

Unveiling the Power of *Shodhana* and *Shamana* in *Kampavata* with Latest Research Perspectives

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ABSTRACT

Introduction: *Kampavāta*, described under *Vātajā Nānātmaja Vyādhi* in Ayurvedic classics, can be clinically correlated with Parkinson's disease. Parkinson's disease is the second most common neurodegenerative disorder worldwide, characterized by progressive motor and non-motor dysfunctions. *Basavarājīyam*, describe *Kampavāta* as a distinct disease entity with features such as *Hastapāda-tala Kampa*, *Dehabhramaṇa*, *Nidrābhāṅga*, and *Mati-kṣīna*. A systematic review of classical Ayurvedic texts (*Bṛhatrayī*, *Basavarājīyam*, and allied *Samhitās*) and relevant contemporary literature was undertaken to identify descriptions, pathophysiology, and therapeutic approaches for *Kampavāta*. Emphasis was placed on *Śodhana* and *Śamana* interventions. In modern management of Parkinson's disease centers on Dopamine replacement therapy and supportive care. Ayurvedic management of *Kampavāta* primarily focuses on pacifying aggravated *Vāta* through *Pañcakarma* procedures such as *Basti*, *Nasya*, and *Abhyanga*, along with internal *Shamana* medications. These interventions aim to restore functional balance, improve motor control, and address associated non-motor symptoms. The Ayurvedic approach offers a holistic and multimodal management strategy for *Kampavāta*, addressing both motor and non-motor symptoms. Classical interventions may complement conventional therapy by improving quality of life and functional outcomes. The conceptual correlation between *Kampavāta* and Parkinson's disease provides scope for integrative and evidence-based research.

Key words: *Kampavata*, *Vatavyadhi*, Ayurveda, Parkinson's disease, *Shodhana*, *Shamana*.

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INTRODUCTION

Kampavata is an condition similar to Parkinson's disease, characterized by an imbalance of the *Vata Dosha*. This condition affects the nervous system including both Motor and Non-motor functions, leading to symptoms such as tremors, stiffness, and difficulty with movement. The term "Parkinson's disease" is named after Dr. James Parkinson, who first described the condition in 1817 as "shaking palsy." Mostly men are more affected than women¹. Early in the disease process, it is hard to know whether a person has idiopathic Parkinson's disease (PD) or a syndrome that mimics it. Parkinsonism, also known as atypical PD, or Parkinson's plus, represent about 10-15% of

all diagnosed cases of Parkinsonism. Charaka mentioned *Kampa* as one among 80 types of *Vataja Nanatmaja Vyadhi*². "Na *Kampovayuna Vina*"³ There is no *Kampa* without *Vata*. *Kampa* may be a symptom of many diseases like *Vatajajwara*, *Unmada*, *Vatikakushta*, *Vatikapandu*, *Urushambha*. Various synonyms used are *Kampana*, *Vepana*, *Vepathu*, *Spandana* all indicating tremors of varying nature and severity. In *Rigveda*, it is mentioned that the Lord Indra suffered from *Vepathu*. Such references are also available in the *Atharvaveda*. Unlike *Charaka*, *Acharya Sushruta* has not mentioned *Vepathu* as a separate disease. But he mentioned it as a symptom of *Snayuprapta Vata*⁴ and also complication of *Ardita*. As per *Ashtanga Hridaya*,

Kampa is a symptom of *Vata Prakopa* and *Sarvangavata*. *Kampa* is noted in *Raktakshaya*, *Pittakshaya* and *Kaphakshaya*, *Sarvangagata Vata* according to *Ashtanga Sangraha*. *Vepathu* had been first mentioned as an independent clinical entity by *Madhavakara* in *MadhavaNidana* in the 7th century.⁵ He states that the tremors in the whole body (*Sarvanga Kampa*) and head (*Shirokampa*) caused by *Vata* are called *Vepathu*. *Kampavata* is first described as a disease in *Basavarajeeyam*⁶ with cardinal symptoms as *Hastapadatala Kampa*, *Deha Bhramana*, *Dukkha*, *Nidrabhanga*, *Matiksheena*. In *Sharangdhara Samitha*, *Kampavata* is numbered among *Nanatmaja Vata Vyadhis*. *Acharya Bhela* noted the symptom *Kampa* in

condition of *AsthimajjagataVata*. Treatment of *Kampavata* is described in *Chakradatta* and *Vangasena*. Many formulations useful in *Kampavatahara* described in *Bhaishajya Ratnavali*. In most of the neurodegenerative disorder *Vata* dominant symptoms are appreciable due to vitiation of *Vata* either due to *Dhatukshaya* or *Avarana*.⁷

