

INDICATIVE INDIAN MUSIC THERAPY FOR MANAGEMENT OF MENSTRUAL MIGRAINE

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Abstract

The positive effects of music can be felt in the body, mind, and soul. Music listening has a greater impact on hormone regulation, particularly in women, and is regarded as a non-pharmacological intervention. It helps the woman to maintain a good mood while preserving her physical and mental health. Here, we have created a special musical model that assists in balancing the *Dosha* in menstrual migraine, combining it with Yogic practices like Asana and Pranayama that encourage relaxation and a healthy internal environment. Ayurveda and Yoga can be used in conjunction with music therapy that is based on the Prakriti of an individual.

Ayurveda places a strong emphasis on balancing both the psychic and physical Doshas. Indian Ragas help in the transformation of one's thought processes by invoking positives and avoiding negatives. We developed a mechanism of Ragas based on the biorhythm principle that displays aesthetic moods or pleasant emotions as part of music therapy, which helps in balancing Dosha in menstrual migraine.

Keywords: Migraine, Menstrual Migraine, Music Therapy, Ayurveda.

DEFINITION MENSTRUAL MIGRAINE

Menstrual migraine are defined as migraine that begin on the first day of the menstrual cycle or two days before and after the onset of menstrual flow (Pinkerman & Holroyd, 2010). Attacks that occur exclusively with menses are called "true menstrual migraine (MacGregor, 2005). Migraines cause severe throbbing pain or a pulsing sensation, usually on just one side of the head (Elzhraa & Zobi, 2018), hence in Greek it was termed "hemicrania" meaning 'only half the head (Aggarwal et al., 2012). It is a painful neurological condition accompanied by nausea, vomiting, fever, chills, aching, sweating, and sensitivity to light (photophobia), sound (phonophobia), or movements making it different from tension-type headaches (Eftekhari et al., 2010). Migraine headache is divided into two forms without aura (common migraine) and with aura (classic migraine), the aura being the complex neurological symptoms that initiate an attack (Silberstein & Young, 1995). As per the first edition of the International Classification of Headache Disorders (ICHD I) published in 1988 'Migraine without aura may occur almost at a particular time of the cycle so-called menstrual migraine' (Vetvik et al., 2014).

PREVALENCE AND CAUSE

The World Health Organization (WHO) has identified migraine among the world's top 20 leading causes of disability (Leonardi et al., 2005). About 25% of women have migraine during their reproductive years (Walter F. Stewart et al., 1994), and the majority has migraine without aura (Vetvik et al., 2014). Migraine incidence and prevalence increase around the time of puberty (W. F. Stewart et al., 2008). Starting at puberty with its accompanying hormonal changes, the frequency rises in both sexes, and it is higher in girls than boys (Allais

et al., 2020). This states that the influence of ovarian hormones (Estrogen and Progesterone) (Martin & Behbehani, 2006) leads to the increased burden of migraine in women (Borsook et al., 2014). Estrogen and progesterone influence the pain-processing networks that are involved in the pathophysiology of migraine headaches (Martin & Behbehani, 2006). Headaches in women, particularly migraines, have been related to the drop in Estrogen levels immediately before the start of the menstrual flow (Naveen & Mamatha, 2017). Similarly, a drop in progesterone at the start of the follicular phase triggers a migraine attack (Charbit et al., 2010). Migraine frequency tends to decrease during periods of increasing or stable estrogen levels (Zacur, 2006). Also, it has been proposed that the rise in progesterone during the luteal phase is a preventive measure for migraine (Charbit et al., 2010).

