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## A COMPARATIVE STUDY OF SWEDANA KARMA W.S.R. TO PHYSIOTHERAPY MODALITIES OF SUDATION THERAPY

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### ABSTRACT

Sudation therapy is a type of Swedana that causes the body to sweat, which reduces stiffness, heaviness, and coldness. Excessive perspiration is a common side effect of sudation therapy. Sudation therapy is generally associated with a steam bath, although it is a treatment and a daily practice in Ayurveda. Swedana medications created by Ushna and Tikshna guna can enter the microcirculatory channels (Srotas) and activate sweat glands to produce more heat. Swedana Karma hastens this process by increasing capillary permeability and transferring morbidities to extracellular fluid through dilation and cleansing of the body's channels. Swedana karma regulates the body's temperature by ensuring that the core temperature (the temperature within the body) and the shell temperature (the temperature outside the body) are in balance (skin temp).

Physiotherapy modes can be associated with many modalities of Swedana Karma (sudation treatment) recounted in our classics. Swedana (Sudation Therapy) is a technique for increasing sweat production. The goal of this study is to get a fundamental understanding of physiotherapy, including its forms, indications, contraindications, and actions in relation to the Swedana (Sudation) procedures described in the Ayurvedic Classics.

**Keywords-** Sudation therapy, Physiotherapy, Sweating, Swedana karma etc.

## INTRODUCTION

Sweating treatment (Swedana) is generally administered. Swedana is a process that relieves Stambha, Gaurava, and Sheeta and causes Swedana to occur (Sweating).<sup>1</sup> It serves a dual purpose in Poorvakarma and Pradhan akarma. Swedana has calming and cleansing properties. Sweda is divided into many types by the Acharyas. Sagnisweda (thermal) and Niragnisweda are the two primary varieties, according to Charaka. (This is a non-thermal product). 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) are the 10 forms of Niragnisweda (sunbath).<sup>2</sup> 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) are the 13 varieties of Sagniswe (under the bed).<sup>3</sup> Swedana is divided into four categories by Acharya Sushruta: Tapa sweda (direct heat), Ushmasweda (steam), Upanah Asweda (poultice), and Dravasweda (warm liquid).<sup>4</sup>

Because of their scientific base, the imperishable basics of Ayurveda given

down by the great sages of old are still valid; such fundamentals must be exposed to scientific investigation not only to establish their standard but also to offer something new to current knowledge. As a result, study must begin to determine how the notions may be explained in light of current medical understanding and diagnostic procedures. The entire globe is now seeking for the greatest illness healing solutions that follow a holistic approach. We can only locate Ayurvedic science that entirely meets this condition. Ayurveda offers a vibrant sector for Shodhana and Shamana therapy of ailments. Samshodhana is a one-of-a-kind metric used in Panchakarma treatment. This is a one-of-a-kind Ayurvedic therapy that establishes Ayurveda as a stronghold.

Shodhana is the method for removing the vitiated doshas from the body. Raktamokshana, Vamana, Virechana, Basti, Nasya Swedana karma is the second most essential Purva karma after Snehana. Swedana is a specialized therapy for a number of problems of vata Pradhana and vata kapha ailments, in addition to being the primary Purva karma method. Swedana karma is contained in the shad Upkrama's by Acharya Charaka.<sup>5</sup>

Swedana karma is the act of inducing sweating by the use of heat. Sweat is

referred to as Sweda, and it is one of the trimalas in Ayurveda. Sweda is produced by eccrine glands and is distributed throughout the skin as a result of Ushma, or heat. Sweat is less viscous than blood and includes the same elements as blood, but in smaller amounts. Swedana is a technique that reduces stiffness, heaviness, and cold by inducing sweating or generating heat.

### **PHYSIOTHERAPY MODALITIES IN SWEDANA KARMA**

Rehabilitation is the process of using various approaches to reduce some of the negative effects of an illness or its treatment on an individual. It is always possible to enhance a diseased person's quality of life, regardless of the disease's prognosis, by assisting patients in reaching their full functional capacity and independence, or by providing respite from the disease's uncomfortable symptoms<sup>6</sup>.