Probable Understanding of *Kampavata Nidana* (causative factors) in *Ayurveda* and Contemporary science

Kampavata can be considered as *Vataja vikara*, So the *Samanya Nidana* which provoke *Vata* (*Ch. Chi. 28/15–17*) can be considered as the causative factors for *Kampavata*.

Table No.01- Showing *Kampavata Nidana* (causative factors) in *Ayurveda* and Contemporary science

<i>Viprakrushta Nidana</i> ⁸	Idiopathic
<i>Beeja Dusti</i> ⁹	Genetics
<i>Dushi Visha</i> ¹⁰	Environmental Triggers
<i>Agni Mandya</i> ¹¹	Altered Gut Microbiome
<i>Abhigataja</i> ¹²	Traumatic Brain Injury

PURVAROOPA

The *Purvarupa* for *Kampavata* in particular has not been described in *Ayurvedic* text. How ever *Purvarupa* of *Vata Vyaadhi* in general has been described by *Aacharya Charaka* by saying that *Avyakta Lakshana* is the *Purva Rupa* of any *Vata Vyaadhi*.¹³ Here, *Chakrapani* and *Gangadhara* has commented that *Avyakta* means few or mild symptoms.

ROOPA

Kampavata Lakshana

Kampavata is explained as independent disease in *Basavarajeeyam*.¹⁴

“*Karapadatala Kampa Dehabhramana Dukkite* |

Nidrabhanga Matiksheena Iti Kampavatasya Lakshana” ||
Bs.R (6/128)

- *Karapada tala kampa* (Tremors in Hand and feet)
- *Deha bramana* (Difficulty in body movements)
- *Nidra bhanga* (Disturbed sleep)
- *Ksheena mati* (Reduced memory)
- *Dukhita* are the specific symptoms mentioned in *Basavarajeeyam*.

TYPES OF KAMPAVATA

According to *Madhava Nidana*:¹⁵ “*Sarvanga Kampaha Shiraso Vepathu Sanjnakam*”

Acharya Madhavakara defined that there is *Kampa* in whole body or *Kampa* in *Shiras*. Here the word *Shiras* not only indicates head but it also represents any part of the body. Therefore, from this we can conclude that *Madhavakara* has considered two types of *Kampavata* that is *Sarvanga Kampavata* and *Ekanga Kampavata*.

The other symptom like: -

- *Stambha* (Rigidity)
- *Chestahani* (Slowness of the movement)
- *Vinaman* (Flexed posture)
- *Vakvikriti* (Speech disorders)

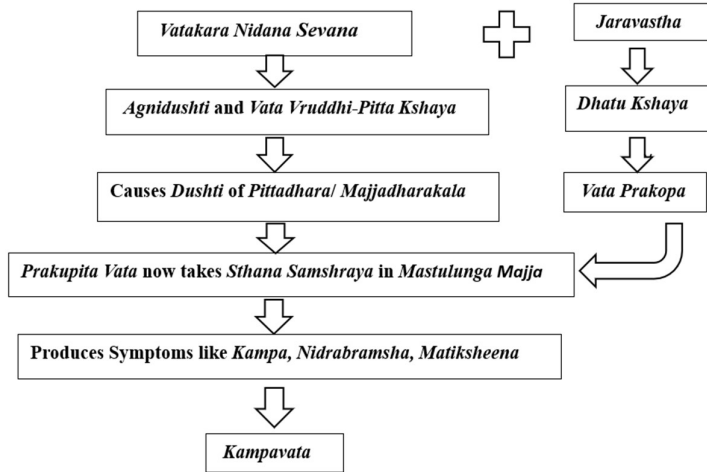
SAMPRAPTI

There is no direct description regarding *Samprapti* of *Kampavata* but *Acharyas* have considered *Kampavata* under *Nanatmaja vatavyadhi* under the title of *Vepathu*.

