



## MODE OF ACTION OF AYURVEDIC NASYAKARMA- A CRITICAL REVIEW

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### ABSTRACT

There are many treatment procedures mentioned in *Ayurveda*, which are useful for maintaining health as well as treating the diseases. Now-a-days because of our engaged life, improper food habits, suppress urges, sleeping disturbance and so on we all faces many health issues. To get rid from such life style health hazards we have different types of *Panchakarma* treatment procedures. In this process, we get to the root of problem and take it out from the root by balancing all three *Doshas* i.e. *Vata*, *Pitta* & *Kapha* in the body. *Nasya Karma* is one of them, so here time to know about what is *Nasya* and how it is work.

#### Keywords:

Mode of action, *Nasya*, Types of *Nasya*.

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## INTRODUCTION

### Etymological Derivation of *Nasya*

The word *Nasya* is derived from the root word 'NAS' *Dhatu*. It conveys the sense of Motion or *Gati* (*NasaGatau*) and *Vyapti* means pervasion (*NasaVyaptau*). In *Ayurvedic* texts, *NasDhatu* is used in sense of nose (*NasaNasikayam*).

“*Nasikayo hitan tatra bhavo va yat nasa desha*”

The literary meaning of the word *Nasya* is being in the nose or the things beneficial to the nose. *Vachaspathy* derives word 'Nastah' which means beneficial for the nose.<sup>[1]</sup>

### Definition

In *NasyaKarma* the medicated oil (*Aushadhasiddha*) and liquid administrated in a specific manner through nasal route.

“*Sirasi indriyani indriya pranavahani cha srotamsi sooryamiva gabasthayah samsritani*”

The senses and the channels carrying the sensory and motor impulses from the head (*Shira*) are like the rays from the sun. Nose is considered as one among the five senses organs (*Panchagyanendriya*), whose functions are not only limited to olfaction and respiration but also considered as a pathway for drug administration since it is described as gateway for the head.<sup>[1]</sup>

Nose or nasal route is considered as a path to brain. Any excess bodily accumulation in sinus, throat, nose and head areas is eliminated through the nearest pathway which is nose. Hence drug administrated through nose goes up to the brain

and stimulates its function. It cleanses and opens the channels of the head, thereby improvising the process of oxygenation (*Prana-Vayu*), which has a direct influence on the functioning of brain. It is beneficial if done on regular basis as said in classical texts. *Nasya* is specially designed route for diseases of head and supra-clavicle region. It has very significant role on diseases of brain (*Murdha*), eyes, head, throat & cervical region. So systemically performed *NasyaKarma* cures almost all diseases occurred in supra-clavicle region (*Urdhvajatrugata*).<sup>[2]</sup>

### Types of *Nasya*

In *Ayurvedic* texts various type of *Nasya* have been mentioned according to different aspects

### According to function

#### *Nasya*

#### Indication

1. *Virechana* or *Shirovirechana* - *KaphaDosha*
2. *Snehana* or *Brimhana* - *Vata Dosha*
3. *Shamana* or pacifying - *Pittaja* or *Raktaja*<sup>[3,4]</sup>

### According to quantity of drug used

#### 1. *Marsha Nasya*– (*Ghee* or oil *Nasya*)–

This is administrated when there is a condition of uneasiness arising from a particular diseases.

#### 2. *Pratimarsha Nasya* – (daily oil *Nasya*) –

This is administrated by dipping the clean little finger (*Kanishthika*) in the *ghee* or oil and inserting into each nostril leads to lubricate the nasal passage. On giving a gentle

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massage the deep nasal tissues are opened. By doing *Pratimarsha* on a regular basis stress can be released to great extent. [3, 4]

#### **Different types of the Nasya Karma depending on the preparation of the drug**

1. **Avapeeda Nasya**– When the paste of drug is squeezed into the both nostrils.  
Indication – Vitiating of *Kapha* and *Meda*
2. **Pradhamana Nasya**–According to *Sushruta*, *Shirovirechana* drug is powered and sprayed into the nasal orifice with the help of a 12 cm. (6*Angula*) long tube.  
Indication – Mental problems, worm infestation in head, poisoning case
3. **Navana Nasya** –Indication – disorders of *Vata-Pitta* and *Kapha-Pitta* [3, 4]

