



Review Article

Volume 11 Issue 6

Nov-Dec 2022

AN OPEN PARALLEL COMPARATIVE STUDY OF SWEDANA KARMA AND PHYSIOTHERAPY IN SUDATION REHABILITATION

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ABSTRACT

A kind of Swedana called sudation treatment makes the body sweat, which lessens stiffness, heaviness, and coldness. Sudation treatment frequently results in excessive sweating as a side effect. Although sudation therapy is a treatment and a daily practice in Ayurveda, it is typically linked with a steam bath. Ushna and Tikshna Guna generated the swedana drugs, which may enter the Srotas and trigger the sweat glands to produce additional heat. Swedana Karma speeds up this process by enhancing capillary permeability, moving morbidities to extracellular fluid by dilating and clearing the body's channels, and boosting capillary permeability. By ensuring that the core temperature (the temperature within the body) and the shell temperature (the temperature outside the body) are in harmony, swedana karma controls the body's temperature. Numerous Swedana Karma (sudation treatment) procedures described in our classics are comparable to various forms of physical therapy. Increasing sweat production is done via a procedure called swedana (sudation therapy). With regard to the Swedana (Sudation) techniques outlined in the Ayurvedic Classics, the aim of this research is to get a fundamental grasp of physiotherapy, including its forms, indications, contraindications, and effects.

KEYWORDS- Swedana karma, Sudation therapy, Physiotherapy etc.

INTRODUCTION

Sweating therapy (Swedana) is typically used. Stambha, Gaurava, and Sheeta are relieved throughout the process of swedana, which also results in swedana (Sweating). In both Pradhan akarma and Poorvakarma, it fulfills two functions. Swedana has soothing and purifying qualities. The Acharyas categorize Sweda into several categories. According to Charaka, the two main types are Sagnisweda (thermal) and Niragnisweda. (This product is not thermal.) The ten manifestations of Niragnisweda are Vyayama (exercise), Ushnasadana (warm rooms), Guru Pravarana (thick blankets), Kshudha (hunger), Bahupana (excessive drinking), Bhaya (fear), Krodha (anger), Upanaha (plasters), Ahava (war), and Atapa (war) (sunbath). There are 13 different types of Sagniswe, including Sankara (mixed), Prastara (hotbed), Nadi (steam kettle), Parisheka (affusion), Avagaha (bath), Jentaka (sudatorium), Asmaghana (stone bed), Karshu (trench), Kuti (cabin), Bhu (ground bed), Kumbhi (pitcher bed), Kupa (pit sudation), and Holaka (pit sudation) (under the bed). Acharya Sushruta categorizes swedana into four different types: tapa sweda (direct heat), ushmasweda (steam), upanahasweda (poultice), and dravasweda (warm liquid).¹

The indelible foundations of Ayurveda passed down by the great sages of old are still true because of their scientific foundation; such foundations must be subjected to scientific inquiry not only to establish its standard but also to add something new to existing knowledge. Therefore, research must start to ascertain how the ideas may be interpreted in light of existing medical knowledge and diagnostic techniques. The best holistic disease-healing methods are currently in high demand across the world. Only Ayurvedic science fully satisfies this need that we can find. Ayurveda has a thriving market for treating illnesses using Shodhana and Shamana. Samshodhana is a unique measure applied in Panchakarma therapy.²

This unique Ayurvedic therapy solidifies Ayurveda's position as a powerful system of medicine. The process of shodhana is used to cleanse the body of vitiated doshas. Vamana, Virechana, Basti, Nasya, and Raktamokshanathe second-most important Purva karma after Snehana is swedana. Along with being the main Purva karma technique, swedana is a

specialist treatment for a variety of vataPradhana and vatakapaha illnesses. The shad Upkramas of Acharya Charaka include swedana karma.³