Kampavata Samprapti occurs in following two ways:

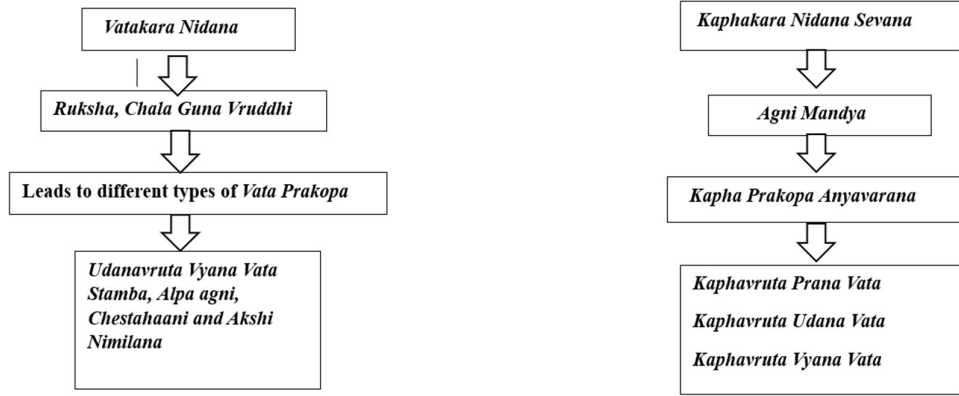
1. *Dhatukshayajanya*¹⁶
2. *Margavarnajanya*¹⁷

DHATUKSHAYAJANYA SAMPRAPTI



Flow Chart No. 1 – Schematic representation of *Dhatukshayajanya Samprapti* of *Kampavata*

MARGAVARNAJANYA SAMPRAPTI



Flow Chart No. 2 – Schematic representation of *Margavarnajanya Samprapti* of *Kampavata*

SAMPRAPTI GHATAKA

- **Dosha:** Vata– All five types especially Prana, Vyana, Udana, Apana, Pitta- Sadhaka, Kapha-Tarpaka
- **Dushya:** Dhatu-Rasa, Mamsa, Majja, Shukra. Updhatu- Snayu
- **Mala:** Purisha
- **Srotas:** Rasavaha, Mamsavaha, Majjavaha, Sukravaha
- **Srotodushti:** Sanga.
- **Agni:** Jatharagni, dhatwagni
- **Marga:** Madhyama

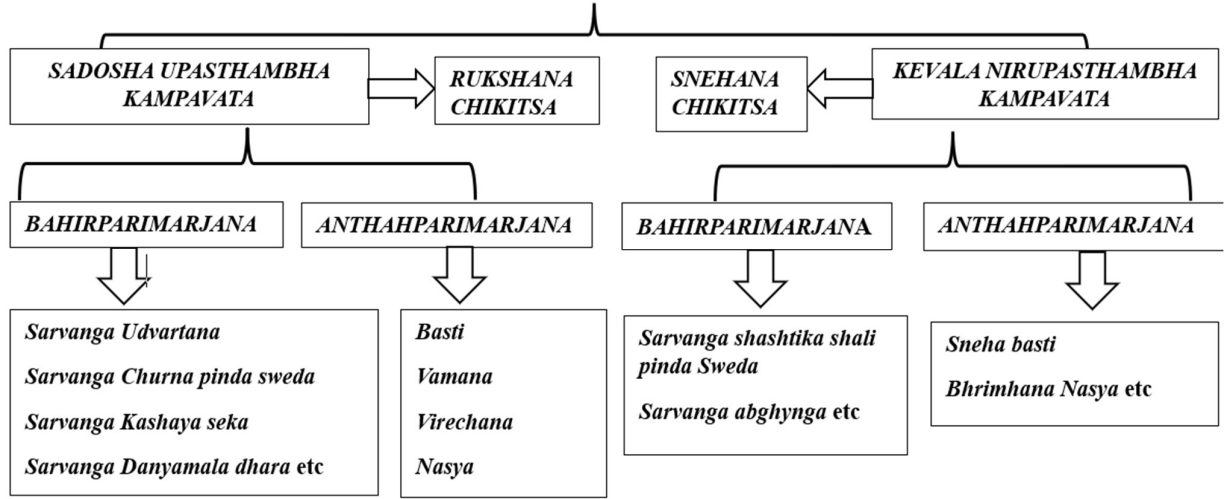
- **Udhbhava sthana:** Pakvashaya, Shirastha Majja
- **Sanchara sthana:** Sarva Shareera
- **Vyakta sthana:** Sarvanga.
- **Adhishtana:** Shiras