The unctuous substance used for *Nasya* according to the *Dosha*

- |                           |   |                  |
|---------------------------|---|------------------|
| a. In <i>Vata-Kaphaja</i> | - | <i>Taila</i>     |
| b. In <i>Kevala-Vata</i>  | - | <i>Vasa</i>      |
| c. In <i>Pitta</i>        | - | <i>Ghee</i>      |
| d. In <i>Vata-Pitta</i>   | - | <i>Majja</i> [3] |

#### **Mode of action of Nasya Karma**

##### **Anatomical structures related to Nasya Karma as per Ayurveda Samhita**

- The *Shringataka* vital spot (*Marma*) formed by the union of blood vessels (*Sira*) supplying to nose, eye and tongue and injury to this vital spot will be immediately fatal. [5]
- *Indu* (on *A.S.Su.* 29) has opined that *Shringataka* is the inner side of middle part of the head i.e. "Shiraso antarmadhyam". [5]
- Under the complications of *Nasya Karma* *Sushruta* has noted that the excessive evacuative errhine might cause flow of Cerebro-Spinal Fluid (CSF) out of the nose (*Mastulungasrava*) (*Su.S.Chi.* 40/40). This suggests the direct relation of nasal pathway to brain. [5]

##### **Action of Nasya according to Ayurveda**

###### **According to Charaka Samhita**

- *Nasya* is mentioned as best treatment for the diseases of head because drug introduced through it enters in head & brain (*Uttamanga*) and removes vitiated *Dosha* responsible for diseases. [6]
- Drug administered as a *Nasya* enters into head and draws out exclusively morbid *Dosha* as flowering twig (*Ishika*) is taken out after removing the fibrous coating of *Saccarummunja* adhered to it. *Munja* is a grass just like painter's brush deep in a paint absorbed the paint like that *Nasya* medicine attract and remove only vitiated or morbid *Dosha*. [6]

###### **According to Acharya Gangadhara**

He states that *Nasya* medicine enters into head and removes *Dosha* which are adherent to tissues of head and brain (*Majja-Peshi*). [6]

###### **According to Sushruta Samhita**

- *Sushruta* has explained *Shringataka Marma* as a *Sira Marma*, present in the middle of the junction of blood

vessels (*Siras*) supplying nourishment to the nose, ears, eyes and tongue. Fatal point at the junction of veins (inside the head) by name "*Sringatakka*" [6]

- Discharge of brain matter through nose (*Mastulungam*) is the symptom mentioned in excessive application (*Atiyoga*) of evacuative (*Virechana*) *Nasya*. It proves that *Acharya Sushruta* was already aware of the fact of relation between nose and brain. [6]

###### **According to Ashtanga Hridaya**

Nose is described as gateway or opening for head. Thus drug administered through it goes to head and destroys its diseases of them. So *Nasya* is special treatment for diseases occurred in supra-clavicular region (*Urdhvajatrugata*). [6]

###### **According to Ashtanga Sangraha**

Nose is mentioned as entrance gate for head. Medicine introduced through it occupies *Shringataka Marma* and all channels (*Srotas*) of eye, ear, throat and removes morbid *Dosha*. [6]

###### **Indu, the commentator of Ayurvedic texts**

- The exact position of the *Shringataka Marma* (i.e. *Shiraso Antarmadhyam Murdha*) which can be considered for the Middle Cephalic Fossa.
- The Middle Cephalic fossa is the region, which in connection with ethmoid and sphenoidal sinuses, consists of meningeal vessels, mainly internal carotid artery, cranial nerves (3rd, 4th, 5th and 6th) and also the optic nerve.
- The pituitary gland can be approached through the sphenoidal sinus by Trans-antral and Trans-nasal routes.
- The sphenoidal sinus is inferiorly in connection with the Naso-pharynx and posteriorly with the brain stem.

The above description show the *Shringataka Marma* can be related with the Middle Cephalic fossa. The structure of *Shringataka Marma* consists four blood vessels or vein (*Sira*) in connection with four sense organs and the nerves and vessels.

