

# **INTERNATIONAL JOURNAL OF AYURVEDA360**



**AYURVEDA  
360**

**PEER-REVIEWED  
BIMONTHLY JOURNAL**



**[www.ayurveda360.in/journal](http://www.ayurveda360.in/journal)**

**ISSN**

**PRINT:**

**3048-7382**

**ONLINE:**

**3048-7390**

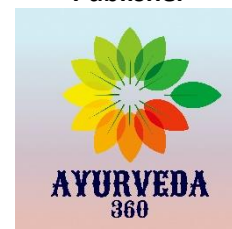
**2025**

**VOLUME 1**

**ISSUE 6**

**MAY-**

**JUNE**

DOI: [10.63247/3048-7390.vol.1.issue6.5](https://doi.org/10.63247/3048-7390.vol.1.issue6.5)**Therapeutic Insights into *Nadi Swedana*: Traditional Practice and Modern Perspectives**Mangal G.<sup>1</sup> Lamichhane S.<sup>2</sup> Garg G.<sup>3</sup> Narine A.<sup>4</sup> Adhikari P.<sup>5</sup>

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**ABSTRACT****Introduction:**

*Nadi Swedana*, commonly referred to as kettle sudation or pot sudation, is a traditional therapeutic practice of ancient Ayurvedic medicine. This procedure is designed to promote detoxification and healing through the application of steam to specific areas of the body. The practice is widely valued for its role in enhancing circulation and inducing sweating, contributing to overall detoxification and wellness.

**Method:**


The *Nadi Swedana* procedure involves a two-step process. First, oil (*Snehana*) is applied to the targeted body parts to prepare the skin and muscles for the treatment. Following this, steam generated from herbal decoctions is directed to the specific areas using a tubular structure (*Nadi*) attached to a kettle or pot. The steam application induces sweating and facilitates the absorption of therapeutic herbs into the skin.

**Results:** The application of steam through *Nadi Swedana* results in heat transfer to the targeted areas, leading to vasodilation. This increase in blood flow enhances the detoxification process, relieving muscle stiffness and promoting relaxation. The localized sweating induced by the steam helps in expelling toxins from the body, further contributing to its therapeutic effects.


**Discussion:**

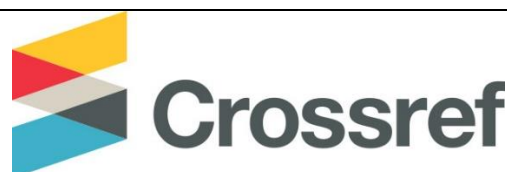
*Nadi Swedana*'s therapeutic efficacy lies in its ability to combine the benefits of steam therapy with herbal medicine. The heat transfer and vasodilation effects improve circulation and aid in the removal of toxins, which are key to the detoxification process. This practice not only aligns with Ayurvedic principles but also offers a natural, non-invasive method to support the body's healing mechanisms. Further studies could explore the long-term benefits and potential applications in modern integrative medicine.

**Keywords:** *Ayurveda*, Kettle sudation, *Nadi Swedana*, *Panchkarma*, *Sagni sweda*, *Snehana*, *Swedana*, sudation using pipe like instrument/SAT-II12) , *Ushma sweda*

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Manuscript Received	Review Round 1	Review Round 2	Review Round 3	Final Updated Received
06/04/2025	16/04/2025	23/04/2025	31/05/2025	10/06/2025
Accepted	Conflict of Interest	Funding	Ethical Approval	Plagiarism Checker
11/06/2025	NIL	NIL	Consent Received	10%

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International Journal of Ayurveda360 2025; 1(6)

This journal is published under the tradename Ayurveda360, registered under UDYAM-KR-27-0044910.

## Introduction

*Nadi Swedana* (sudation using a pipe-like instrument [SAT-I112]) is a specialized, widely practiced, and effective method of *Swedana Karma* (sudation therapy) as described in Ayurvedic texts. Various *Āchāryas* have elaborated on different types of *Swedana Karma*, with *Āchārya Charaka* categorizing it into two primary forms: *Sāgni Sweda* (thermal) and *Niragni Sweda* (non-thermal) in *Sūtrasthāna* 14th chapter [1]. *Sāgni Sweda* is further divided into thirteen subtypes, while *Niragni Sweda* encompasses ten subtypes [2]. Here, ‘*Sweda*’ and ‘*Swedana*’ are used interchangeably.