**Therapeutic Heat-** Heat treatment, also known as thermotherapy, is the technique of applying a certain type of heat or temperature for a set amount of time. It primarily improves soft tissue extensibility, increases range of motion and functions, decreases stiffness, discomfort, and edema, and improves blood circulation. The following are some examples of heat transmission methods:<sup>7</sup>

**Conduction-** The exchange of energy between two objects in physical touch.

**Convection-** The transfer of energy between an item and its surroundings happens due to fluid motion.

**Radiation-** Electromagnetic radiation is created when energy is transferred from the movement of charged particles within atoms.

The following are some heat sources: Shortwave diathermy, Microwave diathermy, Paraffin wax, Infrared radiation, <sup>8</sup>Heat pad, Hot moist packs, Shortwave diathermy, etc.

### **Shortwave diathermy**

Electromagnetic radiation with a frequency range of 2 to 100 MHz is referred to as shortwave. Shortwave treatment is the application of shortwave wavelengths of electromagnetic radiation to the body. All applied electromagnetic energy or radiation is transformed to heat energy at this frequency. It is possible to use it in two ways: pulsed energy waves and continuous energy waves.<sup>9</sup> The outputs of the Shortwave Diathermy equipment are linked to pads or discs. For therapy, they are put over the appropriate body portion. Discs or pads can be used according on personal preference.

### **Microwave diathermy**

Microwave Diathermy is the use of microwaves with frequencies ranging from 300 MHz to 300 GHz to create heat in the body. These waves are in the range of radio

and infrared frequencies. It may be used to warm deep tissues uniformly without overheating the skin. The frequency of microwave diathermy is greater than that of

shortwave diathermy. Microwave Diathermy uses the Radiation technique to transfer heat in the body.<sup>10</sup>

<b>Electrotherapy:</b> (Radiation Method of heat application) 1. Infrared radiation. 2. Shortwave diathermy. 3. Microwave diathermy.	1. <i>Tapa Sweda</i> (Sudation procedure through dry Heat) 2. <i>Ushma Sweda</i> (Sudation Procedure through Steam)  (Radiation and Conduction Method of heat application)
<b>Hydrotherapy</b> (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)
<b>Heat therapy:</b> {Conduction Method of heat application} 1. Heat Pad. 2. Hot moist packs. 3. Paraffin wax.	<i>Upanaha Sweda</i> (Sudation Procedure by tie over the body part with or without heating medicine) 1. <i>Pichu Bandhana</i> (Bandaging with the hot paste of medicines) 2. <i>Ushna Lepana</i> (Pasting with hot paste of medicines) 3. <i>Patra Pinda Sweda</i> (Herbal Rejuvenation of Back & Spine with bolus) {Conduction Method of heat application}

[Ref- parappagoudra m, sahu lalravi, 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

Infrared radiation therapy is a sort of electrotherapy in which an electric current is utilized to light a therapeutic Infrared Lamp for treatment. However, it operates on a different concept than other electrotherapies such as short-wave diathermy and ultrasonic therapy.<sup>11</sup> IR (infrared radiation) is a form of electromagnetic radiation with wavelengths ranging from 780 to 1000 meters. The spectrum of infrared rays (IR) is separated into several bands:

### METHODOLOGY

The material of Swedana therapy and physiotherapy collected from Parul institute of Ayurveda central Library, Limda, Vadodara.

### Divisions of Swedana Karma

According to Acharya Charaka, Swedana is classed as Saagni or Niragni depending on the technique of heat application. Sankara, prastara, nadi, pariseka, avagaha, ashmaghana, jentaka, karshu, kuti, bhu, kumbi, kupa, holak<sup>2</sup> are among the saagni. Vyaayama, ushnasweda, gurupravarana, kshudha, bahupana, krodha, upanaha, ahata, and atapa<sup>3</sup> are all included in Niragni. These saagni and niragni sweda can be further classified into the following groups. According to sthana, sarvanga refers to the entire body while ekanga refers to the damaged area. After bahya snehana, rukshana is performed using ruksha materials, much as snigdha is done with snigdha (unctuous) materials after bahya snehana. Mahan, Madhyam, and Durbala are the three levels of intensity.<sup>13</sup>

Swedana is divided into four sorts by Sushruta: tapa, ushma, upanaha, and drava.

