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# HISTORY OF YOGA SCIENCE WITH SPECIAL REFERENCE TO SHAMBHAVI MAHAMUDRA

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## ABSTRACT

The present study describes the history of yoga and it's scientific nature of ShambhaviMahamutra. The sacred land of India has been witness to the lives of countless siddhas, seers, sages and enlightened beings. The Velliangiri Mountains, situated in Coimbatore district in the state of Tamil Nadu are very much a part of this glorious tradition. Sadhguru established Isha Foundation, a non-religious, non-profit organisation entirely run by volunteers. The Isha Yoga Center near Coimbatore was founded in 1992, and hosts a series of programs to heighten self-awareness through yoga. The foundation works in tandem with international bodies like the Economic and Social Council of the United Nations.Meditation is a powerful tool for spiritual growth, and is essentially a process to take one beyond the limitations of body and mind. Teachers and practitioners of these "inner technologies" have also experienced the many physical and mental benefits of meditation and yoga. In recent years, a growing number of scientific studies and research on meditation have corroborated these experiences.

Isha's introductory practice is the ShambhaviMahamudra, an ancient kriya that has millions of dedicated practitioners who aver that they experience greater emotional balance, concentration, focus, stability and better health with regular practice of the meditation. In fact, there have been several scientific studies that measure the various benefits of practicing the kriya regularly – both with regard to brain activity during the kriya, as well as statistical research of how it affects people's health and well-being.

## 1. INTRODUCTION

### How does the Kriya Work?

The reason why most people are unhappy or unhealthy is that the physical, the mental and the "pranic" body are not in alignment. Sadhguru says, "There is a certain way to engineer our system, to make this body, to make this mind… the very chemistry within us the way we want it." Traditionally, yoga sees the human being as five layers of body: the physical body, the mental body, the pranic energy body, the etheric body and the bliss body. The reason why most people are unhappy or unhealthy is that the physical, the mental and the "pranic" body are not in alignment. Sadhguru explains, "If they are properly aligned, a natural expression, an overwhelming expression of joyfulness will naturally happen within a human being. Now, we are looking at the technology of keeping these three bodies constantly aligned so that

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joyfulness is not an accidental happening; joyfulness becomes a normal condition, a natural way of living for you."

**The Studies**

Studies on ShambhaviMahamudra have been varied: some have examined its impact on disease status and medicine usage, some have looked specifically at menstrual disorders, while others have studied the benefits of this meditation on sleep, heart rate variability, brain activity, etc. Other studies have researched general well-being and improved attention spans among regular meditators.

Cardiovascular functions are controlled by neural factors as well as others like temperature, hormones, etc. Of these, neural factors primarily concern the Autonomic Nervous System (ANS), which plays a major role in maintaining and regulating cardiac functions, e.g. systolic and diastolic blood pressure (SBP and DBP) and heart rate (HR). Imbalances in these lead to cardiovascular disorders such as hypertension, ischemia, infarction, etc.

Numerous studies indicate a strong association between compromised ANS (e.g. decreased vagal activity or increased sympathetic activity) and sudden and non-sudden cardiac deatLifestyle modifications are also increasingly recognized as important factors in the treatment, pevention, and rehabilitation of cardiovascular disorders. One highly popular and currently researched lifestyle modification is Yoga.

Yoga is considered a holistic practice generating a sense of well-being through its various actions on physiological systems in a seemingly complex, yet integrated manner. Regular Yoga practice has been postulated to help in prevention of disease, in particular, to streamline autonomic functions, specifically by modulating vagal efferents. Preliminary support for this hypothesis comes from a study demonstrating voluntary control over HR after a 30-day Yoga intervention.

Isha Yoga consists of a set of yogic practices such as *Surya Namaskar*, 16 types of *Asanas, Sakthi chalana Kriya, ShambhaviMaha Mudra*, *Shoonya*, and *Samyama* meditations. Changes in cardiac ANS have been observed during the practice of *ShambhaviMaha Mudra*.

