

INTERNATIONAL JOURNAL OF UNANI AND INTEGRATIVE MEDICINE



E-ISSN: 2616-4558
P-ISSN: 2616-454X
IJUIM 2020; 4(3): 14-18
Impact Factor (RJIF): 6.3
Peer Reviewed Journal
Received: 15-06-2020
Accepted: 22-08-2020

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Dalk (Massage therapy) and its efficacy in management of insomnia

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Abstract

Dalk (Massage) is one of the most important part of Unani System of Medicine and widely practiced method of *Ilaj bit Tadbeer*. *Dalk* (Massage) is of different types. *Dalk* relaxes the body and it evoke some physiological and or psychological effect which serves to achieve the therapeutic, restorative or preventive goals. *Sehar* (Insomnia) has been described well by various ancient Unani scholars in Unani literature. Unani system of medicine claims to possess possible treatment for insomnia and offers a number of drugs and therapies including *dalk* therapy for this disease. Almost all ancient unani physicians have advocated the *dalk* therapy in the treatment of insomnia particularly with medicinal oils, but unfortunately their effectiveness have not been much evaluated scientifically. Despite the fact that this therapy is in practice in unani medicine and large number of patients have been treated successfully, this therapy still require more scientific validation in the control of insomnia. In this paper a detailed review of *dalk therapy* and its efficacy in management of insomnia is being discussed.

Keywords: *Dalk*, Massage, *Sehar*, Insomnia, Unani medicine, *Ilaj Bit Tadbeer*.

Introduction

Dalk/ Massage in Unani Medicine

Dalk (Massage) is one of the most important part of Unani System of Medicine and widely practiced method of *Ilaj- bit -Tadbeer* (Regimenal Therapy)

In Unani System of Medicine, *Dalk* is considered as a type of exercise which helps in excretion of by-products of *Hazm -e -Uzwi* (digestion in organ).

Dalk (Massage) is of different types, *Dalk- e-Layyin* (soft Massage) is one of its type, which is done lightly and softly, it relaxes the body. It evokes some physiological and or psychological effect which serves to achieve the therapeutic, restorative or preventive goals [1, 2, 3].

In Unani medicine, *dalk* is considered as the method where pressure or friction, kneading, rubbing, tapping, pounding, vibrating or stimulating against the external soft parts of the body with hands or other objects like rough cloth with or without oils, creams, lotions, ointments or other similar preparations [1].

Classification of *Dalk*:

Ibn e Rushd in **Kitabul Kulliyat** classified *Dalk* into *Baseet* (single) and *Murakkab* (composite), further *Dalk Baseet* is divided according to *Kaifiyat* (quality) and *Kammiyat* (quantity) into six types as follows:

On the Basis of *Kaifiyat* (Quality)-

1. *Dalk-e-Sulb* (Hard friction): In this type of massage, firm pressure is applied with hands while performing massage. It strengthens organs and makes them hard.
2. *Dalk-e-Layyin* (Soft friction): This type of massage is done slowly and softly with hands, without exerting pressure. It makes organs soft, works as sedative and relaxes the body.
3. *Dalk-e-Mo'atadil* (Moderate Friction): It is carried out with pressure applied, moderately between *Sulb* and *Layyin*.

On the Basis of *Kammiyat* (Quantity) -

1. *Dalk-e-Kaseer* (Long duration massage): This massage is done for longer duration. It makes the organ thin.
2. *Dalk-e-Qaleel* (Short duration massage): This massage is done for shorter duration. It produces heat in small quantity.

3. *Dalk-e-Mo'atadil* (Moderate duration massage): The duration of this massage is in between *Kaseer* and *Qaleel*. It increases the body mass.

On the Basis of Raftar (Speed)

1. *Dalk-e-Saree* (Rapid friction): It produces heat and dryness in the body.
2. *Dalk-e-Batee* (Slow friction): It produces heat in small quantity.
3. *Dalk-e-Mo'atadil* (Moderate speed friction): It produces heat and dryness moderately.