Menstrual migraine is often associated with psychopathological disorders. Emotional disturbance is the commonest single trigger mechanism and is the most important cause of frequent and severe attacks (Pearce, 1977). The onset of migraine can be preceded by a sudden increase in frequency or density of major stressful life events such as death, separation, and divorce, associated with a cognitive emotional appraisal leading to a negative impact on life. Quality of life is impaired during migraine attacks and symptom-free periods between attacks, through fear of the next one. Migraineurs perceive more subjective symptoms and have increased anxiety and greater emotional stress, as well as disturbed sleep (Dahlof & Dimenas, 1995). Anxiety disorders in early childhood or adolescence, preceding the onset of migraine and later followed by the development of depression are highlighted as a trigger factor of migraine attacks, Also, they appear as a psychological reaction to recurrent migraine attacks (Wacogne et al., 2003). Social factors, including, intimate partner violence, and a history of adverse childhood experiences contribute to the development of migraine in women (Burch, 2020).

SEROTONIN AND MENSTRUAL MIGRAINE

A chemical compound called serotonin serves a range of purposes in the human body. It is sometimes called the happy chemical because it contributes to well-being and happiness (Elzhray & Zobi, 2018). The scientific name for serotonin is 5- 5-hydroxytryptamine, or 5-HT (Silberstei, 1994). Various studies have implicated serotonin in the pathogenesis of migraine (Berman et al., 2006). Serotonin receptor has contributed much to the better management of patients with headache disorder (Goadsby, 2006). Estrogens are responsible for both the synthesis and secretion of serotonin hormones. When estrogen levels fall, the production of serotonin is reduced (Calhoun, 2018). A drop in estrogen level during menstruation leads to a decrease in serotonin by affecting its metabolism (Somerville, 1975) which dilate blood vessels and initiate migraine (Aggarwal et al., 2012).

AYURVEDA DEFINITION

The ailments of the head or *Shirorogas* have been elaborately explained in all treatises of *Ayurveda*. According to *Acharya Susrutha, Ardhavabhedaka* (Migraine) is one among the 11

Shirorogas (Naveen & Mamatha, 2017). *Acharya Susruta* defines *Ardhavabhedaka* as a headache that is present in the right or left halves of the head, which is splitting, pricking, or churning in nature and appearing in intervals of seven days, ten days, fifteen days, thirty days, or at any interval of time, due to aggravation of *Tridosha* (Dalhanacharya et al., 2005).

CAUSE

Ayurveda advocates the principle of *Apana Vata Vaigunya* (derangement of *Apana Vāta*), obstruction to the normal movement of *Vata*, thereby leading to misdirected movement and *Sthana Samshraya* in *Oordwa Jatru* (sheltering in the parts above shoulder), reflecting the symptoms of *Vāta* disorders, one such condition being *Ardhavabedhaka* (Half sided headache) (Naveen & Mamatha, 2017). Also, the female's emotional nature and the responsibilities of the family were the cause of mental factors such as *Chinta*, *Krodha*, *Bhaya*, and *Shoka* as well as factors such as emotional and physical stress lead to *Dhatukshaya* (depletion of body tissue) and vitiation of *Vata Dosha* considered as a triggering factor in migraine (Mata et al., 2015). From an *Ayurvedic* perspective, various faulty (irregular) lifestyles i.e., irregular patterns of eating – again eating before digestion of earlier meals, suppression of natural urges, excessive exertion, excessive indulgence in sexual activities, and roaming around in cold air lead to the development of migraine (Gupta, 2019).