The act of making someone sweat by applying heat is known as swedana karma. Sweda, often known as sweat, is one of the three trimalas in Ayurveda. Eccrine glands create sweda, which ushma, or heat, then disperses throughout the skin. Sweat has the same components as blood but in lesser levels since it is less viscous than blood. Swedana is a method that generates heat or causes sweating to relieve stiffness, heaviness, and cold.⁴

PHYSIOTHERAPY MODALITIES IN SWEDANA KARMA

The process of utilizing different strategies to lessen some of an illness's or its treatment's negative effects on a person is known as rehabilitation. Regardless of the disease's prognosis, it is always feasible to improve a patient's quality of life by helping them realize their full functional potential and independence or by giving them relief from the disease's bothersome symptoms⁵

Therapeutic Heat- The practice of administering a certain kind of heat or temperature for a predetermined period of time is known as heat treatment, sometimes referred to as thermotherapy. It generally enhances blood flow, relieves stiffness, pain, and edema, and improves soft tissue extensibility. It also expands range of motion and functions. Some examples of heat transfer techniques are as follows⁶

Conduction-physical contact causes an energy transfer between two items.

Convection-Fluid mobility causes the energy to flow from an object to its surrounds.

Radiation- When energy from the motion of charged particles within atoms is transmitted, electromagnetic radiation is produced.

Shortwave diathermy

Shortwave electromagnetic radiation has a frequency range between 2 and 100 MHz. The administration of electromagnetic radiation with shortwave wavelengths to the body is known as shortwave therapy. At this frequency, all applied electromagnetic energy or radiation is converted to heat energy. It may be used in two different ways: as pulsed energy

waves or as continuous energy waves. The Shortwave Diathermy apparatus' outputs are connected to pads or discs. They are placed over the relevant body part for treatment. Depending on choice, discs or pads can be utilized⁷

Microwave diathermy

Microwave diathermy is the process of heating up the body by using microwaves with frequencies between 300 MHz and 300 GHz. These waves have frequencies between those of radio and infrared. It may be used to evenly warm deep tissues without burning the skin. Shortwave diathermy has a lower frequency than microwave diathermy. Radiation is used in microwave diathermy to transport heat throughout the body.⁸

Physiotherapy	SwedanaKarma
Electrotherapy: (Radiation Method of heat application) <ul style="list-style-type: none"> • Infrared radiation. • Short wave diathermy. • Microwave diathermy. 	<ul style="list-style-type: none"> • <i>Tapa Sweda</i> (Sudation procedure through dry Heat) • <i>Ushma Sweda</i> (Sudation Procedure through Steam) (Radiation and Conduction Method of heat application)
Hydrotherapy (Convection Method of heat application)	<i>Drava Sweda</i> (Sudation Procedure by hot liquid) <i>Parisheka Sweda</i> (Sudation Procedure by Sprinkling hot liquid medicaments). (Convection Method of heat application)
Heat therapy: {Conduction Method of heat application} <ul style="list-style-type: none"> • Heat Pad. • Hot moist packs. • Paraffin wax. 	<i>Upanaha Sweda</i> (Sudation Procedure by tie over the body part with or without heating medicine) <ul style="list-style-type: none"> • <i>Pichu Bandhana</i> (Bandaging with the hot paste of medicines) • <i>Ushna Lepana</i> (Pasting with hot paste of medicines) • <i>Patra Pinda Sweda</i> (Herbal Rejuvenation of Back & Spine with bolus) {Conduction Method of heat application}

[Ref-parappagoudra m, sahalalravi, imlikumba, v sreekant, physiotherapy in comparison to vyayama and swedana karma: a review, parappagoudra m et al / int. j. res. ayurveda pharm. 11 (4), 2020]

Infrared radiation treatment

During infrared radiation treatment, a kind of electrotherapy, a therapeutic infrared lamp is illuminated by an electric current. It operates on a different concept from other electrotherapies including short-wave diathermy and ultrasonic therapy. A kind of electromagnetic energy, infrared radiation (IR) has wavelengths between 780 and 1000 meters. There are several bands in the infrared spectrum (IR)⁹

METHODOLOGY

The material of Swedana therapy and physiotherapy collected from Vivek college of Ayurvedic Sciences & Hospital, Bijnor.