Other type of *dalk* with combination is also mentioned in classical literature known as *Dalk-e-Murakkab* (combination of different types of *Dalk-e-Baseet*): It is divided into nine types as under:

1. *Dalk-e-Sulb Kaseer*: Hard massage done for long duration
2. *Dalk-e-Layyin Kaseer*: Soft massage done for long duration
3. *Dalk-e-Mo'atadil Kaseer*: Moderate type of massage done for long duration
4. *Dalk-e-Sulb Qaleel*: Hard massage done for short duration
5. *Dalk-e-Layyin Qaleel*: Soft massage done for short duration
6. *Dalk-e-Mo'atadil Qaleel*: Moderate type of massage done for short duration
7. *Dalk-e-Sulb Mo'atadil*: Hard massage done for moderate duration
8. *Dalk-e-Layyin Mo'atadil*: Soft massage done for moderate duration
9. *Dalk-e-Mo'atadil Mo'atadil*: Moderate type of massage done in moderate duration ^[2, 3].

Some other types of massage are also mentioned in the unani literature. Like:

- *Dalk-e-Khashin* (Rough massage): This massage is done with a rough piece of cloth. This type of massage makes able to flows the blood rapidly to the surface.
- *Dalk-e-Amlas* (Gentle Massage): This type of massage is done softly with hands or soft piece of cloth. It increases blood flow in the treated area.
- *Dalk-e-Istedad* (Preparatory Massage before Exercise): This is a special type of massage, done before starting the exercise, it prepares the body to exercise. Initially this massage is done softly but later on it is done hardly towards the end.
- *Dalk-e-Isterdad* (Relaxing Massage): This type of massage is done after finishing the exercise. It is in order to remove the waste metabolites produced during the exercise. It is done vigorously in the beginning and later softly towards the end, just opposite the *Dalk-e-Istedad*. It is also known as *Dalk-e-Musakkin* and preferably done with oil ^[4, 5].

Hippocrates (460 BC–370 BC), the father of medicine, had said that “The physician must be experienced in many things, but assuredly also in rubbing, for things that have the same name have not always the same effects. For rubbing can bind a joint that is too loose, and loosen a joint that is too rigid, rubbing can bind and loosen”. He advised a combination of massage, proper diet, exercise, rest, and fresh air to restore the health ^[6].

Various ancient Unani scholars advocated the use of *Dalk* for the preventive as well as the curative purpose in various diseases. Ancient unani scholars recommended several varieties of *Dalk* e.g. *Dalk-e-sulb* (hard massage), *Dalk-e-layyin* (soft massage), *Dalk-e-kaseer* (prolonged massage), *Dalk-e-mo'atadil* (moderate massage) etc. Hard friction or massage is *Mufatteh-e-Sudad* (de-obstruent) and makes the body firm. Soft massage works as sedative and relaxant for the body, while prolonged massage removes the fat of the body. Moderate massage helps in development of body as well as it improves and maintains blood circulation of the particular organ. Rough massage with a rough cloth (*Dalk-e-khashin*) increases vasodilatation of the particular organ ^[4].

Mode of Action of Dalk

According to Unani Medicine the mode of action of *Dalk* works on a holistic approach of two fundamental concepts which are as follows:

- **Tanqiya-e-Mawad (Evacuation of morbid humour):** It means the resolution and excretion of morbid humors and excess fluids from the body, thus maintaining the homeostasis in the quality and quantity of four bodily humors, which is very important for the maintenance of normal health.
- **Imala-e-Mawad (Diversion of humour):** It means the diversion of the morbid matter from the affected organ to the other part of body where from it can easily be expelled out from the body tissues. It also induces sedation and relaxation, pain relief and increases blood circulation ^[7].

In Bayaz E Kabir, Hakim Kabiruddin suggested *dalk* with *Roghan Labub-e-Saba* on the head and temporal region for the control of *sehar* ^[8]. In AlAkseer E Azam use of *Roghan Labub-e-Saba* on the head and fore head is advised in the management of *sehar* ^[9]. Hakim Ajmal Khan also described in Haziq, *dalk* with the *Roghan Labub-e-Saba* for the management of *Sehar* ^[10]. In Qarabadeen e Majeedi it is mentioned that *Dalk* with *Roghan Labub-e-Saba* removes the dryness of brain, and is beneficial in the control of Insomnia ^[11].