VARIOUS ALTERNATIVE THERAPIES

In the modern period, menstrual migraine has grown to be a serious issue and is a leading contributor to productivity loss across all age groups. To manage the conduction and alleviate discomfort in the women's population, simple and inexpensive therapeutic techniques are essential (Mannix, 2017). According to ancient *Ayurvedic* texts, *Ardhavabhedaka* has many *Ekamoolika prayoga* (Mono herb therapy) such as *Chakramarda* (*Cassia tora*), *Shirisha*, (*Albezia lebeck*), *Vacha* (*Acorus calamus*) which are administered as *Nasya* (Nasal route of administration), to provide better absorption and quick outcomes (Ashalatha et al., 2016). *Triphala Churna* in *Ayurveda* is one such modality that can be adopted in the management of migraine (Mannix, 2017). Similarly, migraine management through *Yoga* therapy would reduce the medication cost with positive health benefits (Sathyaprabha et al., 2014). *Yoga*, coupling physical exercise with breathing and relaxation, is a popular alternative form of mind–body therapy (John et al., 2007). It has been shown to improve the quality of life and reduce the episodes of headaches and medication. *Yogic* practices including *Asana* such as *Padahasthasana* (forward bend), *Ardha chakrasana* (half wheel posture), *Trikonasana* (triangle pose), *Bhujangasana* (cobra pose), *Vakrasana* (half spinal twist pose), *Ustrasana* (camel pose) and relaxation techniques like *Yoga Nidra* or deep relaxation technique (DRT) have been scientifically proved in treating migraine (Sathyaprabha et al., 2014).

MUSIC AND HORMONAL BALANCE

Music is well known to elicit emotional changes in humans. In addition to psychological mood changes, it is shown to elicit physiological changes in heart rate, blood pressure, etc

(Zatorre, 2005). Studies have shown that music is a therapeutic tool with certain effects on neuropsychiatric disorders (both functional and organic disorders) (Hajime Fukui & Toyoshima, 2008). It is closely associated with hormones that govern emotion and human behavior, especially with steroid hormones including sex hormones (H. Fukui et al., 2012). Listening to music helps in adjusting the secretion of steroid hormones in both directions (increase and decrease). It affects levels of steroids such as cortisol, testosterone, estrogen (Hajime Fukui & Toyoshima, 2008), and progesterone (Chikahisa et al., 2007). A study found the secretion of hormones such as estrogen and testosterone with the help of music therapy (H. Fukui et al., 2012). Also, it helps in balancing the blood pressure of elderly with hypertension significantly stating the effect of classical music in decreasing blood pressure thereby increasing the level of estrogen (Fitriani et al., 2020). An experimental study shows listening to melodic music (Mozart's sonata) is regarded as a non-pharmacological intervention that helps in increasing the serotonin level (Moraes et al., 2018).

MUSIC THERAPY AND ITS ELEMENTS

The main therapeutic strategy in music therapy is at the level of emotional healing. Emotional healing aims to replace negative feelings of criticism, anger, guilt, and resentment with good emotions such as affection, compassion, pleasure, and peacefulness (Karuna et al., 2013). Music therapy is the application of music and musical elements in a process intended to support and encourage communication, relationships, learning, mobilization, expression, and other applicable therapeutic objectives to address physical, emotional, mental, social, and cognitive needs (Karuna et al., 2014). Elements of Indian music therapy are *Nada* (sound), *Sruti* (musical interval), *Svara* (note), *Raga* (melody), *Tala* (beat), *Rasa* (aesthetic mood), and *That* (mode) (Sarngadeva, 2007). Music therapy is the use of the right kind of music, with the right tonal quality (*swara*), played at the right moment, and has been found to generate a feeling of peace and well-being (Sharma, 1996).

DOSHA BALANCING THROUGH MUSIC

Ayurveda insists that we must understand our own nature or constitution or *Dosha* and change our lifestyle, thinking, and perception accordingly. *Dosha* is the root cause in the initiation and development of *Prakriti* of any individual. Because no single individual is entirely of one kind, we should expect a mix of one or two will dominate. The physical constitution and character of a person are determined by the traits of these dominant *Doshas* (*Ch.Vi.8.95*) (Acharya Balakrishnan, 2007). *Ayurvedic* healthcare system aims to balance not just the physical *Dosas* of *Vata*, *Pitta*, and *Kapha*, but also the psychological components, known as *Gunas*, which include *Sattva*, *Rajas*, and *Tamas* (Amin & Vyas, 2016). There is a strong interaction between the physical and psychological components; if one component is out of balance, it will also affect the other (Dagenais, 2001). If *Vata* is the primary *Dosa*, fear is the negative emotion. Similarly, *Pitta Dosa* causes anger, whereas *Kapha Dosa* causes sadness and disgust (Mishra, 2003). *Sattva* Guna or positive traits are vital for women in pre-

conceptual care because they promote emotional equilibrium and mental purity. This enables vital energy to circulate freely throughout the body without being obstructed. A person remains healthy as long as these *Dosas* are in harmony, and they provide a subtle energy essence for the optimal functioning of the body. Music can be employed to balance the biological humours, or *Dosas* (Karuna, 2021).