Divisions of Swedana Karma

Swedana is categorized by Acharya Charaka as either Saagni or Niragni based on the method used to apply heat. Among the saagni are Sankara, Prastara, Nadi, Pariseka, Avagaha, Ashmaghana, Jentaka, Karshu, Kuti, Bhu, Kumbi, Kupa, and Holak.¹⁰

Niragni contains the following: Vyaayama, ushnasweda, gurupravarana, kshudha, bahupana, krodha, upanaha, ahata, and atapa. The following groupings can be used to further categorize these sagni and niragnisweda. Sarvanga, according to Sthana, denotes the complete body, whereas ekanga, denotes the injured part. Similar to how snigdha is done with snigdha (unctuous) materials following bahyasnehana, rukshana is conducted with ruksha materials. The three levels of intensity are Mahan, Madhyam, and Durbala. Sushruta categorizes swedana into four groups: tapa, ushma, upanaha, and drava.¹¹

The numerous sweda types have been divided into these four groups by Sushruta. As dalhana noted, all of Charaka'ssagnisweda variations may be divided into Susruta's four categories. Among the tapa sweda kinds are jenthaka, karshu, kuti, kupa, and holaka. Consisting of ushmasweda. Sankara words include prasthara, ashmaghana, nadi, kumbhi, and bhu. The Drava sweda includes Pariseka and Avagaha. A variation called Niragniswedauses a number of strategies to include the effects of swedana without the use of active or passive heating. It is mostly non-thermal and recovers physiology by using or storing body heat.¹²

Indications include obstructive Vata pathology with medas or kapha. The indication might be taken to mean mild or self-limiting situations for which heating is neither necessary nor advised. Niragni is composed of NivataSadana, Atapa Swedana, Gurupravarana, Niyudha, Adhva, Vyayama, BharaHarana, and Amarsha.¹³

CATEGORIES OF SWEDA AND SUGGESTIONS

Type of Sweda

Taapa - Kapha Roga

Ushma- Kapha Roga

Drava -PittanubandhiVata Roga

Upanaha- Vata Roga

Niragni -Kapha Medavrutavata Roga

Two varieties of sweda are samshaniyasweda and samshodhanangabhuthasweda, according to Dalhana. Drava and ushmasweda are further developed into ushmasweda eight and dravasweda two in Ashtanga sangraha, respectively. Ashtanga hridaya explains the sagnisweda, which comprises of tapa, upanaha, ushma, and drava. "Nivatagruha," "ayasa," "gurupravarana," "bhaya," "upanaha," "ahata," "krodha," "bhuripana," "kshudha," "atapa," "krodha," "bhuripana," "kshudha," atapa," krodha," bhuripana,"¹⁴

Sagnisweda is categorized as one of four varieties of niragnisweda, and Sharangdhara claims that it is identical to Sushruta. Eight distinct forms of swedahasta, pradeha, nadi, prastara, sankara, upanaha, avagaha, and pariseka were described by Kashyapa. Tapa and ushmasweda, dravaswedam for pittaja diseases, and upanahasweda for vataja illnesses. Illnesses with kapha dominance Sweda Sneha Rukshapoorva The pakwashayagatakaphasnehapoorvarukshasweda makes mention of it. According to Vyhi and Vyadhita Bala Durbala in madhyamavyadhi and madhyamavyadhita bala, Durbala (mridu) Durbalavyadhi and Alpavyadhita bala, Durbala (mridu) Durbalavyadhiand Alpavyadhita bala, Durbala. Hasta sweda is advised for newborns to four-month-old babies, depending on their age, as shown by Ritu in ushnakaladurbala (mridu) sweda and shitakala Mahan Sweda.¹⁵

