



## CRITICAL ANALYSIS ONPHYSIOLOGY OF REFLEX MECHANISMWSR TO VATA DOSHA

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## ABSTRACT

**Background:** The word *Vata* derived from the verbal root 'Va' meaning is *Gati* and *Gandhana*. *Vata* is responsible for *Gati* (movement), *Jnana* (knowledge or perception) and *Prapti* (obtaining or receiving).

**Aims and Objectives:** To critically analyze the physiological points emphasized in the derivation of *Vata Dosha* by considering the reflex action.

**Materials and Methods:** The *Ayurvedic classics* were scrutinized regarding the references for derivation of *Vata Dosha*. Later, physiologico-anatomical aspects of the reflexes were studied from modern physiology books. Later, supportive correlation was done between *Ayurvedic* and modern views to build valid and reliable hypothesis regarding derivation of *Vata dosha* in relation to the various anatomical and physiological aspects of the reflexes.

**Discussion and Conclusion:** Physiological importance is emphasized in the word *Gamana*, *Gnyana*, *Prapti*. *Prapti* refers to physiology of receiving the impulses from the stimulus and receiving the motor response by the effector organ. *Gamana* refers to movement of impulses from sensory nerve to center and from the center to effector organ even it signifies the motor response generated in effector organ. *Gnyana* refers to perceiving of the sensory impulses and generating appropriate response by the center.

**Keywords:** *Gamana*, *Gnyana*, *Prapti*, Reflex, Physiology.

## INTRODUCTION

An individual is an archetype of the universe. All the material & phenomenon of the universe are present in an individual. Similarly all those present in the individual are also enclosed in the universe<sup>1</sup>.

The five basic elements exist in all matter. Water provides the classic example: - the solids of iced water are manifestation of the *Prithvi Mahabhuta* (earth principle). Latent heat in the ice (*Agni*) liquefies it, manifesting into *Jala Mahabhuta* (water principle). And then eventually it turns into steam expressing the *Vayu Mahabhuta* (air principle) the steam disappears into *Akasha* or space<sup>2</sup>. *Bhuta* is that which is not born out of something, but out of which something is born. It is the material cause of substances in the world. When we say *Bhuta* we mean that subtle level of existence, where as *Mahabhuta* refers to gross level of existence<sup>3</sup>.

*Panchikarana* is the process through which invisible *Bhutas* combine with each other and form the visible *Mahabhutas* in such a way that all *Bhutas* are present together in each *Drisya Bhuta* in varying degrees of predominance. Thus in the physical world everything is a combination of *Pancha Mahabhutas* & we cannot see them independently<sup>4</sup>.

Thus the five basic elements *Akasha*, *Vayu*, *Teja*, *Jala* And *Prithvi* are present in one substance. This proves that all five elements are present in all matter in the universe. Visualization of the identity of the individual with the universe paves the way for salvation. The body is described as the modified form of *Mahabhutas* hence the description of the identity of the individual & the universe relates to *Mahabhutic* composition only. The multitudes of the human features are ascribed to the proportion of different *Bhutas* each of different nature<sup>5</sup>.

The balance of *Dosha* represents the healthy state and imbalance will cause various diseases. In normalcy *Doshas* will be performing their own functions and individual *Doshas* will be having their own specific sites. The word *Vata* derived from the verbal root 'Va' meaning is *Gati* and *Gandhana*. *Vata* is responsible for *Gati* (movement), *Jnana* (knowledge or perception) and *Prapti* (obtaining or receiving)<sup>6</sup>. Word meaning of *Vata*

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in derivation suggest the physiological functioning of *Vata* in the body in different dimensions.

Brief Physio- anatomical understanding of the reflex action is necessary to understand physiological points emphasized in the derivation of *Vata Dosha*.