CHIKITSA SUTRA

Acharya Vangasena has given the chikitsa sutra for *Kampavata*¹⁸ as follows:

Vayum Vepathu naamanam sweda abhyanga anuvasanaihi I
Upaacharen niruhaischa shirobasti virechanam II
(*Vatarogadhikara* 155)

LINE OF MANAGEMENT WHICH CAN BE ADOPTED IN DAY-TO-DAY PRACTICE



PATHYA APATHYA

Pathya-Apathya specifically for *Kampavata* has not been mentioned in classics, as it is one among *Vataja Nanatmaja Vikara*, *Pathya-Apathya* mentioned for *Vatavyadhi* can be considered.^{19,20,21,22}

PATHYA AHARA

Table No.02– Showing *Pathya Ahara*

	Table No.– Showing <i>Pathya Ahara</i>
Anna varga	<i>Kulattha, Maasha, Godhuma, Raktashali, Naveena tila, Puranashalyodana</i>
Phala varga	<i>Amla phala, Dadima, Draksha, Jambeera, Badara</i>
Shaka varga	<i>Varthaka, Patola, Shigru, Rasona, Bruhati, Kasamarda</i>
Dugdha varga	<i>Kshira, Ghrita, Dadhi kurchika, Navaneeta</i>
Drava varga	<i>Mamsa rasa, Mudga yusha, Dhanyamla</i>
Mamsa varga	<i>Gramya, Anooopa, Audhaka, Jangala,</i>
Taila varga	<i>Tila taila, Sarshapa taila, Eranda taila</i>
Rasa sevana	<i>Madhura rasa, Amla rasa, Lavana rasa</i>
Anya varga	<i>Tambula, shyonaka, Kushmanda, Matsyandika, Snigdha ahara.</i>

APATHYA AHARA

Table No.03 – Showing *Apathya Ahara*

Shami dhanya	<i>Mudga, Kalaya, Chanaka, Navadhanya</i>
Shimbi dhanya	<i>Nishpava, Sarshapa</i>
Shaka varga	<i>Nimba, Alabu</i>
Mamsa varga	<i>Shushka</i>
Pushpa	<i>Kareera</i>
Rasa sevana	<i>Katu rasa, Tikta rasa, Kashaya rasa</i>
Anya varga	<i>Kuruvinda, Kanguni, Nivara, Dushita jala, Kshoudra</i>

PATHYA APATHYA VIHARA

Table No. 04- Showing *Pathya & Apathya vihara*

Pathya vihara	Apathya vihara
<i>Upakrama</i>	<i>Vegadharana</i>
<i>Abhyanga, Samvahana</i>	<i>Anashana</i>
<i>Parisheka, Avagaha</i>	<i>Ati Vyavaya</i>
<i>Snigdha, Ushna lepa</i>	<i>Ati Vyayama</i>

<i>Vihara - Nirvata sthana</i>	<i>Atigaja- ushra-ashwa yana sevanam</i>
<i>Ushna pravarana</i>	<i>Prajagarana</i>
<i>Aatapa sevana</i>	<i>Chardi</i>
<i>Bramhacharya</i>	

DISCUSSION

- ✓ **BASTI CHIKITSA IN KAMPAVATA:** *Kampavata* is *Pakvashaya Samuttha Vata Vyadhi*. Hence *Basti Chikitsa* is prime modality in *Kampavata*.
- ✓ **MODE OF ACTION:** *Basti Karma* may stimulates the ENS, which produces Neurotransmitters like Dopamine, Acetylcholine, Serotonin etc.
- The rectum is richly innervated by the pelvic

splanchnic nerves, which connect to the sacral plexus and autonomic nervous system.