Sweda intensity is divided into vrushana, hridaya, chakshumridu, vankshanamadyama, and mahan categories according on the affected body portion. Tapa sweda: According to Tapanamtaapah, tapa denotes heating, i.e., the direct application of heat to the body by heated materials. Holakasweda of Charaka sweda kinds is included in tapa sweda as a medium because it has dry heat, superficial action, and pacifying properties. The method of heat transmission through conduction. Salt has a specific heat value of 0.9, brick has a specific heat value of 1.31, and sand has a specific heat value of 0.15 to 0.25. Ama pradhanasothavalukasweda is used to treat cervical spondylitis, stiff neck, frozen shoulder, and calcaneal spur.¹⁶

Short wave diathermy, hot water bottles, infrared heating pads, and other similar heat conduction techniques are now available. One of the most neglected heat sources in use today is infrared radiation. With an effective electromagnetic energy penetration depth of 1 or 15 mm, it is delivered via luminous or non-illuminated sources, leading to a warmth that is only briefly felt. Electric heating pads are designed to sustain the temperature provided by a heating source and are commercially available in a range of sizes. Conduction causes the tissues to heat up, making the effect only superficial and pleasant.¹⁷

Hot packs, often referred to as hydro collator packs, are heated to therapeutic temperature by submerging them in hot (700 c) water. Towel-wrapped before packing. When applied to the patient's skin, it produces a brief sensation of warmth. When performed to a depth of at least 2-3 cm over a period of 15-20 minutes, it is therapeutically beneficial and causes an increase in tissue temperature.¹⁸

UpanahaSweda:

Upanaha is the process of applying a hot paste made from the roots of vata-mitigating drugs that have been macerated with salt, lipids, and a sour liquid. It is similar to swedana in that it is tied to the body. Materials for bandaging (silk, wool, leather, leaves) should be supple but able to hold heat (vataghna characteristic). Warm liquid of the saagni, niragni, saagni type is used as the medium of action for soft, moist types. The body's thermal reserves serve as a stimulant for retention therapy in Niragni, which has a deep and exhilarating effect. Niragni is

performed utilizing a non-heated medium. Heat is transferred by conduction in a number of illnesses, including headache, arthritis, bursitis, edema, frozen shoulder, plantar fasciitis, varicose veins, tennis elbow, and vatakantaka¹⁹

Physiotherapy Modalities

Short-wave diathermic current has a frequency between 107 and 108 Hz. provides a deep form of heat that can pass through the tissue with currents of a much higher intensity than can be used with low frequency currents. It does this by setting up radio waves with wave lengths of 30-3m and 27120000Hz, as well as 11m. These currents are generated in a machine circuit and then coupled to a patient (resonator) circuit, which is used to treat the patient. The term "diathermy" means "through heating" since the current's intensity can be strong enough to directly heat the tissues.²⁰

Poultices, catapasm, and paraffin baths are just a few of the heat wrap therapies being used in physiotherapy. Paraffin wax baths are available in a range of shapes and sizes. A thermostatic control is necessary because the melted wax must be maintained at a temperature of 400–440°C for treatment reasons. Before treatment, check the temperature. Wrapping an area with a layer of plastic sheet or towel is the most practical approach to impart transmitted heat to the extremities. Wax releases its latent heat energy when it cools from its molten state, which is then transmitted into tissues. Wax has a limited thermal conductivity, which causes it to release heat slowly. For 20 minutes, it elevates the temperature of the skin and, to a lesser extent that of the other surface tissues. Modest warmth has a soothing effect on sensory nerve terminals, and the action of a vasodilator produced by sweat gland activity may trigger neurogenic vasodilation. Skin should be clean and dry before mobilization and stretching procedures.²¹