Massage therapy in modern ERA:

Massage can be defined as “manual soft tissue manipulation, and includes holding, causing movement, and/or applying pressure to the body” ^[12].

It is also defined as “Massage is a manual and scientific manipulation of the soft tissues of the body for the purpose of establishing and maintaining health and promoting wellness” ^[13].

Massage therapy is the practice of massage by trained physicians to obtain positive health and well-being (physical, functional, and psychological outcomes) in patients. As a different health allied and/or complementary and alternative medicine (CAM) practice, massage therapy encloses several types of massage originating from Western and Eastern practice, in company with the use of various supplementary alternative therapeutic modalities e.g. cupping and dry needling. In 2007, a national survey of Australians showed massage therapy ranked as one of the most commonly used complementary and alternative medicine practices. Though, massage therapy is advised and practiced to various extents, research is required to

determine its efficacy and safety. Now a days many studies and systematic reviews of massage therapy, using variable search strategies and inclusion criteria to evaluate single or multiple types of massage therapy, have been performed [14, 15].

The variety of techniques are used to assist the therapeutic goals like relaxation, injury rehabilitation, management of symptoms during a long term illness and enhancing personal growth [13].

Physiological effects of massage:

Research to date suggest massage therapy provides the following physiological improvements in different body systems.

1. Effects on Cardiovascular functions and blood circulation:

- Increases capillary flow rate, blood viscosity and filtration rate.
- Increases blood flow to the skin and muscular tissue.
- Increases blood oxidation levels.
- Increases surface tissue temperature of the treated and adjacent areas.
- Increases red and white blood cells and platelets counts.
- Decreases heart rate, blood pressure and variations in heart rate.

2. Effects on Lymphatic System and Immunity:

- Assist in lymphatic drainage.
- Reduce oedema and lymphedema.
- Promote increase in lymphocytes level.
- Promote immune system health and function and over all well- being through combined mechanical, physiological and psychological therapeutic effects.

3. Effects on muscles and bones:

- Decrease tension within the muscle tendon union.
- Increases range of motion (ROM).
- Reduces the delayed onset muscle soreness (DOMS) and blood indicators of muscle damage.
- Decreases electromyography (EMG) activity, suggesting increase muscle relaxation and decrease muscle fatigue.
- Reduces pain and activates the para-sympathetic nervous system by causing relaxation through massage of trigger points

4. Effects on connective tissues:

- Increases fibroblast activity, leading to improve healing.
- Improves scar tissue formation.
- Improves scar tissue strength, which helps in tendon healing.
- Assist in the treatment of tendonitis.
- Helpful in reducing pain and other symptoms of fibromyalgia.

5. Effects on Nervous system:

- Improves sleep
- Increases serotonin
- Increases dopamine
- Decreases moto-neuron pool excitability
- Decreases stress, depression, and anxiety
- Increases relaxation
- Enhances brain wave activity
- Improves cognitive and memory functioning

- Activates parasympathetic response

6. Effect on Endocrine system:

- Influences levels of multiple hormones
- Influences production/ absorption of insulin
- Produces changes in hormones related to pregnancy, labour and post- partum depression

7. Effects on Skin:

- Effective in reducing scarring after burns
- Decreases symptoms of eczema and other skin condition
- Helpful in treating or preventing bed sores
- Increases skin temperature
- Contribute to the overall health of the skin tissue

PSYCHOLOGICAL EFFECTS OF MASSAGE:

Research to date suggests massage therapy may:

- Reduce anxiety, depression and stress
- Promote well being
- Promote a mind body connection
- Useful in treating hyperactivity disorders [13, 16]

Contraindications:

General or Systemic Conditions;

Fever, infectious diseases, osteoporosis, pitting oedema, kidney or heart diseases, acute infection, phlebitis, thrombophlebitis, aneurysm, severe hematomas, drug intoxication, psychosis, first 24 hours after scuba diving etc.

Local Conditions:

Skin lesions, local oedema, abdominal massage during pregnancy in first trimester, varicose veins and hernia etc [16].

