

## SIGNIFICANCE OF OM MEDITATION IN CLASSICAL YOGA TEXTS AND ITS THERAPEUTIC BENEFITS

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### Abstract

All other noises and creation are said to originate from this primordial sound known as Om in Indian scriptures as a symbol of the Supreme Power. Autonomic and respiratory tests show that during Om meditation, there is a balance between mental alertness and physiological relaxation. According to research using evoked potentials, the auditory association cortices experience a reduction in sensory transmission time and an increase in mesencephalic-diencephalic neuron recruitment. An extensive collection of publications covering prior studies, their findings, and the many methods used to examine the impact of Om meditation on humans is included in this overview. Neuroimaging studies, EEG studies, evoked potentials studies, and other techniques investigations are all subcategories of Om meditation research. In spite of the current data showing that Om meditation may help with anxiety and depression, more thorough studies with better design, bigger sample sizes, and various control groups are needed. Furthermore, it is advised that EEG research into Loud Om meditation be expanded to include unexplored regions. It is also proposed that more study be conducted in the future.

**Keywords:** EEG, Pre-Frontal Cortex, Vagus Nerve, Amygdala

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### INTRODUCTION

Yoga is a spiritual science that is universal, nonsectarian, and unaffected. In yoga, meditation may be described as a deliberate and voluntary effort to direct one's self-attention toward relaxation, self-discovery, or personal growth. Focusing your attention on a specific object or mantra meditation are the two most common styles of meditation used in today's world. Meditation may be done using a variety of mantras. Repetition of a mantra is an easy way to practise meditation. The greatest sacred sign in Hinduism is the Om syllable, which appears in the Upanishads, Bhagwat Gita, and Vedas. In Hinduism, the holy syllable Om is thought to be the name of God and from whence every other sound originates. An important aspect of om singing is the creation of bottom-up vibrations that go up the body. The sound of A-U-M is repeated again and over, causing vibrations that do not need the use of the tongue. You may say the Om mantra out loud, or you can chant it in your head. The sound of the mantra becomes the centre of your attention when it is shouted out loud. In addition to helping, you become used to the pronunciation of the mantra, reciting the mantra aloud is also supposed to help relax your mind. Chanting mantras in your mind is the most potent kind of meditation. Mental repetition, on the other hand, is thought to need intense concentration in order to maintain focus on your mantra. Starting with loud mantra meditation is advised by the author. In spirituality, symbolism has a place. Spiritual or shamanic healing treatments rely on altered states of consciousness, while neuroscientific explanations based on classical cognition are missing. [1] "Perceptual-cognitive-symbolic" is the term used here to characterize the normal state of consciousness. An additional channel for information processing, known as "direct-intuitive-nonlocal," is needed for interpretation in non-ordinary states of consciousness. Because of its psycholinguistic characteristics, the first one is more suited to cultural moulding via symbols. The first one lacks symbolism; therefore, it has greater cross-cultural resemblance, however culture-specific transliteration is possible. As a general rule, mantra meditation entails repeating a selected word (silently or loudly), phrase, or sequence of syllables while ignoring any internal or external distractions.

word (silently or loudly), phrase, or sequence of syllables while ignoring any internal or external distractions. Overriding mental speech (the primary form of conscious thinking for most people) is hypothesized to be an effective mechanism for overcoming unpleasant or intrusive auto-matic ideas that prolong psychological pain using sound or mantra meditation. Transcendental Meditation (TM), Benson's Relaxation Response (RR), and Japa yoga are all forms of mantra meditation. Even though some practitioners of the TM method claim that subtle differences exist, all are based on the same fundamental principle of repeating a word or phrase to induce a relaxation response, and thus are referred to as 'mantra meditation' in this review.