Several methods are available to measure cardiac ANS, of which heart rate variability (HRV) has been established as a non-invasive tool. HRV includes both variations in instantaneous HR and RR intervals. Beat-to-beat (R-R intervals) fluctuations reflect the ability of cardiovascular control systems to respond efficiently to a multitude of physiological changes. HRV is traditionally analyzed by frequency domain, time domain, and nonlinear methods, to investigate autonomic influences on the cardiovascular system. Classical spectral analysis of HRV signals distinguishes sympathetic from parasympathetic activity: sympathetic activity manifests in low frequency (LF) band power, while parasympathetic activity manifests in high frequency (HF) band power. LF/HF ratio and LF, HF normalized units (nu) are good

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indicators to assess alterations in cardiac autonomic nervous system behavior. Reduced HRV has been identified as a predictor of increased risk of cardiac mortality and sudden cardiac death.

Studies conducted so far on Yoga practices have by and large measured HRV just before, during, or immediately after Yoga sessions. Few studies have measured HRV in long-term regular practitioners. No studies have been conducted using HRV comparing Yoga practitioners and non-Yoga practitioners.

This study measured the effects of Isha Yoga on cardiac ANS in healthy regular practitioners who had been practicing for over 6 months, comparing them with healthy, age- and gender-matched controls at rest and in respiratory sinus arrhythmias using short-term HRV. It was hypothesized that these measures would help understand how the cardiovascular ANS responds to Isha Yoga practices.

## 2. MATERIALS AND METHODS

The study was conducted at the Neurophysiology Lab, Isha Institute of Inner Sciences and Research, Coimbatore, India, after obtaining Ethics Committee approval from Stanley Medical College, Chennai, India.

### Study protocol

### Subjects

Fourteen healthy Isha Yoga practitioners and 14 healthy, age- and gender-matched, non-Yoga practitioners (mean age 31.57 ± 5.83 years, 12 males and 2 females) were recruited by the Isha Institute of Inner Sciences and Research.

### Inclusion criteria

Age between 18 and 40 years; in addition, for the Yoga group: doing Isha Yoga practices for 1½ h per day, 5 times a week, minimum for over 6 months.

### Exclusion criteria

Medical illness or on medication or exercise regime; obese; smoking; taking recreational drugs or alcohol. For non-Yoga control group: previous exposure to Yoga or exercise practice.

### About Isha Yoga practices

Isha Yoga consists of a set of yogic practices such as *Surya Namaskar*, 16 types of *Asanas*, *Sakthi chalana Kriya*, *ShambhaviMaha Mudra*, and *Shoonya* meditation designed by

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Sadhguru, a Yogi, mystic, and a humanitarian. Practitioners practiced all Isha Yoga practices described below regularly during a stipulated, protected time period for a minimum of 2½ h every day. All practitioners had learnt them following initiation when attending Isha Yoga programs conducted by Isha Foundation.

*Surya Namaskar*: 12 cycles of *Surya Namaskar* were done in medium pace in a span of 15 min.

*Hatha* Yoga (practiced daily) consists of a set of balanced, scientifically structured, simple, but powerful *Asanas* (Yoga postures) that were done in a period of 45 min in medium pace (*Nadivibhajan, Padahastasana, Konasana, Trikonasana, Vrikshasana, EkapaddaUttamapadasana, Dwipadauttamapadasana, Shalabasana, Naukasana, Bujangasana, Dhanurasana, Paschimothasana, JanurSirasasana, Arda Matsyendrasana, Sarvangasana, and Mayurasana*).

They were not performed merely as physical exercise or body bending, but slowly, with eyes closed and complete awareness aligning the mind with coordinated movements of body and breath.

*Sakthi chalana Kriya* consists of a powerful set of purifying techniques employing the breath to gain control over one's vital energies, practiced at least once daily. Practitioners sit on their heels with knees bent (*vajrasana*), eyes closed, inhaling and exhaling in cycles of different rates and volume, with the attention focused on breath and body. Depending on breath rate and number of cycles, 45–75 min may be required to complete it.

