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Review Article

### PHYSIOLOGICAL UNDERSTANDING OF *BODHAKA KAPHA*

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#### ABSTRACT

Concept of *Tridosha* is a unique concept of *Ayurveda*. *Vata*, *pitta* and *Kapha* makes the body. Each one is important with its own specialty. Deficiency or absence of any one *Dosha* cannot serve the purpose of life as *Kapha*, *Pitta* and *Vata* are responsible for *Srushti* (Creation), *Sthiti* (Maintainance) and *Laya* (Destruction) of the all the creatures. *Kapha* is the *Dosha* which is responsible for creation of the creatures and it is the entity supporting the entire universe. *Bodhaka kapha* is one among the *Kapha* types, mainly responsible for *Bodhanakarma* of *Rasa* (Taste Perception) along with splitting of ingested food. This function of *Bodhaka Kapha* can be correlated to the functions of saliva.

**Keywords:** *Bodhaka Kapha*, *Rasa Bodhana*, Saliva, Splitting, Taste, Perception.

#### INTRODUCTION

*Vata*, *Pitta* and *Kapha* are the *Tridosha*<sup>1</sup>. Normalcy and abnormalcy of *Kapha* will have its own impact on the status of health of an individual from period of conception to till death<sup>2</sup>. So the clear idea about this concept is very crucial theoretically as well as practically. *Kapha* is functionally subdivided into five types and *Bodhaka Kapha* is one among them with a function of taste perception<sup>3</sup>. For knowing the basic physiology of taste perception in *Ayurveda* we get very limited references. Here an attempt is being made to understand physiology behind taste perception by understanding physiological function of *Bodhaka Kapha*.

#### MATERIALS AND METHODS

The *Bruhat trayi* were scrutinized regarding the references for the concept of *Bodhaka Kapha*. Later, physiological aspects were studied from modern physiology books. Later, supportive correlation was done between *Ayurvedic* and modern views to build valid and reliable hypothesis.

#### AIMS AND OBJECTIVES:

1. To understand the functions of *Bodhaka Kapha*.
2. To make probable functional comparison of *Bodhaka Kapha* and Saliva.

#### LITERATURE REVIEW

*Kapha* is the cohesive entity of the body. This *Dosha* helps in the maintenance of structural & functional integrity of the

body. This is formed by the predominance of *Ap* & *Prithvi Mahabhuta*<sup>4</sup>. The word *Kapha* is derived from Root words *Ka* (Water) + *Pha* (Flourishes). So it is the humour which is flourished or produced out of Water<sup>5</sup>. It is having many synonyms according to its qualities and functions like *Sleshma*, *Bala*, *Balasa*<sup>6</sup>, *Balasaka*<sup>7</sup>, *Ojas* and *Soma*<sup>8</sup> in its normalcy and *Mala*<sup>9</sup> and *Papma* in its abnormalcy.

*Bodhaka Kapha* is one among sub type of *Kapha* responsible for the *Bodhana* of *Rasa*<sup>10</sup>. *Bodhana* refers to informing or instructing<sup>11</sup>. So the *Kapha* responsible for information of *Rasa* is called as *Bodhaka Kapha*.

#### *Sthana and Karma*

- *Bodhaka Kapha* location is *Jihva moola* (the base of the tongue) and *Kanta* (oropharynx). Taste is based on *Ap Mahabhuta*, *Kapha* which is also the product of *Ap Bhuta* located in the throat can only perceive the taste. *Rasanendriya* located at tip of tongue is responsible for sensing different tastes.
- *Rasa* is an attribute of *Jala Mahabhuta*, *Rasanendriya* is an organ which evolves from *Jala Mahabhuta*<sup>12</sup>. Thus, tongue can sense the attribute of *Rasa* because of their similar origins. Even though the function of appreciation of taste is carried out by *Rasanendriya*, *Bodhaka Kapha* is essential for the manifestation of *Rasa* on tongue. So *Bodhaka Kapha* aids in the perception of taste with the help of its *Jaleeya* attributes<sup>13</sup>.

- *Bodhaka Kapha* in the form of Saliva located on tongue helps in splitting the ingested food along with differentiation of the tastes and making tongue perceive the it<sup>14</sup>.

**Saliva**

It is secreted from three pairs of major (larger) and some minor (small) salivary glands into the oral cavity. Most of the saliva is secreted by the major salivary glands like Parotid glands, Submaxillary or submandibular glands and Sublingual glands which lie beyond the oral mucosa, ducts ending into to the oral cavity<sup>15</sup>.

