

ANATOMICAL AND PATHOLOGICAL ASPECT OF PANCHENDRIYAS: A REVIEW

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ABSTRACT

According to *Acharya Charaka*, *Indriyas* are important parts of body that distinguish living things from non-living things. Ayurveda describes *Indriyas* as sense organs that provide the *Atma* with knowledge. The five *Mahabhuta* contributed as compositional components of *Indriyas*. *Indriyas* present inside their *Indriya adhishtanas* in minute structure and carry out their functions of sense discernment. According to modern science, the sense organs that perceive sight, sound, smell, taste, and touch are the eye, ear, nose, tongue, and skin. Ayurveda described these *Indriyas* as *Netra*, *Karna*, *Nasa*, *Jihwa* and *Twak*. The vitiation of associated *Doshas* can alter the functioning of *Indriyas*, the *Doshic* predominance and *Mahabhuta* present in *Indriyas* are attributed to the specific physiological actions as they perform. Present article explored anatomical and pathological aspect of *Panchendriyas* in a view to summarize their clinical significance.

KEYWORDS: Ayurveda, Sense, Indriya Sharira, Mahabhuta, Panchendriyas.

INTRODUCTION

Indriyas refers to the sense organ responsible for sense perception and anticipatory response. These are thought of as tools for learning motor or sensory skills. Ayurveda portrayed *Indriya* as *Panchabhautika* that are framed by *Trividha Ahamkara*. *Chakshu Indriya* is associated with visual perception and recognizing various sizes, shapes and colors. *Shrotra Indriya* is able to sense sound and aids in the process of hearing. *Ghraana Indriya* sees feeling of smell, *Rasana Indriya* has taste perception and *Sparshana Indriya* has a sense of touch. The names of various organs associated with senses depicted in **Figure 1**.

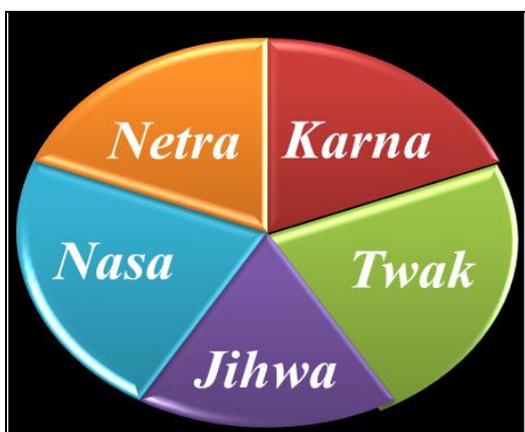


Figure 1: Five sense organs as per Ayurveda.

These five sense organs are also associated with *Mahabhutas* i.e.; Eye is associated with *Akasha Mahabhuta* and *Agni Mahabhuta*. *Prithvi Mahabhuta* is associated with the nose, tongue comprises of *Jala Mahabhuta* and *Vatu Mahabhuta* is associated with skin.

Vata controls perception of the senses; *Vata* enables the sense organs to perceive a variety of sense objects, which are then processed, experienced and communicated to the mind as information. *Vata* controls tactile and mortal coordination of psyche with receptors. The capability connected with the receptors, for example, information's perception, storage and processing are constrained by *Vata*.

Drishti visheshaka alochaka pitta is involved in the perception of vision and is thought to be responsible for eye functions. *Tarpaka Kapha* present in head assists with sustaining and safeguards eyes by prompting creation of tears.

Since the ear is thought to be one of the main *Vata dosha* sites, *Vata* controls how sound is perceived; and *Tarpaka Kapha* nourishes and lubricates the ears. The *Kapha dosha*, which is responsible for regulating the sensations of smell, is thought to be concentrated in the nose, the organ of smell perception. *Kapha* likewise dwells in tongue which is organ of taste discernment. Subtypes of *Bodhaka Kapha* are found in the tongue and support in

taste perception. It maintains voice quality and keeps food particles moist in the mouth and tongue.

Anatomical consideration of Sense Organs

- *Netra* is considered as *Adhishtaana* of *Chakshu Indriya*.
- *Karna* is considered *Adhishtaana* of *Shrotra Indriya*.
- *Nasa* is *Adhishtaana* of *Ghraana Indriya*.
- *Jihwa* is *Adhishtaana* of *Rasana Indriya*.
- *Twak* is *Adhishtaana* of *Sparsha Indriya*.

Netra (Chakshu Indriya)

The eyeball is round and projects towards the outer site, according to *Suvrttam* and *Gostanakaram*. The general periphery of eye is three and half *Angula* and vertical width two *Angula*. There are 38 *Siras* in the eye which are called *Rupavahini dhamanis* and *Ashruvahi dhamanis*, respectively, they transmit visual perception and transport tears. The main components of *Netra* are the *Mandala*, *Patala* and *Sandhi*. Ayurveda describes a variety of *Netra Sandhi*, including *Sukla*, *Vartma*, *Pakshma*, *Krishna*, *Kaninika* and *Apanga*. The membrane of eye is composed of *Teja* and *Jala Mahabhuta*.

The *Kandara*, *Sira*, *Kapha* and *Meda* parts of the eye are called *Akshi bandhana*, these component plays a crucial role in the physiology of eye. *Alochaka pitta* located in the eye's *Antah Taraka* receives an image. The primary component of the eye is *Akshigolaka*, which receives images and converts perception into visual impact.

Ayurveda described diseases related to eye which possess symptoms of *Shotha*, *Garsha*, *Nisthoda*, *Udirna vedana*, *Ashru yuktham* and *Shoola*, etc. Blurred vision, loss of vision, photophobia, burning sensation and dryness, etc. are common pathological manifestations associated with eye.