In the context of *Yoga Vāsishtha*, *Ādhija Vyādhi* (stress-borne disease) is considered to be a disease that starts in the mind (*Ādhi*/ stress) and gains entrance to the physical body through vital energy, manifesting in the form of physical sickness (*Vyādhi*) (Gowda et al., 2017). Stress is a primordial factor in the triggering and perpetuation of migraine attacks (Wacogne et al., 2003). Also, psychological factors such as fear, and anxiety a leading factors in migraine attacks (Dahlof & Dimenas, 1995). From an *Āyurveda* perspective, negative emotions such as fear, grief, and disgust, create a biochemical state in our body that is difficult to remove and can lead to disease condition (Peter Marchand, 2006). Menstrual migraine is classified as a *Vata* condition in *Ayurveda* (Naveen & Mamatha, 2017) with the psychological component of *Rajas* being the primary cause (Mishra, 2003).

The theory of *Samanya Visheṣa Siddhanta* in *Āyurveda* is relevant regardless of the medical system that practitioners follow. According to this system, factors with similar features will lead to an increase in that factor's value. Dissimilar causes result in decline (Loon, 1981). An unfavorable *Rasa* can be replaced with a pleasant *Rasa* created by a certain type of music that expresses positive feelings (Sreedharan et al., 2021). Fear and anxiety which is an unpleasant *Rasa* in *Vata Dosha*, can be conquered by *Ragas* which uses *Ga* and *Ni Komal Svaras* depicting *Veera Rasa*, or self-assurance (Karuna, 2014). Music captures our attention and diverts our focus away from things that might lead to unpleasant emotions (worry, pain, anxiety, and so on) (Koelsch, 2009). A study of migraine patients indicated that listening to music itself is a relaxation method for treating pain perception and enhancing relaxation responses which is vital in the management of migraine headaches (Lee, 2005). A study on the effect of Indian classical music on migraine episodes in young females shows the effect of *Ragas* such as *Bageshree* and *Todi* reported a decrease in the duration of migraine attacks and the intensity of pain suffered during each attack (Tanvi et al., 2015). *Bageshree* and *Todi Ragās* depict *Vira Rasa* and use *Ga* and *Ni Komal Svarās* creating confidence and self-assurance. Table 1. Shows *That, Svaras and Ragas* suggested for Menstrual Migraine.

Table 1. That, Svaras and Ragas suggested for Menstrual Migraine (Karuna, 2014)

Dosha	Disagreeable Rasa	Agreeable Rasa	Thaat	Prominent Raga	Timing	Carnatic Equivalent (Melas)	Popular Raga	Western mode
Vata Dosha	Fear and Anxiety	Vira Rasa	Kafi	Kafi Pilu Bhimpalsri Brindavani Shuddha	Any time Any time 1pm-4pm 1pm-4pm 1pm-4pm	Karaharapriya	Asaveri Sri Brindavana Abheri Huseni	Dorian
			Asaveri	Asaveri Adana Janupuri Darbari Kanada	7am-10am 10pm-1am 10am-1pm 10pm-1am	Natabhairavi	Anand Bhairavi Saramathi Jayantha Sri	Aeolian
			Bhairavi	Bhairavi Malkauns	10am- 1pm 10pm-1am	Hanumatodi	Dhanyasi Janatodi	Phrygian
			Todi	Bilakshani todi Todi Multani Gurjari todi Madhivanti	7am-10am 7am-10am 1pm-4pm 10am-1pm 4pm-7pm	shubhapantuvarali	shubhapantuvarali	