- *Basti* stimulates vagal afferents (which is main communicative nerve between ENS and CNS), modulating the enteric nervous system and influencing dopaminergic signal to the brain.
- This may help restore gut motility (reducing constipation) and improve neurotransmitter balance.

Table No. 05- showing *Sneha Basti & Kashaya Basti*

SNEHA BASTI	KASHAYA BASTI
Dhanwantara Taila	Dashamoola Niruha Basti
Ashwagandha Taila	Erandamoola Niruha Basti
Sahacharadi Taila	Dashamoola Ksheera Basti

NASYA IN KAMPAVATA: *Acharya Vangasena* has mentioned *Nasya Karma* in *Kampavata Chikitsa*.

- “*Nasa hi Shiraso dwaram*” (The nose is the gateway to the head)
- *Brimhana Nasya* provides nourishment to the *Shiro Indriya* and other organs and alleviates the vitiated *Vata*.
- Hence, it is useful in *Vatajanya* ailments.
- *Brimhana Nasya*, *Shodhana Nasya*, *Pratimarsha Nasya* are used widely for *Kampavata* according to the condition and based on severity of the disease.

❖ **NEURONAL PATHWAY-**Administration of *Nasya Dravya* through the nasal route is absorbed by olfactory receptor cells and transmitted via the olfactory bulb and tract to higher brain centres. It influences the limbic system and hypothalamus. Thus, *Nasya* stimulates higher cerebral functions and helps regulate the nervous and endocrine systems.

❖ **DIFFUSION THROUGH NASAL MUCOSA-**Transmucosal drug delivery via the olfactory and trigeminal pathways, bypassing the blood-brain barrier, is termed direct intranasal drug transport to the brain. Accordingly, *Nasya Dravya* diffuses across the plasma membrane of the nasal mucosa and directly accesses central nervous system structures.

MODE OF ACTION:

Nasya Karma acts through 3 Pathways

- ❖ **VASCULAR PATHWAY-** a) Submucosa of nasal cavity is highly vascularized
- b) By vascular pathway drug easily reaches the brain by entering into cavernous venous sinus circulation

Table No. 06- Showing *Nasya Dravya* used in *Kevala Nirupasthambha & Sadosha Upasthambha*

❖ <i>Nasya Dravya</i> which are used in <i>Kevala Nirupasthambha Kampavata:</i>	❖ <i>Nasya Dravya</i> which are used in <i>Sadosha Upasthambha Kampavata:</i>
<i>Mahamasha Taila</i>	<i>Varuni Taila</i>
<i>Mahakalyanaka ghrita</i>	<i>Anu Taila</i>
<i>Prasarinyadi Taila</i>	<i>Dhanwantara Taila</i>
<i>Bala Taila</i>	<i>Karpasasthyadi Taila.</i>
<i>Mahakalyanaka Taila</i>	<i>Nirgundi Taila</i>

- **VIRECHANA IN KAMPAVATA:** *Virechana* is indicated in diseases of *Pittadhara Kala* which can be related to *Majjadhara kala*. In *Kampavata Sthanasamshraya* of *Doshas* occurs in *Mastulunga Majja*, hence *Virechana* is helpful.
- In *Kampavata* no specific drug has been mentioned for *Virechana*. In all *Vata Vyadhi*, *Snigdha*

Virechana is preferable.

- *Eranda Taila* is advised for *Mridu Virechana* with milk as it provides *Bala* to *Indriyas* and improves *Agni* and does *Koshtashuddhi*.

• **PROBABLE MODE OF ACTION IN KAMPAVATA:** PD is strongly linked to gut

dysbiosis and misfolded α -synuclein propagation from the gut to the brain via the Vagus nerve.

- *Virechana* clears toxins that contribute to neuroinflammation and Lewy body formation.
 - It resets gut microbiome, reducing pro-inflammatory cytokines (TNF- α , IL-6) that worsen neurodegeneration.
- **VAMANA IN KAMPAVATA:** *Vamana* therapy is indicated when there is significant involvement of *Kapha Dosha* in the *Samprapti* of PD (Avaranajanya- Lewy bodies accumulation etc.,)
- *Malasanchaya* manifested as accumulated proteins and Lewy bodies in the cytoplasm, plays a role in the pathogenesis of Parkinson's Disease.
 - That indicates *Vikruta Tarpaka Kapha Sanchaya* in *Shiras* and leads to *Margavarodha* and produces cognitive symptoms in *Kampavata*. Hence *Vamana Karma* eliminates *Dushita Kapha Dosha* and removes *Margavarodha* and makes *Indriya Shuddhi*.