### REFERENCES IN THE UPANISHADS

In Hinduism, the word "Om" refers to God (Ishwara, Brahman). [2] Om encompasses all three facets of human experience. Letters A, U, and M make up the name of this product. Physical plane "A" is referred to as "A" in this context. All skies are represented by the letter "U," which stands for the mental and astral planes. "M" stands for the whole condition of deep sleep, which is completely unknown to us while we are awake. This idea has been well-explained in a number of ancient Indian texts. Om is the syllable of the past, present, and future, according to the Mandukya Upanishad. The initial sound, Om, manifests itself in all things as their extension. The Mundaka Upanishad uses an analogy in which Om is the bow, the soul is the arrow, and Brahman is the aim. The goal is achieved by a guy who is always on target. As an arrow, one should merge with the target. To achieve union with the immutable means letting rid of concepts such as "body," "ego," and "prana," and instead focusing on the notion of being the self, which is nothing less than union with the unchangeable. Although Om is present in firewood, it can only be seen when two sticks are rubbed together, according to the Svetasvatara Upanishad. The holy phrase Om is like that fire; it can only be experienced by persistent awareness of it. You may think of your body as a stick and Om as the other end of the stick. Real nature is revealed, just as fire in a way is concealed in the wood.

**REFERENCES IN PATANJALI'S YOGA SUTRAS**

"Om" is explained in detail in Patanjali's Yoga Sutras (PYS), an ancient yoga literature. [7] Pranava is mentioned just once in PYS (Om). Tasya vachakah pranavah is the name of that (Ch: I; V: 27). It is a literal translation of the term "pranava" to signify "Ishwara or Om," which is the name for God. Ishwara's qualities and description may be found in PYS Chapter I, Verses 24-26, despite the fact that Om is only mentioned once throughout PYS. Klesakarmapakasayairaparamstah purusavisesa Isvarah is mentioned in the 24th Sutra, where it is said (Ch: I; V: 24). Affliction, deeds, and their repercussions can't impact God since he's unaffected by them. As stated in Sutra 25: tatra-niratisayam sarvajnabijam (Ch: I; V: 25), the basis of omniscience is found in God. A continuation of this description may be found in Sutra 26. Kalenanavachchedat Purvesamapi Guruh in the Sutra, according to the text (Ch: I; V: 26). This suggests that Ishwara is the first guru, or the guru of the oldest teacher, since He is not constrained by space or time.

Sutra 28 explains what sadhana is required to achieve Ishwara realization, which is important since PYS has characterized pranava (Om) as Ishwara. In Sutra 28, the word "Tajipastadarthabhavanam" appears (Ch: I; V: 28). Since Om isn't specified precisely, this suggests that you should repeat Om in your head while thinking about what it means.

**Yoga Philosophy**

The Yoga Darshana is one of six philosophical schools of Hinduism. The Yoga Sutras are the foundational scripture of the Yoga philosophy (also called Yoga Darshana). Patanjali, a yogi from ancient India, is the author of the first known yoga text. Sankhya, a philosophical philosophy founded by the sage Kapila, provides the basis for the Yoga Philosophy. Bhagavad Gita is India's most widely read text, and it includes a reference to Sankhya. There are two ultimate realities, Purusha and Prakriti, according to Sankhya, according to the Ramakrishna Vedant Wordbook: In the Sankhya tradition, Purusha's transcendental nature is experienced in the ultimate awareness, when Purusha's connection with Prakriti and its products dissolves and Purusha is understood as existing independently in its transcendental nature." Sankhya is the foundation of Yoga, therefore it's not unexpected.

A philosophy that encourages its students to participate in yoga as a means of experiencing and proving its truth and value is Yoga, unlike the other five systems. In the beginning, there is theory, and then there is practice and then there is realization. Yoga is a philosophy, a discipline, and a way of life, all rolled into one. It's a glimpse into the psyche. Conscious light spots in the boundless ocean of Conscious Light that is God were originally ourselves. We were gods in the midst of God Himself. Because we cannot exist outside of Infinity, here is where we remain. However, we live in an ever-changing world that entirely obscures the fact of our eternal existence in God. We have been imprisoned in material cases for countless life cycles, serving as little bodies inside the larger prison of the universe. Then we're at this point in time.

**Pre-Classical Yoga**

Between 1000 and 500 B.C.E., the emergence of the Upanishads marks the start of Pre-Classical Yoga. It is considered that the Upanishads are a component of the Vedas. They discuss Brahman's nature, philosophy, and meditation. 108 Upanishads are available (10 main). An further explanation of the Vedic teachings is provided by Upanishads, which are dialogues between the instructor (Guru) and the pupil (shishya). The allusions to yoga in the Upanishads imply that the knowledge of hata yoga was extensively recognized prior to this time.