###### **Mechanism of Nasya Karma according to Ayurveda [5]**

Considering the above points, the mode of action of *Nasya Karma* can be understood as follows (*A.H.Su.* 29/2)

- Drug administered through nasal route i.e. from gateway of head reaches the *Shringataka Marma*.
- Then it spreads through the blood vessels of nose, ear, eye and tongue. In this way it reaches in head.
- Then it scratches and removes the morbid *Dosha* and disease causing elements from the head and other body part above the supra-clavicular region.

###### **B-Action of Nasya according to Modern aspect**

###### **Anatomy of nasal cavity [7]**

The nasal cavity is bounded by floor, roof, medial and lateral walls. The important anatomical structures for consideration are mainly the floor and the roof.

1. Floor is formed by the horizontal process of the palatine bone.
2. Roof is very narrow and formed by
  - a. Nasal and frontal bones, anteriorly,
  - b. Cribriform plate of ethmoid bone in the middle, and

c. Body of sphenoid, posteriorly.

3. The roof of nasal cavity is formed with the superior turbinate and cribriform plate. This is a specific plate which forms the floor of the anterior cranial fossa, having small pores in it. This is the specific area of olfaction formed by the superior turbinate constituted with special mucous membrane; which is called as olfactory membrane.
4. This olfactory epithelium or membrane where olfactory receptors are located, is also called as olfactory area. The total area of olfaction on each side is about 250mm<sup>2</sup>.
5. The olfactory area (epithelium) is composed of mainly the following types of cells:
  - Supporting (Substantacular cells)
  - Receptor cells and
  - Basal cells

Supporting cells are columnar cells which secrete mucous. The receptor cells are those where one end forms into Axon and another end facing mucous layer, forms into cilia which perceive the object like smell. These axons join together to form the olfactory tract and the olfactory bulb.

#### Mode of action

Even modern science accepts this concept because the nasal mucosa is the only location in the body that provides a direct connection between central nervous system (CNS) and the atmosphere. Drugs administered to the nasal cavity rapidly traverse through the cribriform plate into the CNS by 3 routes.

- Directly by olfactory neurons
- Through supporting cells and the surrounding capillary bed; and
- Directly into the cerebrospinal fluid (CSF).<sup>[7]</sup>

#### A-Drug transport through nasal mucosa (Diffusion method)

- The nasal cavity is covered by a thin mucosa which is well vascularized. A drug molecule can therefore quickly be transferred across the single epithelial cell layer directly to the systemic blood circulation without first pass hepatic & intestinal metabolism.
- Drug absorption through mucosal surface is generally efficient because stratum corneum epidermis, the major barrier to the absorption across the skin is absent in nasal cavity.
- Lipid soluble drugs diffuse by dissolving in lipid matrix of membrane. A more lipid soluble drug attains higher concentration in the membrane & diffuses quickly.
- Drops spread more extensively than spray. Three drops cover most of walls of nasal cavity with patient in a supine position & head tilted back.
- Small unchanged particles easily pass through this layer by following processes.

#### Para cellular transport

- It is aqueous route of transport.
  - It is slow, passive & only useful for drugs with low molecular weight.
1. Transcellular process
    - Transport through lipid route, only for lipophilic drugs.
  2. Drugs also cross cell membrane by an active transport route through the openings of tight junctions.

#### B-Drug transport through vascular pathway

- The nasal tissue is highly vascularized making it an attractive site for rapid & efficient systemic absorption.
- Rich vascular plexus permits topically administered drugs to rapidly achieve effective blood levels while avoiding intravenous catheter.
- Molecules come in contact with specialized mucosa, they are rapidly transported directly into the brain, skipping blood brain barrier (BBB) & achieving very rapidly in CSF levels.
- Major divisions of olfactory tract leads directly to a portion of the amygdala called cortico-medial nuclei that lie immediately beneath the cortex in the pyriform area of the temporal lobe.
- The olfactory nerves differ from other cranial nerves in its close relation with the brain. The olfactory nerves are connected with the higher centres of brain i.e. limbic system, consisting mainly of amygdaloid complex, hypothalamus, epithalamus and anterior thalamic nuclei parts of basal ganglia etc. So the drugs administered here stimulate the higher centres of brain which shows action on regulation of endocrine and nervous system functions.