Ushma Sweda: Vataghna and bhaspa steam, also known as ushmabahpah. With sankara, prastara, asmaghna, nadi, kumbhi, and bhuswedas of charaka present, the medium moist heat activity in ushmasweda is exceedingly profound and intriguing. Sciatica, hemiplegia, paraplegia, arthralgia, kyphoscoliosis, muscular contractures, rheumatoid arthritis, osteoarthritis, post-fracture stiffness, and rejuvenation therapy are among conditions that

are treated with bhspasweda. Ksheerabhashpasweda is present in Ardita, Jihvastambha, Hanustambha, and Swarabhanga. There are many different methods to take a steam bath. Usually, a pot of water is heated to a boil, and the patient is covered with a heavy blanket. When the patient has a significant amount of sweat, the steam of the boiling water is then permitted to penetrate the coversheet covering their body. The body is thoroughly cleaned in a steam bath in 5 to 15 minutes.²²

Drava Sweda: Pitta samsrishta, a liquid that is less conducive to swedan or nonspecific for swedan, is applied to the body as hot liquids are poured over it, the affected part is submerged in a tub of hot liquids, or the entire body is submerged. The retention therapy for pitta-vata conditions uses avagaha. The indications for this herb include arshas, bagandhara, and neurological difficulties of the hip and lower limbs, lumbosacral pain, urogenital concerns such renal calculi, and urinary retention.²³

Pariseka: During the procedure, it is used in pitta-kapha circumstances and is suitable for the treatment of sciatica, hemiplegia, paraplegia, arthralgia, kyphoscoliosis, muscular contractures, rheumatoid arthritis, osteoarthritis, post-fracture stiffness of joints, and rejuvenation.²⁴

Type	Definition	Indication	Modality	Action
Tapa	Dry heat	Kapha	Thermal	Superficial and pacifying
Ushma	Moist heat	Kaphavata	Steam/vapour	Deep and exciting
Drava	Fluid heat	Pittanubandha	Baths	Superficial and deep
Upanaha	Latent heat	Vata	Poultice	Deep and exciting

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DISCUSSION

Swedana lowers sthambha stiffness, which is brought on by the vyanavayusleshmakakapha, amarasa, mamsa, meda, and vasa. Swedana ushna, tikshna, Sara, snigdha, rukshna, sukshma, drava, sthira, and guru ushna Swedana decreases stambha since it is snigdha and ushna. The srotoshuddhi and Amapachana performed by Swedana'sushna guns ease stiffness.²⁵

Swedana: Swedana causes the body's watery material to be expelled, which eliminates heaviness; kleda is the guru; lightness is achieved by removing kleda; swedana stimulates the muscles and nerves, which brings about lightness.²⁶

Sweda karaka: Swedana promotes sweating, Sweda is a type of mala, and Sweda aids in the removal of toxins from the body. Systemic/general effects include elevated body temperature, increased cutaneous blood flow and volume, elevated respiration rate, elevated pulse, reduced renal blood volume, elevated splanchnic blood flow, elevated central venous pressure, up central blood volume, and elevated blood pressure. Hyperemia, a rise in metabolic rate and blood flow, as well as better fluid dynamics and pain relief, are all local consequences of heat. Enhance tissue suppleness to lessen muscle spasms.²⁷

CONCLUSION

Ayurveda suggests a range of heating methods and media for a number of clinical circumstances since it is a system built on permutations and combinations of characteristics. Based on traits, we may identify a Swedana gradient that ranges from Ruksha to Snigdha (lubricating), as well as its many manifestations and combinations with other characteristics. Ayurveda employs heat with specific qualities and intensities for each illness, whereas other approaches only use heat in a variety of intensities. Despite the fact that it is merely heating, it enhances the quality of the heating, adds health to the heating, or both. Because of its understanding of differentiation, Ayurveda sets itself apart from other systems. The numerous techniques used in physiotherapy are quite similar to Ayurvedic treatments like Vyayama (Bodily Exercise) and Swedana Karma (Sudation Therapy). Although it cannot be viewed as a whole course of treatment, physical therapy is one of the parts of therapeutic

procedures in many clinical disorders. Therefore, for the benefit of patients of both systems, doctors should advise physiotherapy therapies in addition to the main medical system.

Conflict of Interest – Nil

Source of Support – None

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