The Bhagavad-Gita, or Lord's Song, was written by Rishi Vyasa approximately 500 B.C. and is the earliest known Yoga text (Smruthi - remembered). Shri Krishna (individual awareness) and Prince Arjuna (human consciousness) had a dialogue in the Gita (Divine Consciousness). It's all about yoga, and Shri Krishna reaffirms that yoga is a long-standing discipline. There is, however, no evidence that Yoga originated at a certain time or place.

The Gita discusses four forms of yoga: Bhakti, Jnana, Karma, and Raja, or the royal path of meditation and its linked disciplines, in the context of the Gita. Bhakthi Yoga, Karma Yoga, Raja Yoga, and Jnana Yoga may all be practiced separately, but they must all be practiced together in order to achieve enlightenment, according to the Gita. Meditation is the focus of the whole sixth chapter of the Gita.

**Classical Yoga**

During the Classical Period between 500 BC and 100 BC, the Yoga Sutra was also created. Classical Yoga was defined and standardized by Rishi Patanjali in the second century. It consists of 195 sutras (Sanskrit term for thread) that explain Patanjali's eightfold route of yoga, Raja Yoga, and Patanjali's Eightfold Path to Yoga in detail (Ashtanga- Eight Limbs of Classical Yoga). Yoga- Bhashya (speech on yoga) by Rishi Vyasa is the first known Sanskrit commentary on the sutras. Yoga life Institute teaches Classical Yoga or Ashtanga Yoga (Classical Eightfold Path) here.

Hata Yoga Pradipika, Goraksha Samhitha, Gherand Samhita, and Hatarathnavali were all authored between the 6th and 15th centuries AD. There are many similarities between yoga and Hinduism and Buddhism that may be traced back to its roots. Meditation and physical postures are central to the practice of the Middle Path, which Buddha began teaching in the sixth century B.C., in Pali and Sanskrit respectively. At the age of 35, Siddharta Gautama (also known as Shakyamuni), the first Buddha, acquired enlightenment (Nirvana).

**LITERATURE REVIEW**

Surabhi (2017), Yoga is a kind of exercise that began in ancient India and is done extensively around the globe today. Yoga not only boosts your physical strength but also helps considerably towards your mental health and spiritual progress. Yoga not only keeps you part of your lifestyle. Some advantages of yoga include: Yoga aids in maintaining the spine upright, helping you to sit straight and not slouch. It also helps ease the tension on your keeping the spine firm and minimizes weariness. Many poses in yoga demand you to raise your own weight which aids in making the bones stronger and helps fight against osteoporosis blood from the internal organs and enable oxygenated blood to circulate. Yoga teaches you to relax and slow your breath and to concentrate on the nervous system to parasympathetic nervous system. Yoga like any other physical activity may alleviate constipation and lessen the risk of cool movements that Yoga includes, enhance the transit of meals and eliminate waste through the colon. This assists in getting rid of the waste from the system more efficiently. Yoga may alleviate your discomfort and aid those who suffer from arthritis, back pain and other chronic ailments. When you ease pain, you're in a lot better mood and are likely to be more active. In this text, many forms of yoga activities and its ubiquitous advantages are thoroughly detailed with appealing examples.

Julie Lynch, Lucia Prihodova, Pádraic J. Dunne, Caroline Carroll is the author of this article. Walsh, Cathal (2016). Introduction This non-pharmacological technique for improving mental health has gained increasing attention in the research. Using a custom-made data extraction form, data abstraction was made easier. Results Only 37 records out of a total of 2171 were selected for this study. Several studies have shown the effects of stress, anxiety and depression on people's mental health. The TM programme was used in 78 percent of the investigations. Anecdotal evidence suggests that broad populations may benefit only somewhat or moderately from mantra meditation. On the whole, it might be said that almost all the research was subpar. Conclusions Meditation on mantras has been shown to reduce stress and anxiety in non-clinical groups. However, the quality of studies may limit how reliable these results are.