In short there are three mechanisms underlying the direct nose to brain drug delivery-

- **Intracellular transport** mediated route is a relatively slow process taking hours for intra-nasally administered substances to reach the olfactory bulb.
- **In extracellular transport mediated route**, drug could first cross the gap between the olfactory neurons in the olfactory epithelium which are subsequently transported into olfactory bulb.
- **In second route**, drug may be transported along the trigeminal nerve to bypass BBB. After reaching the olfactory bulb of trigeminal region, the drug may enter into other regions of brain by diffusion.

#### Nasya procedure with mechanism

##### A-Pre procedural measures (Purvakarma)<sup>[7]</sup>

Importance of the *Purvakarma* in *NasyaKarma* is

1. To facilitate for drug absorption through nasal neurons and paranasal sinuses.
  - In this, the repeated fomentation by rubbing of palms (*PanitapaSwedana*) causes an impact on blood circulation to head.
  - The Vasodilator action over superficial surface of the face facilitates for drug absorption.
2. The second aspect of *Purvakarma*; the posture giving during *NasyaKarma* has its relevancy in two ways:
  - It creates the openness in channels of nasal cavity and nasopharynx
3. The drug administered, reaches the upper part of the nasal cavity and stimulates the olfactory neurons.

##### Main procedural measures (PradhanaKarma)<sup>[7]</sup>

1. Where the actual drug is administered should remain for temporary possession of the drug in nasal cavity.
2. The provisions created by *Purvakarma* help in the *PradhanaKarma*, so that

- The drug has a greater chance of adsorption in their sinuses.
  - As well as providing sufficient time for stimulating olfactory neurons.
3. During this explanation, classics have mentioned one more structure; the *ShringatakaMarma* (anatomical area) where there is an association of nasal, visual, auditory and lingual nerves and vessels (*Sira*) are present.
  4. *Acharya Charaka* says that the administration of unctuous material processed with drug (*SnehaPradhanaNavana*), gets quickly absorbed in the *Shringatakaregion*.

The above reference says that lipid soluble drugs are much more efficiently absorbed by nasal mucosa.

#### Post procedural measures (*PashchataKarma*) [7]

The absorption of the drug is also facilitated by the *PashchataKarma* followed during the procedure.

1. This starts with the oil massage (*Mardana*) over the frontal, temporal, maxillary, mastoid and neck region.
2. After administration of the drug, when the drug reaches the distal ends of the airways, the patient should be asked for the spitting out of the medicine (*NishthivanaKriya*). The medicine should reach on the both sides of the throat; otherwise the drug adsorption doesn't occur in the mucosa and blood vessels properly.
3. The drug used for *Navana/MarshaNasya* (names of different types of nasal drug administration) is processed with drugs (*Snehapaka* method i.e. preparation of the drug in lipid base) till mildly cooked (*Mridupaka*) status attains. This also has the relevancy in facilitating the stimulation as well as the absorption of the drug.
4. To achieve rapid diffusion through nasal mucosa the lipid soluble drugs are preferred where the mucosal cilia are lipophilic in action.
5. In humans small particles of size 0.5 to 1.0µm tend to deposit in a nasopharyngeal part. So the particles become finer than mentioned above on undergoing mildly cooked, which may facilitate the drug absorption at the level of the nasopharynx.
6. The duration of the *NasyaKarma* course ranges from 7-21 days. It differs for each classification of *NasyaKarma*. These many days are needed for the action of the drug and to achieve required symptoms. Because of the quantity of the drug, very minimal and continuous stimulation to the olfactory neurons should facilitate the stimulation.

#### Possibilities of three ways of Pharmacological benefits occurs during *NasyaKarma*

- Direct absorption in Cerebrospinal fluid through the arachnoid matter sleeve which is extended to the sub mucosal area of the nose along with Olfactory nerve.
- Venous regurgitation of blood passing through the olfactory and facial vein and through small venuoles coming into venous sinuses of the brain.
- Sometimes similar to smelling drugs (*Ghreya Prayoga*), which can happen due to appropriate stimulation of sensory neurons of Olfactory nerve. This nerve has

potential connection to higher centres of brain such as hypothalamus, limbic system etc.