BAHIR-PARIMARJANA CHIKITSA IN KAMPAVATA

➤ **PROBABLE MODE OF ACTION OF UDWARTANA IN KAMPAVATA**

- Dry friction massage activates mechanoreceptors → enhances sensory feedback to the brain.
- Improves proprioception, which is often impaired in PD.
- Reduces rigidity by breaking down fascial adhesions in muscles.
- The Friction increases microcirculation, aiding oxygen/nutrient supply to muscles and nerves.
- Reduces bradykinesia (slowness of movement) by improving peripheral nerve conductivity.
- Clears lymphatic stagnation, which may contribute to toxin buildup (Ama) in PD.
- Breaks down excess *Kapha* that worsens PD symptoms like hypokinesia.

➤ **PROBABLE MODE OF ACTION OF SARVANGA CHURNA PINDA SWEDA**

- The Rigidity/*Stambha* in *Kampavata* is produced due to hyperactivity of acetylcholine.
- *Churna Pinda Sweda* helps in reduction of

hyperactivity of acetylcholine by following ways:

- a. By blocking the transmission of impulse across the motor nerve.
- b. Inhibiting the synthesis of acetylcholine in motor nerve.
- c. Inhibiting the release of acetylcholine as with the toxin produced by the organism.
- d. Modifying the motor end plate so that it does not respond to acetylcholine.

➤ **PROBABLE MODE OF ACTION OF ABHYANGA :**

1. ***Vatahara effect:*** *Snehana Dravya's Gunas (Snigdha, Guru)* counter act *Vata's* properties, alleviating *Vata*-related diseases.
2. **Properties:**
 - *Snigdha and Guru: Vatahara, Snehana, Balya, Pushtikara*
 - *Mridu:* Reduces stiffness (opposite of *Kathina Guna*)
 - *Sukshma:* Penetrates minute channels
3. **Physical effects:** Increases nerve conductivity
4. **Neurological effects:** Regulates electricity discharge in nerve fibers

➤ **PROBABLE MODE OF ACTION OF SARVANGA SHASHTIKA SHALI PINDA SWEDA**

Sarvanga Shashtika Shali Pinda Sweda functions as a *Brmhana*-dominant, *Vata-Shamaka* therapy in *Kampavata* by enhancing tissue nourishment, improving neuromuscular function, and reducing rigidity and tremors. Its classical indications correlate with modern principles of thermotherapy and neuromuscular rehabilitation used in Parkinsonian disorders

➤ **MURDHNI TAILA IN KAMPAVATA**

- According to *Acharya Vagbhata*, *Murdhni Taila* is highly beneficial for brain, nerves, sense organs and hair.
- It controls Vitiated *Vayu* and *Pitta* in the head.
- ***Murdhni taila is of 4 types-***
- ✓ *Shiro Abhyanga*
- ✓ *Shirodhara*
- ✓ *Shiropichu*
- ✓ *Shirobasti*

Table No. 07- showing Tailas used in Murdhni

Taila used are
<i>Mashabaladi Taila</i>
<i>Ksheerabala Taila</i>
<i>Dhanwantara Taila</i>
<i>Brahmi Taila</i>
<i>Balashwagandha Taila</i>

SHAMANA CHIKITSA

Table No. 08- Showing Shamanaushadhi

✓ RASA YOGAS: <i>Ekgaveera Rasa, Rasaraja Rasa, Vatagajankusha Rasa, Brihatvatachintamani Rasa, Smritisagara Rasa, Mahavatavidhwamsa Rasa, Trailokyachintamani rasa, Tapyadi Ioha</i>
✓ TAILA & GHRITA YOGAS: <i>Rasnadi taila, Sahacharadi Taila, Ksheerabala Taila, Varuni Taila, Mahamasha Taila, Karpasasthyadi Taila, Prasarinyadi Taila, Brihat Chagaladi Ghrita, MahaKalyanaka Ghrita</i>
✓ ASAVA/ARISHTA YOGAS: <i>Ashwagandhaarishtha, Balarishtha, Dashamoolarishtha, Saraswatarishtha</i>
✓ RASAYANA: <i>Vanari kalpa, Ashwagandha Rasayana, Kushmanda rasayana, Amalaki rasayana</i>
✓ EKAMULIKA PROYOGA: <i>Kapikacchu, Ashwagandha, Bala, Shatavari, Rasna, Eranda</i>