**Composition and Functions of Saliva**

Chemically, saliva is 99.5% water and 0.5% solutes. Solute include ions like sodium, potassium, chloride, bicarbonate, and phosphate. Some dissolved gases and various organic substances, including Urea and Uric acid, Mucus, Immunoglobulin-A, Lysozyme (Bacteriolytic enzyme) and Salivary amylase (a digestive enzyme that acts on starch) are also can be traced.

The water in saliva provides a medium for dissolving food particles so that they can be tasted by gustatory receptors thereby process of digestion begins. Chloride ions in the saliva activate salivary amylase, an enzyme that starts the breakdown of starch<sup>16</sup>.

**Taste buds**

Papillae on the tongue contain taste buds. The receptors for sensation of taste are located in the taste buds which are located on tongue, soft palate, pharynx (throat) & epiglottis. Taste bud is a bundle of taste receptor cells embedded in the epithelial covering of the papillae. Modified epithelial cells of taste buds are exposed to the salivary fluid in the oral cavity<sup>17</sup>.

**Taste transduction**

Taste transduction is the process by which taste receptor converts chemical energy into action potentials in the gustatory nerve fibers. Taste receptors are chemoreceptors, which are stimulated in presence of saliva<sup>18</sup>.

**Gustatory pathway**

Three cranial nerves contain axons of the first-order gustatory neurons that innervate the taste buds. The facial (VII) nerve serves taste buds in the anterior two-thirds of the tongue; glossopharyngeal (IX) nerve serves taste buds in the posterior one-third of the tongue; Vagus (X) nerve serves taste buds in the throat and epiglottis. From the taste buds, nerve impulses propagate along these cranial nerves to the gustatory nucleus

in the medulla oblongata. From the medulla, some axons carrying taste signals project to the limbic system and the hypothalamus; others project to the thalamus. Taste signals that project from the thalamus to the primary gustatory area in the parietal lobe of the cerebral cortex give rise to the conscious perception of taste<sup>19</sup>.

**DISCUSSION**

- **Rasa Bodhana- Perception of Taste**  
Taste is a chemical sensation. Unless substance is in solution, taste buds can be stimulated. Saliva dissolves the solid food substances, by its solvent action. So that the dissolved substances stimulate the taste buds by acting on microvilli of taste receptors exposed into the papillae. It causes the development of receptor potential in the receptor cells. Generation of action potential in the sensory neurons helps in the taste perception by gustatory pathway. Stimulated taste buds recognize the taste, so here saliva is acting as an instructor for perception of taste. This is nothing but the function of *Bodhaka Kapha*.
- **Bodhaka Kapha- Digestion**  
Saliva will aid in the process of digestion by moistening and softening the food in oral cavity and allowing the enzymatic activity to take place. In oral cavity the action of salivary amylase and lingual lipase as a part of chemical digestion is assisted by the saliva. In the mechanical digestion also it has its own role in the process of mastication which is manipulated by the tongue. So *Kapha* which is present in the oral cavity or the saliva which does the *Kledana* / softening of the food can be correlated with *Bodhaka Kapha*.
- **Bodhaka Kapha - Tarpaka Kapha**  
In *Mukha* we can appreciate the functioning of two *Kapha* namely *Bodhaka Kapha* and *Tarpaka Kapha*(specifically *Shiras*). *Tarpaka Kapha* mainly aids in the nourishment of senses viz *Chakshurindriya*, *Rasanendriya* etc., *Bodhaka Kapha* helps in the appreciation of taste at the level of taste buds, so the *Kapha* which is softening the food in oral cavity is *Bodhaka Kapha* only. This Function of *Bodhaka Kapha* can be correlated with saliva which is aiding in the process of digestion by moistening and softening the food in oral cavity, whereas *Tarpaka Kapha* functions at higher level in nervous system and aids in the manifestation of sense of taste.

Criteria	<i>Bodhaka Kapha</i>	Saliva
Location	<i>Rasana</i>	Oral cavity
Composition	<i>Sowmya Guna</i>	99.5% water
Main Function	<i>Rasa Bodhana</i>	Appreciation of taste
Other functions	Splitting of ingested food	Moistening and softening the food - helps in digestion

**CONCLUSION**

*Bodhaka Kapha* is located on tongue, aids in the appreciation of taste and splitting of food with the help of its moistening and lubricating nature. For the purpose of taste perception along with tongue (*Rasanendriya*), proper functioning of *Bodhaka Kapha* also very essential. In physiology of taste perception unless and until food substances are in solution

form taste buds are not going to get stimulated, which is achieved by the Saliva in the mouth. So functionally *Bodhaka Kapha* can be correlated to Saliva in contemporary view.

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