CONCLUSION

Menstrual migraine is a painful neurological condition accompanied by clinical symptoms of pricking, cutting, stabbing, tearing, and burning type of headache caused by miscellaneous aetiologies that may include physical disorders, emotional disturbance, social factors, etc. There are alternative theories according to modern science, however in *Ayurveda*, it is related to disturbances in the *Doshas*. It affects the quality of life not only by painful migraine attacks but with disturbed sleep, anxiety, stress, fear, etc. Although medications are available, it appears that the majority of them have adverse side effects. As a result, alternative treatments, such as music and *Yoga*, can aid in the lowering of drug consumption and are considered essential. In this paper, we have attempted to combine the three ancient healing methods of Music, *Ayurveda*, and *Yoga* for managing menstrual migraine.

The primary goal of Indian classical music is to evoke *Rasa*, or aesthetic moods, in the listener, such as love, compassion, self-assurance, and calmness. Thus, music may be used to cure a woman's emotional wounds such as fear, anxiety, disgust, insecurity, and so on. The classical text specifies the timings of the day for the performance of various *Ragas* or melodies. Listening to the *Ragas* at a given moment is supposed to smooth out natural transitions and align the body and mind with the biorhythm cycle. It also aids in the equilibrium of the *Doshas* or biological humours. According to *Ayurveda*, the key cause of menstrual migraine is disruption in *Vata Dosha* with *Rajas* serving as the psychological component. *Ragas* that induce *Vira Rasa* can aid in creating confidence and self-assurance, thereby eliminating the elements of fear and anxiety, the primary metaphysical causes of menstrual migraine. Similarly, *Yogic* practices such as *Asanas* and relaxation techniques have

proved in the management of the disease. Music as an add-on therapy along with *Ayurveda* and *Yoga* can be efficacious in the management of menstrual migraine.

REFERENCE

- Acharya Balakrishnan. (2007). *Ayurveda, its Principles & Philosophies*. Divya Prakashan, Patanjali Yoga Peetha.
(Ch.Vi.8.95)- *ētāni hi yēna yēna dōṣēṇādihikēnaikēnānēkēna vā samanubadhyantē, tēna tēna dōṣēṇa garbhō'nubadhyatē; tataḥ sā sā dōṣaprakṛtirucyatē manuṣyāṇām garbhādipravṛttā| tasmāchlēśmalāḥ prakṛtyā kēcit, pittalāḥ kēcit, vātalāḥ kēcit, saṁsṛṣṭāḥ kēcit, samadhātavaḥ kēcidbhavanti| tēṣām hi lakṣaṇāni vyākhyāsyāmaḥ*
- Aggarwal, M., Puri, V., & Puri, S. (2012). Serotonin and CGRP in Migraine. *Annals of Neurosciences*, 19(2), 88. <https://doi.org/10.5214/ANS.0972.7531.12190210>
- Allais, G., Chiarle, G., Sinigaglia, S., Airola, G., Schiapparelli, P., & Benedetto, C. (2020). Gender-related differences in migraine. *Neurological Sciences*, 41, 429–436. <https://doi.org/10.1007/S10072-020-04643-8>
- Ashalatha, M., Lalitha, B. R., Bhat, K., & Scholar, P. G. (2016). SINGLE DRUG THERAPY IN ARDHAVABHEDAKA WITH SPECIAL REFERENCE TO MIGRAINE-A REVIEW. *Ayurpub*, 1(4). www.ayurpub.com
- Berman, N. E., Puri, V., Chandrala, S., Puri, S., Macgregor, R., Liverman, C. S., & Klein, R. M. (2006). Serotonin in trigeminal ganglia of female rodents: relevance to menstrual migraine. *Wiley Online Library*, 46(8), 1230–1245. <https://doi.org/10.1111/j.1526-4610.2006.00528.x>
- Borsook, D., Erpelding, N., Lebel, A., Linnman, C., Veggeberg, R., Grant, P. E., Buettner, C., Becerra, L., & Burstein, R. (2014). Sex and the migraine brain. *Neurobiology of Disease*, 68, 200–214. <https://doi.org/10.1016/J.NBD.2014.03.008>
- Burch, R. (2020). Epidemiology and Treatment of Menstrual Migraine and Migraine During Pregnancy and Lactation: A Narrative Review. *Headache*, 60(1), 200–216. <https://doi.org/10.1111/HEAD.13665>
- Calhoun, A. H. (2018). Understanding Menstrual Migraine. *Headache*, 58(4), 626–630. <https://doi.org/10.1111/HEAD.13291>
- Charbit, A. R., Akerman, S., & Goadsby, P. J. (2010). Dopamine: What's new in migraine? *Current Opinion in Neurology*, 23(3), 275–281. <https://doi.org/10.1097/WCO.0B013E3283378D5C>
- Chikahisa, S., Sano, A., Kitaoka, K., Miyamoto, K. I., & Sei, H. (2007). Anxiolytic effect of music depends on ovarian steroid in female mice. *Behavioural Brain Research*, 179(1), 50–59. <https://doi.org/10.1016/J.BBR.2007.01.010>
- Dahlof, C. G. H., & Dimenas, E. (1995). Migraine patients experience poorer subjective well-being/quality of life even between attacks. *Cephalalgia*, 15(1), 31–36. <https://doi.org/10.1046/J.1468-2982.1995.1501031.X>
- Dalhanacharya, S., Sri, and the N. C. of, & I, G. (2005). *Sushruta Samhita with the Nibandha Sangraha commentary*.
- Eftekhari, S., in, L. E.-T. advances, & 2010, undefined. (2010). Possible sites of action of the new calcitonin gene-related peptide receptor antagonists. *Journals.Sagepub.Com*, 3(6), 369–378. <https://doi.org/10.1177/1756285610388343>
- Elzhraa, F., & Zobi, A. (2018). *Effect of serotonin on migraine*.