**SCIENTIFIC STUDIES ON OM**

All yoga approaches rely heavily on the practice of yoga, and it is widely accepted that this is the case.

Meditation on Om has been explored for its physiological and psychological consequences. Meditators begin by seeing the Om symbol and then mentally repeating the mantra "Om," which leads to a state of pure awareness without effort or attention.

#### STUDIES ON AUTONOMIC AND RESPIRATORY VARIABLES

Seven experienced Om meditators were investigated for their autonomic and respiratory characteristics (with the experience ranging from 5 to 20 years). There were two sorts of sessions for each subject: a meditation session (which included a time of mental chanting of Om) and a control session (with a period of nontargeted thinking). Compared to the control period, the heart rates of the meditators were much lower during meditation. During both kinds of sessions, the cutaneous peripheral vascular resistance increased in a similar manner. While physiologically relaxed, this was interpreted as a sign of increased mental alertness. In a subsequent research, 12 meditators were asked to repeat the mantra Om or One, and the results showed that the autonomic and respiratory responses differed between the two. However, the skin resistance decreased only when Om was repeated. This suggests a slight shift in the subject's mental state connected to the importance of the syllable.

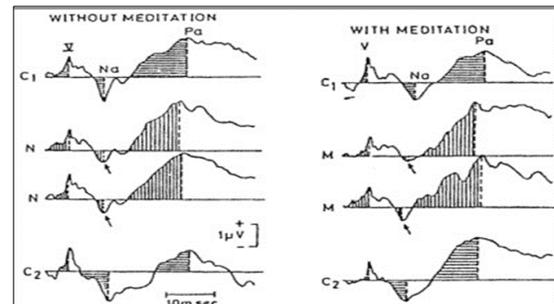
Numerous studies have shown that yoga mantras and prayers may have a positive effect on the body's physiological and psychological systems. The recitation of the rosary and yoga mantras, two rhythmic formulae, were tested to see if they could synchronize and reinforce the heart's natural rhythms and alter baroflex sensitivity. Healthy volunteers totaled 23. When prayers and mantras were chanted six times a minute, there was an increase in the synchrony of cardiovascular rhythms. In addition, the baroflex sensitivity increased. Reciting the rosary and some yoga mantras at precise frequencies has been shown to have positive psychological and physiological benefits.

A mix of mental attentiveness and physiological relaxation is noticed during the practice of Om meditation, according to the findings. Meditation and prayer have also been reported to help induce a sense of mental and physical well-being.

#### STUDIES ON EVOKED POTENTIALS IN EXPERIENCED MEDITATORS

During and after the practice of Om meditation, seven skilled volunteers were tested for middle latency auditory evoked potentials (0-100 ms range). In this study, researchers were able to better understand how brain processing at various levels may alter throughout a meditation practice in which thoughts are concentrated on a word or phrase without a conscious attempt to do so (i.e., meditation on the syllable Om). Seven "naive" volunteers of the same age and gender were also studied before and during a control session in which they sat with their eyes closed and were not given any specific instructions for directing their thoughts.

Small but continuous improvements in Nb wave latency were seen (the maximum negativity occurring between 35 and 65 ms). The "naive" respondents, on the other hand, did not demonstrate this decline over the course of three repetition sessions. Middle latency auditory evoked potentials (MLAEPs) have been shown to alter brain processing during meditation, however the intersubject variability of MLAEPs prevents them from being used as a technique of choice for examining the benefits of meditation. Small but substantial changes in brain activity are shown by middle latency auditory evoked potentials during meditation. Following this, researchers investigated the effects of OM meditation on auditory evoked potentials in the middle latency range. The peak amplitude of the Na wave (the greatest negative peak between 14 and 18 ms) increased significantly during the meditation, whereas the peak amplitude of the Na wave decreased significantly during the control session. A significant (Om) syllable was repeated in the same way as a neutral syllable (One), but brain alterations happened in opposing ways. According to the study's findings, the peak amplitude of the Na wave increased significantly while participants were thinking about Om whereas it decreased significantly when they were thinking of the neutral syllable One. Neurons are more likely to be recruited as the amplitude increases, while neurons that are less likely to be recruited are less likely to be recruited. Telles & Desiraju and Telles et al. found alterations in the peak latencies of middle latency auditory evoked potential components, which represent changes in the subcortical and primary auditory cortex. These findings pointed to a reduction in the time it takes for sensory information to travel between different parts of the brain during meditation on Om. Researchers have found that mental repetition of Om results in a physiological state that is marked by decreased physiological alertness, increased sensory sensitivity and synchronicity, and changes at specific levels along the auditory pathway that indicate an increased sensitivity to sensory transmission.