Reflex activity is the response to a peripheral nervous stimulation that occurs without our consciousness. It is a type of protective mechanism and it protects the body from irreparable damages. For example, when hand is placed on a hot object, is withdrawn immediately. When a bright light is thrown into the eyes, eyelids are closed and pupil is constricted to prevent the damage of retina by entrance of excessive light into the eyes<sup>7</sup>.

Reflex arc is the anatomical nervous pathway for a reflex action. A simple reflex arc includes five components. Receptor is the end organ, which receives the stimulus. When receptor is stimulated, impulses are generated in afferent nerve. Afferent or sensory nerve transmits sensory impulses from the receptor to center. Center receives the sensory impulses via afferent nerve fibers and in turn, it generates appropriate motor impulses. Center is located in the brain or spinal cord. Efferent or motor nerve transmits motor impulses from the center to the effector organ.

Effector organ is the structure such as muscle or gland where the activity occurs in response to stimulus. Afferent and efferent nerve fibers may be connected directly to the center. In some places, one or more neurons are interposed between these nerve fibers and the center. Such neurons are called connector neurons or internuncial neurons or interneurons<sup>8</sup>.

### AIM AND OBJECTIVES

To critically analyze the physiological points emphasized in the derivation of *Vata Dosha* by considering the reflex activity.

### MATERIALS AND METHODS

The *Ayurvedic classics* were scrutinized regarding the references for derivation of *Vata Dosha*. Later, physiologico-anatomical aspects with reference to reflexes were studied from modern physiology books. Later, supportive correlation was done between *Ayurvedic* and modern views to build valid and reliable hypothesis regarding derivation of *Vatadosha* in relation to the various anatomical and physiological aspects of the reflexes.

### DISCUSSION

Reflex arc is the anatomical nervous pathway for a reflex action. A simple reflex arc includes five components. Receptor is the end organ, which receives the stimulus. When receptor is stimulated, impulses are generated in afferent nerve. Afferent or sensory nerve transmits sensory impulses from the receptor to center. Center receives the sensory impulses via afferent nerve

fibers and in turn, it generates appropriate motor impulses. Center is located in the brain or spinal cord. Efferent or motor nerve transmits motor impulses from the center to the effector organ. Effector organ is the structure such as muscle or gland where the activity occurs in response to stimulus. Afferent and efferent nerve fibers may be connected directly to the center. In some places, one or more neurons are interposed between these nerve fibers and the center. Such neurons are called connector neurons or internuncial neurons or interneurons. *Vata* is responsible for *Gati* (movement), *Jnana* (knowledge or perception) and *Prapti* (obtaining or receiving).

Physiological importance emphasized in the word *Prapti* of *Vata Dosha* derivation can be understood as Receiving (*Prapti*) of the sensory stimulus by the sensory nerve endings. Physiological importance emphasized in the word *Gamana* of *Vata Dosha* derivation can be understood as Impulses from the nerve endings are transmitted via afferent fibers to the center. The center in turn, sends motor impulses to the effector organ via efferent nerve fibers. Physiological importance emphasized in the word *Gnyana* (knowledge, perception) of *Vata Dosha* derivation can be understood as Perceiving the impulses and generating the appropriate response by the center either in brain or spinal cord. Physiological importance emphasized with reference to motor part in the word *Gamana* of *Vata Dosha* derivation can be understood as efferent or motor nerve transmitting motor impulses from the center to the effector organ and response generated in Effector organ, the structure such as muscle or gland where the activity occurs in response to stimulus.

### CONCLUSION

Physiological importance is emphasized in the word *Gamana*, *Gnyana*, *Prapti* mentioned in the derivation of *Vata Dosha*. *Prapti* refers to physiology of receiving the impulses from the stimulus and receiving the motor response by the effector organ. *Gamana* refers to movement of impulses from sensory nerve to center and from the center to effector organ, it also signifies the motor response generated in effector organ. *Gnyana* refers to perceiving of the sensory impulses and generating appropriate response by the center either in brain or spinal cord.

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