It is tabulated as [3]:

Table no 1 : Types of *Sweda*

S N	<b><i>Sagniswed a</i></b>	<b><i>Niragnisweda</i></b>
1	<i>Sankara</i> (mixed)	<i>Vyayama</i> (exercise)
2	<i>Prastara</i> (hotbed)	<i>Ushnasadana</i> (warm rooms)
3	<i>Nadi</i> (steam kettle)	<i>Guru pravahana</i> (heavy blankets)
4	<i>Parisheka</i> (af fusion)	<i>Kshudha</i> (hunger)
5	<i>Avagaha</i> (sh ower)	<i>Bahupana</i> (excessive drinking)
6	<i>Jentaka</i> (sudatorium)	<i>Bhaya</i> (fear)
7	<i>Asmaghana</i> (stone bed)	<i>Krodha</i> (anger)

8	<i>Karshu</i> (trench)	<i>Upanaha</i> (poultice)
9	<i>Kuti</i> (cabin)	<i>Ahava</i> (war)
10	<i>Bhu</i> (ground bed)	<i>Atapa</i> (sunbath)
11	<i>Kumbha</i> (pitcher bed)	
12	<i>Kupa</i> (pit sudation)	
13	<i>Holaka</i> (under the bed)	

*Acharya Sushruta* divided *Swedana Karma* into four basic categories as in 32<sup>nd</sup> chapter of *Chikitsasthana* :

1. *Tapasweda* (direct warmth)
2. *Ushmasweda* (steam)
3. *Upanahasweda* (poultice)
4. *Dravasweda* (warm liquid)

*Nadi Swedana* is the most frequently utilized method of *Swedana Karma*. Therefore, a comprehensive understanding of the procedure, as outlined in various Ayurvedic classics, is essential. This article aims to explore the theoretical foundation, practical applications, and significance of *Nadi Swedana*, while also highlighting the latest modifications implemented in daily practice.

## Materials and methods

A comprehensive search was conducted using the terms ‘*Nadi Swedana*’, ‘Pipe Sudation’ in PubMed and Google Scholar database from 2024/10/15

to 2025/5/7. Studies were screened based on relevance, clinical significance and methodological rigor. Additionally, various classical texts, including *Charaka Samhita*, *Sushruta Samhita*, *Astanga Samgraha*, *Kashyapa Samhita*, *Bhela Samhita*, *Sharangdhara Samhita*, and *Bhavaprakash Nighantu*, were thoroughly studied.

## Nadi Swedana in Different Classics

### 1.1 Nadi Swedana in Charaka Samhita

Āchārya Charaka has explained *Nadi Swedana* as follows:

*Nadisweda Dravya* (Charaka *Sutrasthāna* 14/29–33) [4]

- **Vātaja Vikāra:** In *Nadi Swedana*, a wise physician should make use of the flesh of domestic, wet-landed and aquatic animals, milk, the head of a goat, the trunk, bile and blood of a hog, unctuous articles, sesame, and rice in the right manner considering the season, after they are well decocted.
- **Kaphaja Vikāra:** The kettle sudation should be carried out by decocting *Varuṇa* (*Crateva nurvala*), *Guḍūcī* (*Tinospora cordifolia*), *Eraṇḍa* (*Ricinus communis*), *Śigru* (*Moringa oleifera*), *Mūlaka* (*Raphanus sativus*), *Sarṣapa* (*Brassica napus*), leaves of *Vāsaka* (*Justicia adhatoda*), *Tuga* (*Bambusa*

*bambos*), *Karañja* (*Pongamia pinnata*), leaves of *Arka* (*Calotropis gigantea*), *Pippala* (*Ficus religiosa*), *Śobhanjana* (a variety of *Śigru*), *Sahacara* (*Barleria prionitis*), *Jātipuṣpaka* (*Jasminum sambac*), *Tulasi* (*Ocimum sanctum*), *Rāmatulasi* (*Ocimum gratissimum*) in water.

- **Vāta-Kaphaja Vikāra:**

*Ajavāyana* (*Trachyspermum ammi*), *Pañcamūla*, whey, urine, sour gruel, and unctuous articles should be used in kettle sudation.

**Nadisweda Kalpana** (Charaka *Sutrasthāna* 14/43) [5]

Above mentioned articles indicated in sudation that are plant-based (the fruit, root, leaves, buds, etc.) or animal-based (the carved flesh and the head of the birds and beasts of hot potency) are mixed together with sour, salt and unctuous articles like urine, milk, etc. They are decocted in a pot after closing the lid tightly to prevent the steam from escaping. A tube of the shape of an elephant's trunk is made with the leaves of either bamboo or the leaves of *Karañja* or *Arka*. Its length should be one *Vyāma* (6 feet) or half *Vyāma* (3 feet), considering 72 inches to be the height of the patient [6].