**Figure 1: Experienced Meditators Versus Non-Meditators: Importance of Motivation. (Typical Example of AEP-Mlrs During Meditation In An Experienced Subject (Left, 12 Years Experience) and A Novice (Right, 10 Days Experience))**

**Table 1: Summarizes the Findings of Studies on Om Meditation Based on Neuroimaging Method**

Om Chanting Type	Subjects	Type of Meditators	Method / Signal Processing	Experimental Design	Findings
Loud Om chanting	20	Naive	Functional near- infrared spectroscopy (fNIRS)	Subject exposed to mobile phones (30 min) → Om chanting (5 min)	Deactivation of pre- frontal cortices due to the vibrations produced by the sound 'Om'; Study suggests that Om chanting may have a stimulating effect on branch of vagus nerve in the ear canal.
Listening Om mantra	21 (All male)	-	Functional magnetic resonance imaging (fMRI)	Listening OM (12 ms) → No sound (12 ms) → Listening AAM (12 ms) → No sound (12 ms) → Listening TOM (12 ms) → No sound (12 ms)	Neural regions activated during listening to "Om" sound in contrast to non-meaningful word (TOM); The common activated region DMFC supports the emotional empathy of "Om" sound, while SMG implicates phonological Processing of "Om" syllable.
Mental Om Meditation	22 (All male)	Experienced	fNIRS	Random thinking → mental chanting and effortless defocusing on syllable "Om"	Oxygenation levels are increased in the PFC during meditation

**Om Meditation Studies Using EEG Methods**

EEG signal as a neurological and psychiatric diagnostic tool was firstly used and discovered by a German psychiatrist Hans Berg

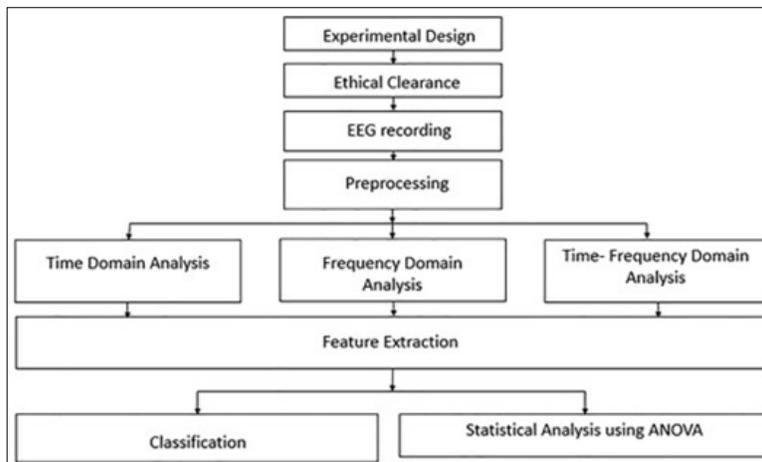
in 1929. Table 2 summarizes the findings from EEG Om meditation studies.

**Table 2: Om Meditation Studies Using Electroencephalogram (EEG) Methods**

Om Chanting Type	Subjects	Type of Meditators	Method / Signal Processing	Experimental Design	Findings
Loud Om mantra chanting	10	Naïve	Time domain Analysis (Higuchi Fractal Dimension (HFD))	Rest → Om Chanting → Rest	Om chanting reduces the complexity of EEG signal.