Thus, it is very interesting to understand that how much greater effect does *NasyaKarma* has occurring in head region including neurologically and psychologically and other organs in head.<sup>[8,9,10,11]</sup>

#### CONCLUSION

1. *NasyaKarma* is the treatment for all the diseases of head and supra-clavicular region. It has very significant role in diseases of head eyes, ears, throat and cervical region.
2. The administration of drug in the nasal route reaches to the *Shringataka* vital spot where it spread to blood vessels of ear, eye, nose and tongue and ultimately reaches to the head where the drug acts by scratching the disease causing morbid *Doshas* or elements causing diseases.
3. The nasal mucosa is the only location in the body that provides a direct connection between central nervous system (CNS) and the atmosphere.
4. As the result, the *NasyaKarma* by the both physiological and neurological way affects the brain, eye, ear, nose and tongue leads to remove all the morbid *Doshas* and disease causing elements.

#### Reference

1. K.Y. Srikanth, V.Krishna murthy, M.Srinivasulu; *Pharmacodynamics of NasyaKarma, International Journal of Research in Ayurveda & Pharmacy*, 2(1), Jan-Feb 2011, ISSN 2229-3566, pp 24-26
2. Dwivedi Ramakant, Agnihotri (dwivedi), Laxmi, Vyas M.K. *Concept Of NasyaKarma In Ayurvedic Literature*, IJAAR volume II issue 7 may-june 2016, pp 1014-1018, www.ijaar.in
3. Smita Lokhande, Swapnil Patil, Avinash Chogule, Vishal Patil; *Probable Mode of Action of Nasya – An Overview*, IAMJ: Volume 4; Issue 03; March-2016, ISSN:2320 5091, pp 359-364, www.iamj.in
4. Amod Kumar, Suryawanshi C.S.; *Conceptual Study of NasyaKarma in PanchaKarma W.S.R. to Brihatrayi*, IAMJ: Volume 2; Issue 3; May - June 2014, ISSN:2320 5091, pp 298-303, www.iamj.in
5. Subhash G. Marlewar, Harshada D. Kulkarni, "A Review of Role of *NasyaKarma* in Gynaecological Disorders" *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 16, Issue 2 Ver. I (February. 2017), PP 113-116, www.iosrjournals.org
6. Deshpande Gayatri S., Joshi Abhijeet H. *Hypothetical Evaluation of Action of Nasya on Central Nervous System*, IAMJ. Volume 2; Issue 4; July -August-2014, ISSN:2320 5091, pp 608-612, www.iamj.in
7. H.J. Sangeeta, Hemant D. Toshikhane; *A Critical Evaluation of the Concept of "Nasa Hi Shiraso Dwaram"(Nasal Route Entry for the Cranial Cavity)*, Volume 10. Number 1. May 2009 (Spring), pp 338-341, <http://www.akamaiuniversity.us/PJST.htm>
8. Zala Divya, Prajapati Dilip, Thakar Anup, Bhatt Nilesh ; *Nasya-Most Vital Therapeutic Intervention Of PanchaKarma-A Review*, *International Journal of Ayurveda and Pharma Research*, December 2016 , Volume 4 , Issue 12, ISSN: 2322 - 0902 (P) , ISSN: 2322 - 0910 (O) pp 60-63, <http://ijapr.in>

9. Sanjay Kumar, Srinivas Sharma; *A Clinical Study on Evaluation of Nasya karma (Malkangni Oil) in the management of Apasmara (Epilepsy)*; International Journal of Ayurveda ; Jan. 2021, Vol. 06 Issue 01 pp01-05
10. Smita Lokhande, Swapnil Patil, Avinash Chogule; *Probable mode of Nasya: International Journal of Ayurvedic Medical Journal*, 2016 vol.04 issue. 03; pp2320 5091
11. Narendra Garg; *A Prospective Clinical Study of Chandanadi oil and Narsingh Churna with samsodhana In Khalitya. Journal of Ayurveda*, Apr-jun 2016 Vol.X issue.02

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