Sushruta has grouped the various varieties of sweda under these four categories. All of Charaka's 13 sagni sweda variants may be categorized into Susruta's four categories, as dalhana<sup>6</sup> pointed out.

Jenthaka, karshu, kuti, kupa, and holaka are among the tapa sweda varieties. Ushma sweda is comprised of. Sankara, prasthara, ashmaghana, nadi, kumbhi, and bhru are all Sankara terms Pariseka and avagaha are part of the Drava sweda. Niragni sweda<sup>14</sup> is a version that employs a variety of approaches to include the effects of swedana without the use of direct or passive heating. It is largely non-thermal and restores physiology by using the body's own heat or conserving it.

Obstructive vata pathology with medas or kapha are indications. The indication might be interpreted as moderate or self-limiting conditions for which heating is not required or contraindicated. Nivata sadana, atapa swedana, gurupravarana, niyudha, adhva, vyayama, bhara harana, and amarsha are all part of Niragni.

## CATEGORIES OF SWEDA AND SUGGESTIONS

### Type of Sweda

**Taapa** - Kapha Roga

**Ushma** - Kapha Roga

**Drava** - Pittanubandhi Vata Roga

**Upanaha**- Vata Roga

**Niragni** - Kapha Medavruta vata Roga

Samshaniya sweda and samshodhanangabhutha sweda are two types of sweda<sup>8</sup> described by Dalhana. Ashtanga sangraha elaborates drava and ushma sweda into ushma sweda eight and drava sweda two, respectively.<sup>16</sup> The sagni sweda, which consists of tapa, upanaha, ushma, and drava, is explained by Ashtanga hridaya. Nivata gruha, ayasa, gurupravarana, bhaya, upanaha, ahata, krodha, bhuripana, kshudha, atapa, krodha, bhuripana, kshudha, atapa, krodha, bhuripana, kshudha, atapa, krodha, bhuripana,

- According to Sharangdhara, sagni sweda is the same as Sushruta and is classified as 4 types niragni sweda.<sup>17</sup> Kashyapa defined eight different varieties of swedahasta, pradeha, nadi, prastara, sankara, upanaha, avagaha, and pariseka.

- Upanaha sweda in vataja illnesses, drava swedam in pittaja disorders, tapa and ushma sweda<sup>14</sup> in kapha dominating diseases Sneha sweda Rukshapoorva It is indicated in the pakwashayagata kapha sneha poorva ruksha sweda.<sup>18</sup>

- As per vyadhi and vyadhita bala Madhyama in madhyamavyadhi and madhyama vyadhita bala, durbala (mridu) durbalavyadhi and alpa vyadhita bala,

durbala (mridu) durbalavyadhi and alpa vyadhita bala, durbala (mridu) durbalavyadhi and alpa vyadhita bala, durbala

- Ritu indicates in ushna kala durbala (mridu) sweda, in shita kala Mahan Sweda.
- Hasta sweda is recommended for newborns to four months old babies, depending on their age.<sup>19</sup>
- Sweda intensity is classified as vrushana, hridaya, chakshu mridu sweda, vankshana madyama sweda, and mahan sweda in various body parts.<sup>20</sup>

Tapa sweda: Tapanamtaapah, tapa denotes heating, i.e., direct application of heat to the body by heated materials, kaphagn as per dalhana, jentaka, karshu, kuti, kupa, holaka sweda of charaka sweda varieties are included in tapa sweda medium is dry heat, superficial action, and pacifying. Conduction is how heat is transferred. Sand-0.15-0.25, brick-1.31, and salt-0.9 are the specific heat values of some of the substances utilized in tapa Swedana. Frozen shoulder, calcaneal spur, stiff neck, and cervical spondylitis are treated with ama pradhana sotha valuka sweda.