## 3. SEQUENCE OF THE, SHAMBHAVI MAHAMUDRA KRIYA

1- Sit in ArdhaSiddhasana. That is Sit on the floor in crossed legged posture. Place the heel of the left foot between the Anal and Reproductive Organ. The Right Foot Rests comfortably on the floor and Hold Brahma Mudra, Right Palm on Top of Left Palm Facing the ceiling placed at the naval portion.
2-Invocation to the Teacher.
Om Sahana Vavatu,
Sahanaubhunaktu,
SahaveeryamKarvavahi,
TejasvinamVadhitaMastu,
Maa Vid VishaVahaihi
Aum Shanti ShantiShanti Hi

3-Then Sitting in Crossed Legged Posture on the Floor Bring Both Feet/Heels Together, pull as much as you can towards the reproductive organ. Clasp both feet at the fingers point with your hands and do butter fly flapping of both legs up down for 2 minutes. This is called Patanga Asana or Butter Fly Flapping.

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4-Again return to ArdhaSiddhasana and bring the right foot and rest it on the middle of your Left Arm, bring your right Hand, from below your right foot and catch hold of your left arm Fingers, such that both Left and Right Hand Fingers are Locked inside Each other and twist your spine like rocking a baby. The other[Left] Foot Rests Between the Anal Outlet and Reproductive Organ. This is Shishupala Asana. Shishu Means A Baby. Repeat with Left Leg in Right Arm. Do this for 2 Minutes for Each Leg.

5-Then place your body on your knees and hands like a Tiger and Bring the Left Leg Knee to touch your forehead which comes down. At this point the Spine is up and it is exhalation of breath. Then as the Head Goes Forward, The Left Leg Becomes Straight and Goes Back. At this Point the Spine is straight and it is Inhalation of Breath. Your Spine should bend flexibly according to the breath and movement of knee. While doing one side the other side should be completely relaxed. Repeat this with another Leg/knee. Do This 3 Times for each leg/knee.

6-Now the Actual Kriya: Return and Sit in ArdhaSiddhasana and then Start Sukha Pranayama as follows. Close your Right Nostril with Right Thumb all other fingers of the right Hand are straight pointed upward the ceiling. Exhale Slowly, via the Left Nostril Completely. Then After Exhalation, Inhale Deeply via the Left Nostril, Close Left Nostril with little finger of Right Hand and Exhale completely from the right. No retention of breath is needed. Then Inhale completely from the Right Nostril, Close right Nostril using Right hand thumb and exhale from the left nostril. Keep Doing this for about 6-7 mts. The Left Hand is not used at all and rests comfortably on your lap. The Point to be remembered here is always start and end the Sukha Pranayama with Exhalation from the Left Nostril. Keep in mind that your breathing must be very slow and relaxed that if even a feather is placed beneath your nose even that should not vibrate.

## 4. SYSTEM STUDY

### Benefits of meditation #1: Improved cardiac health

Two studies published in 2008 and 2012 examined how ShambhaviMahamudra supported cardiac health. The studies showed that participants had a more well-balanced Cardiac Autonomic Nervous System and an overall increase in Heart Rate Variability (HRV) during the practice. A higher HRV has been linked to better immunity to stressful situations, and is said to bestow a greater survival advantage on individuals. A lower HRV on the other hand has been linked to various heart diseases such as coronary artery disease, hypertension, chronic heart failure and myocardial infarction. The researchers conclude that practitioners of the ShambhaviMahamudra and other Isha Yoga practices have higher exercise tolerance, better cardiac response to stressful situation, lower probability of undergoing hypertension of cardiac troubles such as ischemia or infarction.

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## Benefits of meditation #2: Greater coherence within the brain

A study from the Centre for Biomedical Engineering, IIT Delhi, looked at EEG (Electroencephalography) data from practitioner's brains before, during and after practicing the kriya. The results show that practitioners experienced a greater level of coherence between the right and left hemispheres of the brain. EEG coherence is known to be a measure of how well connected various regions of the brain are. Higher coherence indicates greater exchange of information between various regions, as well as improved functional coupling and coordination. Higher levels of coherence are also correlated to higher scores on IQ and creativity tests, as well emotional stability and cognitive flexibility.