Karna (Shrotra Indriya)

Karna is regarded as the *Shrotrendriya's Adhisthana*, *Karna* considered as one of the *Panchagyanendriya*. The *Karna* (ear) is portrayed as organ which is answerable for hearing and equilibrium. *Indriya dravya* and *Indriya Buddhi* of *Karna* are referred to as *Akasha* and *Shabdagrahana*, respectively. Outer lobule of ear is named as *Karnapali* while *Karna Peetha* is the site of auricle. *Karna shaskuli* and *Karna putrak* are two pieces of outside ear, while *Chakrapani* portrayed *Karna Gata Aavarta* and *Karna Putrak* as *Karnshushkuli*. Each ear contains one *Sandhi* and one *Tarunasthi*. Ear contains two *Peshi* and ten *Siras*, two of which are *Vatavaha Siras*, four of which are *Kaphavaha siras*, two of which are *Raktavaha siras* and two of which are *Pittavaha Siras*. There are eight *Karnashrit Marma* and two *Dhamanya* in the ear. The external part of the ear is known as the *Pinna* or auricle while tympanic membrane converts sound into vibrations and separates the middle and external ears. The three bones are known as *Malleus*, *Incus* and *Stape* which support in sound transmission.

Cochlea a piece of internal ear contains nerves that assistance in course of hearing, vestibule is one more piece of internal ear that containing receptors.

The pathological conditions of ear include symptoms of inflammation in the middle ear and yellowish discharge from the ear. *Vata* vitiation can harm the auditory nerve, may also causes ringing in the ear and diminished hearing. *Vertigo* can also occur when the vestibular nerve is damaged. Allergies and inflammation are possible outcomes of inner ear infection.

Nasa (Ghraana Indriya)

Nasa is one of the significant *Panchagyanendriya* and thought about *Adhisthana* for *Ghranendriya*. *Panchapanchaka Indriya dravya* for *Nasa* is *Prithvi Gandha*. *Nasa* development is thought to begin in the third month of pregnancy. *Acharya Sushruta* portrayed three bones in *Nasa*, According to *Acharya Sushruta*, *Nasa* is home to one *Sandhi*, three *Peshi* and two *Dhamani*. The 24 *Siras* of nose can be divided into four groups; *Raktavaha Sira*, *Pittavaha*, *Vatavaha*, and *Kaphavaha*.

According to current science the state of outside nose is pyramidal and it is made by bones and ligaments. The lateral wall contains the superior, middle, and inferior nasal conchae. Mucosa covers the lower part of the nose, while olfactory mucosa covers the upper part. Nasal communication is offered by frontal, ethmoidal, maxillary and sphenoidal sinuses. The olfactory bulb is the culmination of olfactory nerve fibers entering the cranial cavity.

Pratishyaya, *Ousthta Shosha*, *Nasa Shrava*, *Kasa* and *Shirah Shula*, etc. are symptoms of nasal disorders. The chronic pathology includes diseases like *Shwasa*, *Nasa Arshas* and *Mhurdha Roga*. The disease of nose possess symptoms of breathing difficulty, blockage of nostrils, headache, radiating pain in the ears, fever, ear blockages and cough, etc.

Twak (Sparsha Indriya)

Skin covers the body and acts as an external organ, fertilization of *Shukra* and *Shonita* results foetus and *Twak* is formed as *Mamsa Updhatu*. As *Garbha* grows; the skin layer starts to differentiate. *Twak* was created from *Rakta* by the activity of *Rakta Dhatwagni*.

Twacha is considered as prevails in the *Vayu Mahabhut*, *Akasha* is associated with *Lomkupas* and additionally connected with the launch of sweat organs of skin in this manner skin is related with *Mahabhutas*. Skin is made by different layers i.e.; *Lohita*, *Avabhasini*, *Shweta*, *Vedini*, *Rohini* and *Tamra*.

Ayurveda depicted numerous sicknesses of skin which include vitiligo, hyper-sensitivity, hyper pigmentation, eczema, acne, seborrheic dermatitis and psoriasis, etc. As per Ayurveda *Krimij hetu*, *Vihara hetu*, *Achara hetu*,

Ahara hetu and *Kulalaj hetu*, etc. are major etiological factors which play significant part in the pathogenesis of skin problems.

Jihwa (Rasana Indriya)

Jihwa is *Rasanendriya's adhishtana*, *Jihwa* as soft organ made by *Mamsa*, or *Matruja*, and *Rakta*. It is the same size and shape always since it is made of *Ghanaian* and *Drava datus*. *Kaphadosha* gives it the property of *Sthiratva*. *Yogaratanakara* says that *Jihwa* is one of the *Mukhavayava*. *Acharya Charaka* mentioned *Jihwa* as a *Mukhavayava*. *Jihwa* is considered both an *Adhishtana* and a *Buddhiindriya*. *Jihwa* is having the right length and width, it is smooth, thin and having natural colors.

Uneven characters in *Doshas* present in the accompanying ways on the *Iihwa* causes several pathological manifestations as follows:

- The tongue becomes dry and rough, with small cracks in case of *Vata* aggravation.
- *Pitta* imbalance causes rosy tongue with ulcerations.
- The coated tongue is caused by *Kapha* aggravation.

CONCLUSION

Various sense organs perform distinct functions since five fundamental elements (*Mahabhutas*) are linked to the five *Indriyas*. The *Indriyas* are situated anatomically in the *Indriya adhishtanas*, which helps in the perception of the senses. The eye, ear, nose, tongue, and skin are the sense organs that perceive sight, sound, smell, taste, and touch, according to contemporary science. Five *Indriyas* were portrayed by Ayurveda as *Sparshana Indriya*, *Shrotra Indriya*, *Chakshu Indriya*, *Rasana Indriya* and *Ghraana Indriya*. These sense organs are related to specific activities and involves in the perceptions of senses.

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