CONCLUSION

Shodhana therapies offer a distinctive therapeutic paradigm in Parkinson's disease by modulating the gut-brain axis, hepatic function, and neuroinflammatory pathways that remain largely unaddressed in conventional management. *Shamana* interventions contribute to symptomatic relief; however, their clinical efficacy may be enhanced through improved bioavailability and advanced formulations, such as nano-based phytoconstituents. An integrative treatment model combining *Panchakarma* (notably Basti), conventional pharmacotherapy (e.g., L-DOPA), and selected *Rasayana* drugs demonstrates potential synergistic benefits, warranting systematic evaluation. Future research should prioritize standardized *Panchakarma* protocols, biomarker-driven outcome measures (including α -synuclein and BDNF), and well-designed multicentric comparative trials to establish robust evidence for Ayurvedic interventions in Parkinson's disease.

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REFERENCES

1. [https://www.slideshare.net/jjoallsaint/Parkinson's disease](https://www.slideshare.net/jjoallsaint/Parkinson's-disease) (accessed date 10 July 2017)
2. Agnivesha, Charaka Samhita, revised by drdhabala, ayurveda deepika commentary of chakrapani data, edited by vaidya yadavji trikamji acharya, choukamba krishnadas academy, Varanasi, 2010, pp-738
3. Raja radhakant deva, shabdakalpadruma, vol-4, edition, Chaukamba Sanskrit Series, Varanasi, 1967; p.325
4. Acharya YT; et al; Sushruta Samhita with Nibandha Sangraha and Nyayachandrika commentary. Varanasi: Chaukhambha Sanskrit Sansthan, Edition 2012. Nidana sthana, Chapter 1, Shloka no 27, Page no 261: 824.
5. Murthy Srikanta K R, Madhava Nidana of Madhavakara, text with English translation,

6. Vaidyashree Basavaraj, Basavarajeeyam, Sri. Govardhana Sharma, editor 1st ed. Vatavyadhi Nidana Lakshana Chikitsa chapter, Nagpur, Gorakshana Yantralaya Publication; 1978p, 100-101.
7. Shastri kashinath, Chaturvedi Goraknath (editor), Charaka Samhita of Agnivesha, Chikitsasthana chapter 28, verse no. 59. Reprint edition, Varanasi, Chaukhamba Bharti Academy, 2006, pp 78
8. <https://www.bing.com/ck/a?!&p=7104f5b3374ac8e05349571deb59046c248c1e9b9917bd6f0f2555cba5b8ce0aJmldHM9MTc2NjUzNDQwMA&ptn=3&ver=2&hsh=4&fclid=1b908bee-0b35-6b3a-2913-9f9be0a986aeb&psq=cardiovascular+history+and+risk+of+idiopathic+parkinsons+diseases+a+cross+sectional+observational+study&u=a1aHR0cHM6Ly9wdWJtZWQubmNiaS5ubG0ubmloLmdvdi8zODk3Nzk3MS8>
9. <https://www.bing.com/ck/a?!&p=da8ce7647b34278e1f3b1250bbbc65941a54522ccd38e1ad2035ae691a4e903cJmldHM9MTc2NjUzNDQwMA&ptn=3&ver=2&hsh=4&fclid=1b908bee-0b35-6b3a-2913-9f9be0a986aeb&psq=the+genetics+of+parkinsons+disease+and+implications+for+clinical+practice&u=a1aHR0cHM6Ly9wdWJtZWQubmNiaS5ubG0ubmloLmdvdi9hcnRyY2xlcY9QTUM4MzA0MDgyLw>
10. <https://www.bing.com/ck/a?!&p=997de83be0c2696c3b826a917942472c2c7cac31489c4f548c72fb6d4e84a56fJmldHM9MTc2NjUzNDQwMA&ptn=3&ver=2&hsh=4&fclid=1b908bee-0b35-6b3a-2913-9f9be0a986aeb&psq=proximity+to+golf+courses+and+risk+of+parkinsons+disease&u=a1aHR0cHM6Ly9wdWJtZWQubmNiaS5ubG0ubmloLmdvdi80MDMzODU0OS8>
11. <https://www.bing.com/ck/a?!&p=72c946e2387ab303bc9ebff5fbd658e5511517a569dc28008fce2979907c0d44JmldHM9MTc2NjUzNDQwMA&ptn=3&ver=2&hsh=4&fclid=1b908bee-0b35-6b3a-2913-9f9be0a986aeb&psq=the+gut+brain+axis+and+its+relation+to+parkinsons+disease+a+review&u=a1aHR>