At the proximal end, the circumference should be a fourth part of a *Vyāma* (22.86 cm), while at the distal end, eight parts of *Vyāma*, and the entire length

of the tube is bent twice or thrice and covered with leaves that alleviate *Vāta*. The patient who has undergone *Abhyanga* (oil massage) with *Vāta-hara* oils is then subjected to sudation from this apparatus. Because of the bends, the force of steam is minimized, protecting the skin from irritation and allowing for smooth sweating. This method of sudation is called steam kettle sudation.

### 1.2 *Nadi Swedana* in *Sushruta Samhita*

In a similar manner, the *Sushruta Samhitā* provides a description of *Nadi Swedana* under the section on Ushma Sweda (*Sushruta Chikitsāsthāna* 32/5–7) [7].

In steam sudation, besides red-hot lumps of earthenware, stone, brick, or iron being sprinkled with water or sour liquid, a small pot filled with meat juice, milk, curd, *Sneha* [there are four types of *Sneha* mentioned in Ayurveda—*Ghṛta* (ghee), *Taila* (oil), *Vāsa* (muscle fat), *Majjā* (bone marrow)], sour gruel, and a decoction of tender leaves of plants that alleviate *Vāta* is taken, and another pot is kept upside down, and their joint is sealed. A hole is made in the side of the upper vessel in which a tube resembling an elephant's trunk, measuring one *Vyāma* or half a *Vyāma*, curved at three points, made of matting grasses is inserted, and steam is passed through that for fomentation.

This sudation should be applied to the patient with *Vātika* disorders who is well massaged and covered with heavy clothes in a comfortable position. This is easy, spreads through the entire body, and doesn't produce any discomfort.

### 1.3 *Nadi Swedana* in *Ashtanga Sangraha*

The drugs are boiled in a vessel placed over fire, above which an inverted pot having a hole on the side (equal to that of its mouth) is attached, and the joint is sealed tightly (with red soil-mud) [8]. On the side hole of the upper pot, a hollow pipe is arranged, which can be made from the reed of *Sara*, hollow arrow, bamboo shoot, or from the leaves of *Karañja* or *Kiliñja*, resembling the trunk of an elephant with a length of one or one and a half *Vyāma*, and a circumference of one-fourth or one-eighth *Vyāma*, with openings on both ends and two or three bends. It is covered by the leaves of plants that alleviate *Vāta*. The leaves (covering the ends) should have holes (to let the steam come out).

The steam from this pipe is applied over the body part, after proper oil massage, in a comfortable sitting position. Since the steam is not rushing straight (due to the bends in the pipe), its speed and intensity are restricted, causing perspiration without burning the skin. This is called *Nadi Swedana*.



*Vyāma* is the length between the tips of fingers of both hands when stretched, standardized now to 6 feet.

#### **1.4 Nadi Swedana in Kashyapa Samhita**

*Vemsa*, *Muñja*, and *Nala* etc., should be used to give *Nadi Sweda* (pipe-sudation) in a wind-protected place and after covering the part with cloth, as per requirement and comfort [9].

#### **1.5 Nadi Swedana in Sharangadhara Samhita**

The method of *Nadi Swedana* involves using a pot with a hole near its neck. A metal tube or reed, about two *Hasta* in length and *Śatānguli* in width with a small opening, is attached to this hole [11]. *Vātahara* decoction or juice is placed in the pot, which is then covered with a lid and boiled until steam emerges from the tube. The person undergoing treatment receives an oil massage and is positioned comfortably on a cot with a thick blanket covering them. The steam from the pot is directed toward the patient from below the cot or seat until they perspire sufficiently, at which point the treatment is concluded [10].

#### **1.6 Nadi Swedana in Current Practice**

Devices like the All-in-One Panchakarma Table, Steam Bath Generator, Portable Steam Cabin, Steam Gun, and *Nadiswedana Yantra* represent modern adaptations of *Nadi Swedana* [11].

These tools feature specialized nozzles designed to prevent direct contact between steam droplets and the patient's skin, while safe-holding sponges are incorporated to protect therapists from heat or burns.

In current clinical practice, the All-in-One Panchakarma technique is the preferred choice for most practitioners due to its versatility. While other devices are also effective, they are often less favored due to their high cost, maintenance needs, and limited availability. Standard operating protocols for *Nadi Swedana* are also followed to ensure safety and effectiveness.