Using Higuchi fractal analysis, the research found a reduction in EEG complexity after loud Om meditation, as well as a sense of tranquilly (Harne, 2014). For this research, it was found that this approach may be extended into the temporal domain. It is recommended that a control group design be used in order to get more accurate findings. In light of Om meditation's efficacy, there are still relatively few research on the subject. A new approach for EEG analysis of Om meditation has also been suggested in this research. A step-by-step explanation of Om meditation's EEG analysis is given below to assist researchers in furthering their studies in this field of inquiry. The EEG framework for EEG analysis is shown in Figure 2. In the first step, you need to choose a suitable experimental design. It is the process of laying out a research project in order to achieve certain goals. One of the most critical parts of the research process is the first phase, which ensures that the right data and appropriate sample size and power are accessible (Malik & Amin, 2017). Before collecting

any data, the ethical considerations must be addressed. Raw EEG signals are recorded from the scalp of the brain during the EEG recording phase (Puce & Hämäläinen, 2017). Preprocessing, the following step, is cleaning up the data and removing any artefacts (Ames, 1971; Basar, 1999). It's now possible to do EEG analysis on EEG data in the time, frequency, as well as combined time and frequency domains (Al-Fahoum & Al-Fraihat, 2014). After the analysis, we go on to the next step, feature extraction. If we are looking for information that may help us classify anything, we can utilize this method (Güler & Übeyli, 2005). Finally, signal categorization is the last step in the process. Linear analysis, nonlinear analysis, adaptive algorithms, clustering and fuzzy approaches and neural networks may all be used to classify signals. The computational properties of the feature vector data lead to a hypothesis. In order to assess the hypothesis of the research, statistical analysis is performed using ANOVA or two-way repeated ANOVA.

**Figure 2: Framework for EEG analysis RESPONSE (MLR)****OM MEDITATION STUDIES USING MIDDLE LATENCY****Table 3: Om Meditation Studies Using Evoked Potential (EP) and Middle Latency Potentials Response (MLR)**

Om Chanting Type	Subjects	Type Of Meditators	Method / Signal Processing	Experimental Design	Findings
Mental Om meditation	18	Both naïve and experienced	AEP- MLR	Two sessions Relax (6 min) → Mental Om meditation → Relax (6 min) → Mental repeating word 'One'	Study revealed differences among senior and naïve meditators, naïve meditators require extra effort to practice meditation.
Mental Om meditation	14	Both naïve and experience	MLR	Relax (6 min) → Mental Om meditation → Relax (6 min) → Non targeted thinking	Reduce HR indicate psychophysiological relaxation.
Mental Om meditation	12	Both naïve and experienced	MLR	Three sessions Mental Om meditation (MOM) (15 min) → Mental repeating word (COM) (15 min) → Neutral thinking (15 min)	Skin resistance level reduces during mental Om meditation; Heart rate (HR) reduce; Respiratory rate (BR) reduce

Meditation and naïve individuals were studied in three sessions of mental chanting Om, mental chanting One, and neutral thinking. Na wave peak amplitude rose among experienced meditators<sup>1</sup> and was associated with an increase in the number of neurons recruited, while Na wave peak amplitude dropped during control sessions, indicating opposite implications. The three studies undertaken by Telles and her co-authors show that

Om meditation has considerable health advantages, including lower respiratory rate, reduced heart rate, reduced skin resistance, and a state of calm.

**CONCLUSION**

Various methodologies have been used to investigate the brain and bodily effects of Om meditation. There is a need for empirical,

experimental, and theoretical investigations in this subject since the results are so diverse. Om mantra meditation has recently been studied using brain imaging and evoked potentials. Most studies are also focused on chanting the Om in one's mind. Using EEG as a means of studying the mental impacts of Om meditation, this work argues that additional research is needed. For example, EEG data may be analyzed using rapid Fourier transforms, wavelet transforms, independent component analysis and the principle component analysis, as well as coherence analysis. A, U, and M make up the whole articulation process in the utterance of Om. All other sounds and creations are derived from this fundamental frequency. Om is said to be a gateway to enlightenment. Researchers have shown that the mental repeating of Om resulted in physiological alertness, heightened sensitivity and synchrony of particular biorhythms, and an increased sensitivity to sensory transmission. 'Om'.

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