Infrared heating pads, hot water bottles, short wave diathermy, and other related methods of heat conduction may now be found. Infrared radiation is one of the most underutilized heat modalities today. It is given using luminous or non-illuminated

sources with an effective electromagnetic energy penetration depth of 1 or 15mm, resulting in a relatively superficial kind of heating.

Commercially available in a variety of sizes, electric heating pads are constructed in such a way that the temperature produced by a heating source is maintained. Heating of the tissues occurs through conduction; thus, the impact is just superficial, both easy and agreeable.<sup>21</sup>

Hot packs, also known as hydro collator packs, are heated by immersing them in hot (700 c) water to get them up to therapeutic temperature. Wrap in a towel before packing. It creates superficial warmth when applied to the patient's skin. It is therapeutically effective and the rise of tissue temperature when done to a depth of 2-3cm at least, for a duration of 15-20 minutes.<sup>22</sup>

#### **Upanaha Sweda:**

Upanaha is the application of a heated paste of roots of vata-mitigating medications macerated with a sour liquid combined with salt, fats, and knotted to the body, similar to Swedana. Bandaging materials (silk, wool, leather, leaves) should be soft but have the ability to retain heat (vataghna characteristic). Soft moist type's saagni, niragni, saagni warm liquid is utilized as a medium of action.<sup>23</sup> Niragni is operated using a non-heated medium, and the body's

stored warmth functions as a stimulant for retention treatment, which has a profound and thrilling action. Headache, arthritis, bursitis, edoema, frozen shoulder, plantar fasciitis, varicose vein, tennis elbow, and vatakantaka are all conditions where heat is transported through conduction.

### **Physiotherapy Modalities**

The frequency of short-wave diathermic current is 107-108 Hz. sets up radio waves with a wave length of 30-3m and a frequency of 27120000Hz, and sets up radio waves with a wave length of 11m, this current is generated in a machine circuit, which is then coupled to a patient (resonator) circuit, which is used to treat the patient, and it provides a deep form of heat that can pass through the tissue's currents of a much greater intensity than can be used with low frequency currents. The current's strength can be high enough to provide a direct heating impact on the tissues, thus diathermy meaning "through heating."<sup>24</sup>

Heat wrap therapy is now employed in physiotherapy in the form of poultices, cataplasm, and paraffin baths, among other things. Baths made of paraffin wax come in a variety of sizes and forms. For treatment purposes, the melted wax must be kept at a temperature of 400-440°C, hence thermostatic control is required. Check temperature before treatment. The most

convenient way of applying conducted heat to the extremities is to wrap the part in a layer of plastic sheet or towel.<sup>25</sup> As the wax solidifies from its molten state, it releases its energy of latent heat, which is conducted into tissues. Wax gives off heat slowly due to its low thermal conductivity, so wrap the part in a layer of plastic sheet or towel to retain the heat. It raises the temperature of the skin and, to a lesser extent, the other surface tissues, for 20 minutes. The action of a vasodilator generated as a result of sweat gland activity may cause neurogenic vasodilation, and modest warmth has a calming impact on sensory nerve terminals. Prior to mobilization and stretching operations, the skin should be clean and dry.<sup>26</sup>

**Ushma Sweda:** Ushmabahpah, or bhaspa steam and vataghna. In ushma sweda, the medium moist heat action is quite deep and fascinating, with sankara, prastara, asmaghna, nadi, kumbhi, and bhu swedas of charaka present. Bhaspa sweda is used to treat sciatica, hemiplegia, paraplegia, arthralgia, kyphoscoliosis, muscular contractures, rheumatoid arthritis, osteoarthritis, post-fracture stiffness, and rejuvenation treatment. Ardita, Jihvastambha, Hanustambha, and Swarabhanga have ksheera bashpa sweda. Vaporizers, steam chambers, saunas, and steam towels are all used to generate heat

these days.<sup>27</sup> Steam baths can be done in a variety of ways. Typically, water is boiled in a container and the patient is wrapped in a thick blanket. The stem of the boiling water is then allowed to enter the coversheet on the patient's body, and the steam is continued until the person has a good amount of perspiration. A steam bath cleanses the body in about 5-15 minutes.