- Fitriani, D., Pratiwi, R. D., Cahyaningtyas, P., & Poddar, S. (2020). Effect of classical music on blood pressure in elderly with hypertension in bina bhakti werdha elderly nursing home, Indonesia. *Malaysian Journal of Medicine and Health Sciences*, 16(4), 142–144.
- Fukui, H., Arai, A., & Toyoshima, K. (2012). Efficacy of music therapy in treatment for the patients with Alzheimer's disease. *International Journal of Alzheimer's Disease*. <https://doi.org/10.1155/2012/531646>
- Fukui, Hajime, & Toyoshima, K. (2008). Music facilitate the neurogenesis, regeneration and repair of neurons. *Medical Hypotheses*, 71(5), 765–769. <https://doi.org/10.1016/J.MEHY.2008.06.019>
- Goadsby, P. J. (2006). Serotonin Receptor Ligands: Treatments of Acute Migraine and Cluster Headache. *Handbook of Experimental Pharmacology*, 177, 129–143. https://doi.org/10.1007/978-3-540-33823-9_5
- Gowda, S., Mohanty, S., Saoji, A., & Nagarathna, R. (2017). Integrated Yoga and Naturopathy module in management of Metabolic Syndrome: A case report. *Journal of Ayurveda and Integrative Medicine*, 8(1), 45–48. <https://doi.org/10.1016/j.jaim.2016.10.006>
- Gupta, A. L. (2019). A LITERARY REVIEW OF ARDHAVABHEDAKA VIS-A-VIS MIGRAINE IN BRIHATRAYEE. *Gupta. World Journal of Pharmaceutical Research*, 8. <https://doi.org/10.20959/wjpr20197-14968>
- Hingne, S. (2021). MUSICURE: A PRAGMATIC APPROACH FOR INDIAN MUSIC THERAPY. *Www.Irjmets.Com @International Research Journal of Modernization in Engineering*, 899. www.irjmets.com
- John, P. J., Sharma, N., Sharma, C. M., & Kankane, A. (2007). Effectiveness of Yoga Therapy in the Treatment of Migraine Without Aura: A Randomized Controlled Trial. *Headache: The Journal of Head and Face Pain*, 47(5), 654–661. <https://doi.org/10.1111/J.1526-4610.2007.00789.X>
- Karuna, N. (2014). MUSIC THERAPY BASED ON INDIVIDUAL 'S' BIOLOGICAL HUMOR ' – WITH REFERENCE TO MEDICAL ASTROLOGY: A REVIEW. *International Ayurvedic Medical Journal*, 2(4).
- Karuna, N., Nagendra, H., & Srinivasan, T. (2013). Review of Rāgās and its Rasās in Indian music and its possible applications in therapy. *International Journal of Yoga - Philosophy, Psychology and Parapsychology*, 1(1), 21. <https://doi.org/10.4103/2347-5633.123288>
- Koelsch, S. (2009). A Neuroscientific Perspective on Music Therapy. *Annals of the New York Academy of Sciences*, 1169(1), 374–384. <https://doi.org/10.1111/J.1749-6632.2009.04592.X>
- Lee, S. (2005). The effects of music listening, autogenic training, and music-assisted autogenic training on the quality of life, relaxation responses, and daily living of migraine patients. *음악치료교육연구 Korean Journal of Music Therapy Education*, 2(1).
- Leonardi, M., Steiner, T. J., Scher, A. T., & Lipton, R. B. (2005). The global burden of migraine: measuring disability in headache disorders with WHO's Classification of Functioning, Disability and Health (ICF). *The Journal of Headache and Pain* 2005 6:6, 6(6), 429–440. <https://doi.org/10.1007/S10194-005-0252-4>
- Loon, G. Van. (1981). *Charaka Samhita Handbook on Ayurveda: Vol. I*. Orientalia Publishers.

