nostrils or the back of the throat. The odour molecule dissolves in the mucus lining of the nasal cavity and binds to a receptor on a hair-like projection (cilia) of an olfactory neuron. The olfactory neuron sends a signal to a cluster of neurons (glomerulus) in the olfactory bulb, which is a part of the brain. The olfactory bulb processes the signal and sends it to other brain regions, such as the olfactory cortex, the amygdala, and the hippocampus, where the odour is recognized, remembered, and associated with emotions. The sense of smell is influenced by many factors, such as genetics, past experiences, emotions, and other sensory inputs. Smell perception is not fixed and can change over time based on exposure, learning, and context.

**Perception of Taste**- Perception of taste is the sensory impression of food or other substances on the tongue and in the mouth. Perception of taste is mediated by taste receptor cells, which are bundled in clusters called taste buds. Taste buds are located on the tongue, the roof and sides of the mouth, and the throat. Each taste bud contains 50 to

100 taste receptor cells that can detect different basic tastes: sweetness, sourness, saltiness, bitterness, and savouriness. When a substance in the mouth reacts chemically with taste receptor cells, it triggers a signal that is sent to the brain via the gustatory nerve. The brain then interprets the signal as a specific taste sensation. The perception of taste is also influenced by other factors, such as smell, texture, temperature, and pain.

**Perception of Touch**- Perception of touch is the ability to interpret and make sense of touch information, such as pressure, temperature, and texture. It is a part of the somatosensory system, which also includes the perception of pain, body position, and temperature. Touch perception is produced by the activation of neural receptors in the skin and internal organs. A variety of pressure receptors respond to variations in pressure (firm, brushing, sustained, etc.) The signals generated by these receptors travel along sensory nerves made up of bundled fibres that connect to neurons in the spinal cord. Then signals move to the thalamus, which relays information to the rest of the brain. Next stop is the somatosensory cortex, where signals are translated into a touch perception. Somatosensory information from all over the body spreads onto the cortex forming a topographic map that curls around the brain like headphones. Sensitive areas, like lips and fingertips, stimulate much larger regions of the cortex than less sensitive parts. A region's sensitivity depends on the number of receptors per unit area and the distance between them. Perception of touch involves interpreting and making sense of touch information, such as pressure, temperature, and texture. Pain is also a part of touch perception and is primarily a warning signal, the brain's way of signalling something is wrong with the body. Both a sensory and emotional experience, pain signals tissue damage or the potential for damage and makes the experience feel unpleasant and upsetting. Touch perception is important for social bonding, emotional well-being, and survival.

## DISCUSSION AND CONCLUSION

In the context of perception or "Gyanotpatti", the *Indriya*s or sense organs play a crucial role.

*Indriya*s are the tools of knowledge and learning. They are the important organs of our system which detect various senses from the environment (sense objects), carry them to the mind and intellect for processing the information and later help us in acquiring the knowledge of the objects in their true sense.

***Indriya*s and Manas Connection**: The manas or mind and the *Indriya*s are interrelated to each other. The mind is fed by the *Indriya*s and cannot exist without them. Hence there is a saying that, if you have controlled the *Indriya*s, you have controlled the mind.

**Role of Individual *Indriya*s**: Each *Indriya* has a specific role. The eyes can only see. The ears can only hear. The tongue can only taste. The skin can only touch. The nose can only smell. However, the mind can see, hear, taste, touch and smell. The mind is the common sensory, because it can directly see, hear, smell, taste and feel independent of the senses. Hence called "Ubhaya*Indriya*".

The Buddhi *Indriya*s namely Chakshu (Eye), Shrotra (Ear), Ghraana (Nose), Rasanaa (Tongue) and Twak (Skin) are called Buddhi *Indriya*s because Buddhi or knowledge (intelligence) is embedded in these organs. Buddhi *Indriya*s are therefore called Gyan *Indriya*s (*Indriya*s which help in perceiving the knowledge).

In conclusion, the *Indriya*s play a significant role in the process of perception or "Gyanotpatti". They serve as the primary tools through which we interact with our environment and gain knowledge about it. By controlling the *Indriya*s, one can control the mind and thus gain a deeper understanding of the world around them.

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