**Drava Sweda:** hot liquids are poured over the body, or the afflicted area or the entire body is immersed in a tub containing hot liquids, the medium utilised is fluid heat, and the liquid is less conducive or nonspecific for swedan, i.e., pitta

samsrishta. (a)Avagaha: It is utilised in the retention treatment for pitta vata situations. Arshas, bagandhara, neurological issues of the hip and lower limbs, lumbosacral discomfort, urogenital problems such as renal calculi, and urine retention are all indications for this herb.

**Pariseka:** It is utilized in pitta kapha situations during the process, and is indicated in sciatica, hemiplegia, paraplegia, arthralgia, kyphoscoliosis, muscular contractures, rheumatoid arthritis, osteoarthritis, post-fracture stiffness of joints, and rejuvenation treatment.

<b>Tapa</b>	<b>Dry heat</b>	<b>Kapha</b>	<b>Thermal</b>	<b>Superficial and pacifying</b>
<b>Ushma</b>	<b>Moist heat</b>	<b>Kaphavata</b>	<b>Steam/vapour</b>	<b>Deep and exciting</b>
<b>Drava</b>	<b>Fluid heat</b>	<b>Pittanubandha</b>	<b>Baths</b>	<b>Superficial and deep</b>
<b>Upanaha</b>	<b>Latent heat</b>	<b>Vata</b>	<b>Poultice</b>	<b>Deep and exciting</b>

References – [P. Sushma and Ch. Sadanandam, Critical Review of Swedana Karma w.s.r. to Physical Medicine, Sushma and Sadanandam Int J Ayu Pharm Chem 2016 Vol. 5 Issue 2 [e ISSN 2350-0204]

## DISCUSSION

Swedana ushna, tikshna, Sara, snigdha, rukshna, sukshma, drava, sthira, guru ushna, tikshna, Swedana reduces sthambha stiffness, which is caused by the vyana vayu sleshmaka kapha, amarasa, mamsa, meda, and vasa. Swedana is snigdha and ushna, therefore it reduces stambha. Swedana's ushna guns do sroto shuddhi and Amapachana, so it relieves stiffness.

**Swedana:** Swedana removes heaviness in the body by causing evacuation of the body's watery substance through sweda;

kleda is guru; lightness is attained by eliminating kleda; swedana activates muscles and nerves, resulting in lightness.<sup>28</sup>

**Sweda karaka:** Swedana encourages sweating, sveda is a form of mala, and sweda helps to eliminate body toxins.<sup>30</sup> Increased body temperature, increased blood flow and blood volume in the skin, increased respiratory rate, pulse, decreased renal blood volume, splanchnic blood flow, central venous pressure, central blood volume, and blood pressure are all systemic/general effects.

Heat's local effects include an increase in metabolic rate and blood flow (hyperemia), as well as improved fluid dynamics and pain management. Reduce muscular spasms by increasing tissue suppleness.

### CONCLUSION

As a system based on permutations and combinations of qualities, Ayurveda recommends a variety of heating techniques and mediums for various clinical situations. We can discern a Swedana gradient based on qualities, spanning from ruksha to snigdha (lubricating) and its many forms and combinations with other features. When other methods just employ heat in varied intensities, ayurveda uses heat with unique characteristics and intensities for each ailment. It is only heating, but it improves the quality of the heating, or it adds health to the heating, or it adds health to the heating. Ayurveda differs from other systems because of its knowledge of distinction. Physiotherapy's many modalities are essentially identical to Ayurvedic therapies like Vyayama (Bodily Exercise) and Swedana Karma (Sudation Therapy). Physiotherapy is one of the aspects of treatment processes in many clinical conditions, although it cannot be regarded a comprehensive treatment. As a result, physicians should recommend physiotherapy therapies in addition to the

primary medical system for the benefit of patients of both systems.

**Conflict of Interest – Nil**

**Source of Support – None**

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