- MacGregor, E. A. (2005). Menstrual migraine. *The Abnormal Menstrual Cycle*, 197–218. <https://doi.org/10.3810/PGM.1997.05.236>
- Mannix, L. K. (2017). Management of menstrual migraine. *Neurologist*, 9(4), 207–213. <https://doi.org/10.1097/01.nrl.0000080952.78533.0a>
- Martin, V. T., & Behbehani, M. (2006). Ovarian hormones and migraine headache: Understanding mechanisms and pathogenesis - Part I. *Headache*, 46(1), 3–23. <https://doi.org/10.1111/J.1526-4610.2006.00309.X>
- Mata, S., Vaghela, Dhiman, & Parth. (2015). Clinical evaluation of an Ayurvedic therapy- Sutashekhararasa and Brihat Jeevakadya Taila Nasya in the management of Ardhavabhedaka (Migraine). *International Journal of Ayurvedic Medicine*, 6(2), 150–159. <http://ijam.co.in>
- Mishra, L. C. (Ed.). (2003). *Scientific Basis for Ayurvedic Therapies* (illustrate). CRC Press, 2003.
- Moraes, M. M., Rabelo, P. C. R., Pinto, V. A., Pires, W., Wanner, S. P., Szawka, R. E., & Soares, D. D. (2018). Auditory stimulation by exposure to melodic music increases dopamine and serotonin activities in rat forebrain areas linked to reward and motor control. *Neuroscience Letters*, 673, 73–78. <https://doi.org/10.1016/J.NEULET.2018.02.058>
- Naveen, & Mamatha. (2017). *View of Management of Menstrual Migraine with Triphala Churna - A Case Study*. <https://www.jaims.in/jaims/article/view/353/360>
- Pearce, J. (1977). Migraine: A Psychosomatic Disorder. *Headache: The Journal of Head and Face Pain*, 17(3), 125–128. <https://doi.org/10.1111/J.1526-4610.1977.HED1703125.X>
- Peter Marchand. (2006). *The Yoga of the Nine Emotions: The Tantric Practice of Rasa Sadhana* (illustrate). Inner Traditions / Bear & Co, 2006.
- Pinkerman, B., & Holroyd, K. (2010). Menstrual and nonmenstrual migraines differ in women with menstrually-related migraine. *Cephalalgia*, 30(10), 1187–1194. <https://doi.org/10.1177/0333102409359315>
- Sarngadeva. (2007). *Saṅgīta-ratnākara of Śārṅgadeva Sanskrit Text and English Translation with Comments and Notes · Volume 1* (R. K. S. Prem Lata Sharma (Ed.)). Munshiram Manoharlal.
- Sathyaprabha, T., Kisan, R., Adoor, M., Nalini, A., Kutty, B., ChindandaMurthy, B., Sujana, M., Rao, R., & Raju, T. (2014). Effect of Yoga on migraine: A comprehensive study using clinical profile and cardiac autonomic functions. *International Journal of Yoga*, 7(2), 126. <https://doi.org/10.4103/0973-6131.133891>
- Sharma. (1996). *Sharma M. Special Education Music Therapy*. - Google Scholar. https://scholar.google.co.in/scholar?hl=en&as_sdt=0%2C5&q=Sharma+M.+Special+Education+Music+Therapy.&btnG=
- Silberstein, S. D. (1994). Serotonin (5-HT) and Migraine. *Headache: The Journal of Head and Face Pain*, 34(7), 408–417. <https://doi.org/10.1111/J.1526-4610.1994.HED3407408.X>
- Silberstein, S. D., & Young, W. B. (1995). Migraine aura and prodrome. *Seminars in Neurology*, 15(2), 175–182. <https://doi.org/10.1055/S-2008-1041021/BIB>
- Somerville. (1975). Estrogen-withdrawal migraine: I. Duration of exposure required and attempted prophylaxis by premenstrual estrogen administration. *AAN Enterprises*. <https://n.neurology.org/content/25/3/239.short>