The researchers also measured signals at various prominent EEG spectral bands known as the alpha, beta, delta and theta. Shambhavi practitioners were seen to have higher alpha band power in general, indicating that they experienced lower stress levels. There was a high increase in delta band power and theta band and a notable reduction in beta band power. A reduction in beta band power indicates reduced susceptibility to mental tension, excitement and anxiety. Higher theta and delta activity have been noted in previous research as indicative of conscious access to deeper states of meditation. "Delta rhythms combined with alpha are known to reflect an inner intuitive empathetic radar, a kind of sixth sense" the researchers note.

**Benefits of meditation #3: Improved sleep**

A study presented at the 20th Congress of the European Sleep Research Society, Lisbon, Portugal compared the sleep patterns of 15 male meditators with a control group of 15 age and education-matched, male non-meditators. Participants were aged between 25 and 55 years. The meditators had practiced ShambhaviMahamudra as well as other Isha Yoga practices.

Whole-night polysomnographic measures were recorded in participants and EEG data was recorded, along with other parameters. The results showed that the percentage of REM sleep, sleep efficiency and total sleep time of meditators was significantly higher as compared to the control group of non-meditators. Meditators also experienced better sleep quality as evidenced by fewer awakenings after sleep onset.

The study concludes that consistent practice of the Shambhavi meditation has a positive impact on quality of sleep.

## Benefits of meditation #4: Improved attention and focus

A study, published in the journal Perception, looked at how 89 participants performed in the Stroop task and attentional blink task before and after a 3-month Isha Yoga meditation

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retreat. The Stroop task looks at interference in the reaction time of a task. For example, when the name of a color is printed in some other color (for example, "red" is printed in black), respondents can make errors in identifying the printing color. Participants of the study were prone to fewer errors after the retreat than before it. Similarly, the attentional blink task involves participants identifying various visual stimuli presented to them within extremely short durations. Participants showed 58% correct detection during pre-retreat tests and 69% correct detection in post-retreat tests. The researchers conclude that "the hypothesis that meditation tends to improve allocation of attentional resources."

A similar study by a team from the Université de Toulouse, Department of Psychiatry and Human Behaviour, UC Irvine and the Indiana University School of Medicine looked at how Isha Yoga practices improve performance in attentional tasks due to better allocation of attentional resources, an ability to sustain attention and focus, faster re-allocation of attentional resources, greater cognitive flexibility and a reduction in automatic response. The study observes that these improvements are likely due to structural, anatomical and functional changes in meditators' cognitive systems as compared to control groups drawn from the general population.

## Benefits of meditation #5: Reduced menstrual disorders

75% of women are thought to experience problems related to menstruation, which has a huge physical, psychological, social and economic impact on their life. The primary means of treatment for such issues are known to offer less than satisfactory relief, even when patients choose surgery as a last resort. Currently, Yoga has become very popular as one of the mainstay alternate treatments for many disorders. The benefits of meditation and yoga in relation with such ailments have been under study for a while and show great promise. A team from the Poole Hospitals NHS Trust, UK, and the Indiana University School of Medicine, conducted a questionnaire survey of 128 female practitioners of the ShambhaviMahamudra between the age group of 14 and 55 years, from the USA, UK, Singapore, Malaysia and Lebanon. 72% of the respondents practiced every day and the rest practiced 1-3 times in a week.

The questionnaire asked respondents about the prevalence and impact of various menstrual disorders before they began the kriya and after they had practiced it for at least six months. Disorders covered included Dysmennorhea, symptoms of premenstrual syndrome, heaviness of menstrual flow, irregularity of menstrual cycle, the need for medical or surgical intervention for disorders, and the impairment of work during the menstrual period.

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## CONCLUSION

Taken together, all these results support a drop in stress and anxiety, a boost in mental alertness and focus, and an increase in self-awareness due to practicing the ShambhaviMahamudra. It is also clear that regular practice benefits cardiac health and either leads to a stop in the use of medication or at least reduces it considerably for a range of ailments including hypertension, depression and menstrual issues. The practice of yoga makes the body strong and flexible, it also improves the functioning of the respiratory, circulatory, digestive, and hormonal systems. Yoga brings about emotional stability and clarity of mind. ***In the practice of Yoga the ultimate aim is one of self-development and self-realization.***

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