#### **Importance of Nadi Swedana**

*Nadi Swedana* has heat transfer effects on targeted areas. Heat application reduces pain, increases blood flow, enhances capillary permeability, improves nerve conduction, and increases collagen extensibility—all of which are the result of vasodilation induced by heat therapy [12]. These mechanisms collectively contribute to the alleviation of pain and stiffness.

When administered following oleation (*Snehana*), fomentation helps regulate *Vāta*, aiding in the elimination of *Purīṣa* (faeces), *Mūtra* (urine), and *Retasa* (semen). The analogy of bending dry pieces of wood through oleation and fomentation underscores the significant benefits of *Swedana* [13].

#### **1.9 Indications of Nadi Swedana [14][15][16]**

While looking into the indicated diseases for *Swedana* karma in *Brihat Trayee*, diseases fit for *Swedana* are – *Ardita*, *Pakshaghata*, *Sarvanga Vata*, *Ekanga Vata*, *Khalli*, *Vinamika*, *Vepathu*, *Supti* etc. *Gridhrasi*, *Manyasthambha*, *Parshva Graha*, *Pristha Graha*, *Kati Graha*, *Kukshi Graha*, *Pada-Janu-Uru-Jangha Graha/Ruk*, *Aaharita Sharia*, *Anupdrava Mooda Garbha*, *Asmari*, *Sheeta*, *Pratishyaya*, *Kasa*, *Hikka*, *Shwasa*, *Karna Shola*, *Gala Graha*, *Swara Bheda*, *Mutraghata*, *Mutrakrichra*, *Vridddhi*, *Kshvathu*, *Vatakantaka*, *Hanu Graha*, *Arsha*, *Bhagandara*. Heaviness of body, distention of abdomen, constipation, *Jrumbhaa*, *Amadosha*, patient fit for *Panchasodhana* as *Vamana*, *Virechana*, *Vasti*, *Nasya* and *Raktamokshan*. Mostly *Vataj* and *Vata Kaphaj Vyadhis* are indicated for *Swedana* except some exceptions as *Arsha*.

### 1.10 Contraindications of Nadi Swedana [17][18][19]

*Dagdha*, *Vishapeeta*, *Madyapeeta*, *Trishita*, *Nidranasha*, *Chhardi*, *Raktapitta*, *Hridaya Rogas*, *Pregnant*, *Atisara*, *Madhumeha*, *Pitta Prakriti*, *Ruksha* body, who consumes more *Kashaya Rasa*, *Vodagdhaguda*, *Bhrsthaaguda*, *Shranta*, *Nasta Sangna*, *Sthula*, *Pittameha*, *Kshudita*, *Kopi*, *Soka*, *Jaundice*, *Udara*, *Urakshata*, *Vatarakta*, *Durbala*, *Suskadeha*, *Ojaksheya*, *Timira*, *Pandu*, *Ajeerna*.

### 1.11 Mode of action of Nadi Swedana [3][14]

*Sthambhaghna*: *Swedana* relieves heaviness and stiffness (*stambhaghna*). *Sthamba* is caused when *Rukshaguna* of *Samana Vayu* absorbs *Snigdha* of *Sleshaka Kapha*. *Swedana* being *Snigdha* and *Ushna* (~hot) does *Srotosuddhi* and *Amapachana* relieving *Stambha*.

*Gauravagna*: When *Apyaghataka* of body comes out of the body during *Swedana*, it reduces *Guruta* of the body. It also stimulates the nerves and muscles so lightness is achieved.

*Sheetghna*: *Swedana* being *Ushna* (~hot) itself reduces the *Sheeta* property of body.

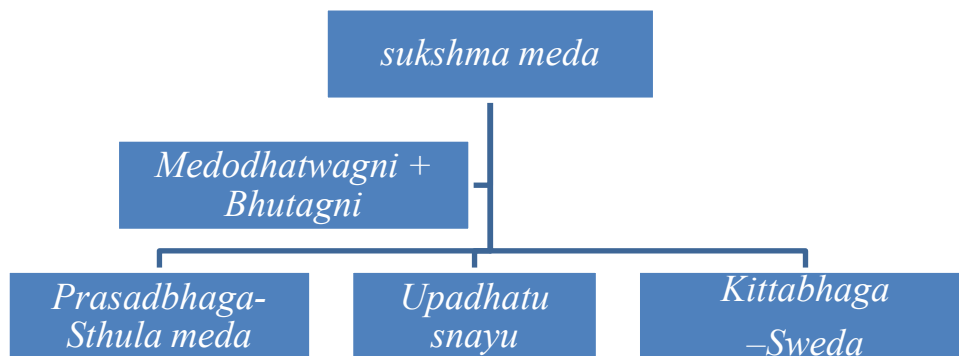
*Swedakarakta*: Rise in temperature is the primary stimulus for induction of perspiration. It is the natural response of body at regulating and cooling the body temperature [20]. *Sweda* (~Sweat) is a type of mala relating to *Dhatwagni* and *Bhutagni* (metabolism) which means it carries away the metabolic wastes. Due to *Ushna* and *Tikshna Guna* of *Swedana Dravya*, microcirculatory channels are penetrated and sweat glands are activated. Therefore, *Snighda Dosha* in the *Srotas* (paths) are directed towards the skin due to their *Sara Guna* and are excreted through micropores of skin in form of sweat thus promoting the *Swedana*.