- 0cHM6Ly9wdWJtZWQubmNiaS5ubG0ubmloLmdvdi8zNTA2OTE3OC8
12. <https://www.bing.com/ck/a?!&&p=ebd2b53cc513da4cda3863ed30c07e0b244bd2dfeafd5313ef3c799ddb75ac84JmldHM9MTc2NjUzNDQwMA&ptn=3&ver=2&hsh=4&fclid=1b908bee-0b35-6b3a-2913-9fbe0a986aeb&psq=traumatic+brain+injury+and+the+development+of+parkinsonism+understanding+pathophysiology%2c+animal+models%2c+and+therapeutic+targets&u=a1aHR0cHM6Ly93d3cuc2NpZW5jZWRpcemVjdC5jb20vc2NpZW5jZS9henRpY2x1L3BpaS9TMDc1MzMzMjIyMjAwMjAwMQ>
13. Agnivesha, Charaka, Chakrapanidutta, R K Sharma, Charaka samhitha-Ayurveda Deepika Chakrapani Commentary, A Text with English Translation and Critical Exposition, first edition, 1999, Chowkhamba Sanskrit series office, Varanasi-1, Chikitsa Sthana, Chapter 28, shloka no-19-20, pg no-24-25
14. Krishnamurthy M S, Basavarajeeyam, Text with English Translation, Notes and Appendices, Chakambha Orientalia, Varanasi, Reprint Edition 2019, Chapter 6, shloka 128, pg no- 149
15. Himasagara Chandra Murthy P; Madhava Nidanam of Shri Madhavakara, Sanskrit Text and Madhukosa Commentary with English Translation, Chaukhamba Sanskrit series office, Varanasi, third edition 2013, Purvarddha, Part 1, chapter- 22, shloka no-74, pg no- 260-261
16. Dash Vaidya Bhagwan, Sharma Ram Karan. Charaka Samhita Chikitsa Sthana, Chakrapanidatta's Ayurveda Dipika Commentary with English translation. Choukhamba Sanskrit Series Office, Varanasi; 1st edition -1999; chapter 28/15 19, pp – 617
17. Agnivesha, Charaka Samhita, Edited by Vaidya Harish Chander Koshwaah. Chakrapaani Dutta Ayurveda Deepika Hindi Commentary Ayushi. Reprint Edition Volume 2. Published by Choukhamba Oriental Varanasi 2012. Page No 768-769
18. Saxena Nirmal; Translation of Vangasena; Choukhamba Krishnadas Academy, varanasi, edition2004; volume 1; chapter Vatavyadhinidanam, shloka no 155, pp- 270
19. Agnivesha: Charaka samhitha, Acharya Jadavji Trikamji, Chaukhamba SanskritSansthan, Varanasi, 2004 pp.738; page number 621.
20. Sushrutha: Sushruth Samhita: Acharya Jadavji Trikamji, Chaukhamba Surbharti Prakashan, Varanasi, 2003 pp.824;page number 422.
21. Yogaratnakar: Laksmipati Sastri: Chaukhamba Sanskrit Sanshtan, Varanasi 1999, pp 573, page number 548.
22. Basavarajeeyam: Govardhan sharma; Chaukhamba Sanskrit sansthan; Varanasi. pp.423. page number 117.