- Sreedharan, R., Nagarajan, K., & Surendran, L. (2021). Music therapy for sleep disorders based on the Biorhythm theory of Ayurveda. *Annals of Ayurvedic Medicine*, 10(4), 427–439. <https://doi.org/10.5455/AAM>
- Stewart, W. F., Wood, C., Reed, M. L., Roy, J., & Lipton, R. B. (2008). Cumulative lifetime migraine incidence in women and men. *Cephalalgia*, 28(11), 1170–1178. <https://doi.org/10.1111/j.1468-2982.2008.01666.x>
- Stewart, Walter F., Shechter, A., & Rasmussen, B. K. (1994). Migraine prevalence. A review of population-based studies. *Neurology*, 44(6 Suppl 4), S17-23. <https://europepmc.org/article/med/8008222>
- Tanvi, Anita, Madhulika, Jha, K. M., Sunita, & Asha. (2015). *The Effect of Indian Classical Music on Migraine Episodes in Young Females of Age Group 18 to 23 Years*. <https://mmd.iammonline.com/index.php/musmed/article/view/431/287>
- Vetvik, K. G., MacGregor, E. A., Lundqvist, C., & Russell, M. B. (2014). Prevalence of menstrual migraine: A population-based study. *Cephalalgia*, 34(4), 280–288. <https://doi.org/10.1177/0333102413507637>
- Wacogne, C., Lacoste, J. P., Guillibert, E., Hugues, F. C., & Le Jeune, C. (2003). Stress, anxiety, depression and migraine. *Cephalalgia*, 23(6), 451–455. <https://doi.org/10.1046/J.1468-2982.2003.00550.X>
- Zacur, H. A. (2006). Hormonal changes throughout life in women. *Headache*, 46(SUPPL. 2), S50–S55. <https://doi.org/10.1111/J.1526-4610.2006.00554.X>
- Zatorre. (2005). Music, the food of neuroscience? *Nature.Com*. <https://www.nature.com/articles/434312a>