Role of Massage in the Management of Insomnia Disorder:

The term insomnia is defined in different ways and can be described as a symptom and/or a disorder. It includes disappointment with quantity or quality of sleep and is connected with one or more of the following subjective complaints, like difficulty with sleep initiation, difficulty maintaining sleep, or early morning waking with inability to return to sleep [17]. The Individuals who suffering from sleep problems also present higher levels of anxiety, physical pain and discomfort, and cognitive deficiencies. Insomnia may be related with long-term health consequences, including increased morbidity, respiratory disease, rheumatic disease, cardiovascular disease, cerebrovascular conditions, and diabetes [18].

Serotonin is very important neurotransmitter that is essential for human survival. Serotonin takes a part in mood, behaviour, body temperature, physical co-ordination, appetite and sleep. It is derived from the amino acid tryptophan. It can also be converted by the brain into melatonin.

The connection of serotonin in sleep has been repeatedly proven. However, the mechanism of that remains unclear. There are several studies which revolve around a specific area of the brain that mediates deep sleep. This area of the brain is known as the raphe nuclei. The raphe nuclei contain nerve cells that use serotonin to communicate with each other. Laboratory experiments were done using cats as subjects, in which destruction of the cat's raphe nuclei

resulted in their inability to sleep. Another experiment was done by blocking serotonin synthesis with a drug (p-chlorophenylalanine). Administration of this drug produces insomnia, an effect which was reversed by the ensuing administration of serotonin [19]. These studies show that serotonin is prerequisite for healthy sleep.

Serotonin is also a precursor to the body's demand of melatonin. Melatonin is a hormone secreted by the brain's pineal gland to quiet and reset the part of the brain (the supra-chiasmatic nucleus) that directs circadian cycles to prepare for sleep. Circadian cycles are internal periodic rhythms that profoundly affect sleep and wakefulness [20].

The chemistry of sleep is pertinent in relation to massage because it directly influences the body's production of serotonin, which is essential for the production of melatonin. According to a study, published in the International Journal of Neuroscience, it was demonstrated that in addition to a decrease in long-term back pain, subjects receiving massage experienced improved sleep and an increase in serotonin levels [21, 22].

The National Institutes of Health has suggested that massage therapy can reduce fatigue and enhance sleep. On the basis of on research convened by the American Massage Therapy Association, It has been exhibited that massage improves sleep in infants, children, adults, and the elderly. Massage also improves sleep in patients suffering from psychiatric disorders, fibromyalgia, cancer, heart disease, lower back pain, cerebral palsy, and breast disease [23, 24].

Scientific Reports:

A study was done on post-menopausal woman to demonstrate the effectiveness of massage therapy by H. Hachul *et al.*, revealed significant improvement in sleep as well as postmenopausal symptoms [25].

A pilot study was done to evaluate the effectiveness of *dalk* (Massage) with *roghan labub-e-saba* in the Control of Insomnia Disorder, in the department of Tahaffuzi wa Samaji Tib, School of Unani Medical Education and Research, Jamia Hamdard, New Delhi, India demonstrated 67.51% improvement of sleep when evaluated with the help of Pittsburgh Sleep Quality Index (PSQI) and 50.85% of relief when assessment was done with Athens Insomnia Scale [26].

A study was done on 288 IPD patients of a progressive care unit. The patients were offered daily a 15-minute complimentary clinical massage. The massage intervention showed an immediate and significant reduction in self-reported pain, anxiety and insomnia [27].

Conclusion

It is well established that phenomenon of sleep is one of the vital signs of good health. Without adequate and good sleep our ability to function is impaired. Insomnia is a predisposing factor for onset and recurrent major depressive disorder (MDD). Both disorders are highly prevalent and frequently occur. Most sleep promoting medicines work best with time limited use to overcome short term insomnia. They should not be taken for longer than 3 weeks and adverse effects, addiction and dependency limit its abuse. Thus, this is quite obvious that *dalk* therapy is safe, effective and low cost alternative modality for the management of insomnia. It also has no side effects and does not cause dependency. *Dalk* therapy for insomnia is being practiced since ages. There are some studies done which demonstrate

its efficacy but still more scientific studies should be done to evaluate its efficacy.

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