## Discussion

In *Ayurveda*, *Swedana* occurs due to *Sukshma Medapaka*. (figure-1)

Figure -1



Modern physiology explains the mode of action of *Swedana* through the concept of vasodilation. In this context, the Heat Shock Response (HSR) offers a detailed mechanism for understanding *Swedana*'s effects.

Cellular stress induced by factors like heat, cold, radiation, starvation, alkalosis, acidosis, infection, inflammation, emotions, and hormonal imbalances can damage proteins within cells. In response to this stress, cells activate the Heat Shock Response. Initially observed in heat stress, it was later found that the response is more prominent with sudden temperature changes, which led to its nomenclature as the Heat Shock Response [21].

When heat stress is applied to cells, it causes the unfolding of cellular proteins. This unfolding triggers the activation of sigma factors, which regulate the production of heat shock proteins (HSPs). If the protein unfolding occurs inside the

cell, the sigma H factor is activated, whereas if it occurs outside the cell, the sigma E factor is triggered. HSPs help counter the protein unfolding in two ways:

- i. **Acting as chaperones:** HSPs assist in refolding unfolded or misfolded proteins, thereby preserving their functionality.

- ii. **Proteolysis:** To prevent abnormal protein function, severely unfolded proteins undergo proteolysis, a process facilitated by HSPs. Proteolysis is the breakdown of damaged or misfolded proteins into smaller peptides or amino acids, typically to prevent abnormal cellular functions. It is carried out by proteases and is crucial for maintaining cellular health, especially during stress conditions.

This process is crucial for maintaining cellular integrity and functionality under stress conditions, aligning with the Heat Shock Response triggered by *Swedana*.

Mild Heat shock exposure has effects as improvement and maintainance

of cell morphology, extended replicative life span, increasement in overall stress tolerance and improvement in angiogenesis by decreasing free radicals in body [22].

In Ayurveda, *Swedana* is believed to activate the body's natural detoxification pathways, a process that is parallel to the Heat Shock Response in modern physiology. This cellular response to heat stress triggers the production of Heat Shock Proteins (HSPs), which assist in protein repair and promote tissue healing.

### Conclusion

*Nadi Swedana*, an integral part of Ayurvedic *Swedana Karma*, has shown significant therapeutic effects, particularly in addressing conditions caused by imbalances in the *Vata* and *Kapha doshas*. By inducing sweating and promoting detoxification, it enhances circulation, reduces pain, and increases tissue flexibility. A central element of this therapy involves the application of concentrated steam derived from herbal infusions to specific areas of the body. This technique effectively induces sweating and aids the detoxification process, making it an essential therapeutic tool. It is particularly effective in addressing a wide range of health issues, especially those caused by

imbalances in the *Vata* and *Kapha Doshas*. The use of advanced technology to generate and direct steam throughout the treatment ensures a controlled, therapeutic delivery that maximizes benefits while minimizing discomfort. As a result, *Nadi Swedana* has become more accessible and valuable in modern therapeutic settings. This Ayurvedic treatment plays a crucial role in enhancing blood circulation, increasing tissue flexibility, and reducing pain. Further clinical research, including randomized controlled trials and observational studies, is needed to evaluate the efficacy and safety of *Nadi Swedana* in treating various health conditions. Such research will help integrate this ancient therapy with modern medical practices, unlocking its full potential. As an integral part of holistic health practices, *Nadi Swedana* aligns with modern integrative medicine, where ancient Ayurvedic therapies are used alongside conventional treatments to promote overall health and wellness. With continued research, *Nadi Swedana* can become an essential part of integrative healthcare, combining the wisdom of traditional Ayurveda with the advancements of modern medicine.

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