

REVIEW ARTICLE

Brahma Muhurta and Circadian Rhythms: A Gateway to Optimal Health

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ABSTRACT

Introduction: Ayurveda is a holistic science that improves the quality of life and provides curative measures for various disorders, thereby maintaining the health of millions of people. By following the rules of *Dinacharya* and *Ritucharya*, one can enhance their longevity. *Dinacharya* begins with *Brahma Muhurta Jagarana*. *Brahma Muhurta* is a specific time that recharges the biological clock in humans and maintains its rhythm and pattern throughout the day. Circadian rhythm is a biological process with an endogenous, entrainable oscillation of approximately 24 h. External factors, such as light and temperature, affect the circadian rhythm in humans.

Objectives: To study *Brahma Muhurta* and circadian rhythm as a gateway to optimal health.

Methodology: This research was conducted through a comprehensive review of research articles and classical Ayurveda texts, focusing on *Brahma Muhurta* and its correlation with the circadian rhythm.

Results: A person's lifestyle also affects this clock, resulting in undesirable traits and diseases. *Brahma Muhurta* is ideal for meditation and yogic practices, and one's memory becomes sharp, leading them toward the ultimate goal of yoga, i.e., *Moksha*.

Conclusion: *Brahma Muhurta* is essential for spiritual evolution, and a person who wakes up early in the morning slows down their aging process. This regimen supports the preservation of health and longevity in individuals free from illness.

1. INTRODUCTION

Dinacharya starts with *Brahma Muhurta Uttana* (waking up), *Danta dhaavana*, *Nasya*, *Anjan*, etc.^[1] It is considered to be the appropriate time for waking up, which is the 14th muhurta of *Ratri*.^[1] The ancient Indian sages emphasized the importance of *Sadvritta*, a code of conduct that regulates behavior and maintains health. By following the principles of *Sadvritta*, one can achieve both physical and mental well-being. Adhering to the protocols outlined in *Ritucharya* and *Dinacharya* can enhance the longevity and balance of the three *Doshas* (*Vata*, *Pitta*, and *Kapha*). However, modern lifestyle disorders such as

diabetes, hypertension, insomnia, anxiety, and depression are on the rise due to poor eating habits, disrupted sleep patterns, and detachment from traditional practices. The human body has an inherent biological clock that regulates daily activities, and a deranged lifestyle can disrupt this clock, negatively impacting health. *Brahma Muhurta* recharges the biological clock and maintains its rhythm, leading to improved intellectual function and spiritual growth. This time is ideal for acquiring knowledge, practicing meditation and yoga, and bonding with God. According to Acharya Charaka, one who observes these principles of *Sadvritta* simultaneously fulfills both objectives via the maintenance of positive health and control of sense faculties.^[2]

The rhythm and pattern of the biological clock are reset and regulated daily by *Brahma Muhurta*. A circadian rhythm is a biological process that is influenced by a circadian clock and displays an internal

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oscillation of roughly 24 h. Numerous observations have been made of these 24 h cycles in fungi, animals, and plants. The name “circadian” comes from the Latin words “diem,” which means “day,” and “circa,” which means “around” or “approximately.” Circadian rhythms are endogenous and self-sustaining, but they must be adapted to the local environment by external stimuli known as zeitgebers (time givers), such as redox cycles, light, and temperature.

2. METHODOLOGY

The information for this study was collected by reviewing classical Ayurveda texts and published research articles focusing on *Brahma Muhurta* and its correlation with the circadian rhythm.

2.1. Brahma Muhurta

Definition: According to Arunadatta, the appropriate *Muhurta* or *Kaal* to acquire *Brahma Gyan* is called *Brahma Muhurta*. *Brahma* means knowledge, and the time for perceiving this knowledge is known as *Brahma Muhurta*.^[3]

2.2. Brahma Muhurta Kala (Time)

According to Arunadatta, the time just before dawn, at the end of the night, is called *Brahma Muhurta*.^[4]

Hemadri commenting on the same verse considers it as the last part of the night, i.e., time just before sunrise.

Brahma Muhurta starts 96 min before sunrise, and lasts for 48 min. *Brahma Muhurta* ends 48 min before sunrise. From 4.24.00 am to 5.11.59 am is *Brahma Muhurta* (If sunrise is taken at 6.00 am).^[5]

According to Swami Shivanandji, *Brahma Muhurta* is the morning period between 3.30 am and 5.30 am.^[6]

According to the religious basis of Hindu belief, the last phase of the night.^[6]

According to Swami Gourangapada, 48 min from 1 h 36 min to 48 min before sunrise.^[6]

2.3. Why Should One Get Up in Brahma Muhurta?

According to Arunadatta, the reason why one should get up in *Brahma Muhurta* is to avoid *Vyadhis* and *Alakshmi* (poverty). However, a person with a disease should sleep to maintain the *Dhatusamyata*.^[7]

2.4. Sushruta Samhita Concept of Ritu with Dinacharya

Table 1 describes the dominance of the corresponding *Ritu* according to the time of day.

Brahma Muhurta is dominated by *Hemanta Ritu*, where the *Bala* is highest. Hence, it is always better to get up in a time when the *Bala* is *Uttama* than in *Vasanta Ritu*-dominated time, where *Kapha Prakopa* is seen.^[8]

2.5. According to Yogaratnakar and Bhavaprakasha

To maintain health, the healthy individual should get up at *Brahma Muhurta* (2 h before sunrise) and also stress the importance of remembering God after getting up at *Brahma Muhurta*.^[9]

2.6. Bhagwat Geeta

A person whose *Ahara Vihara* is correct, whose activities and lifestyle are perfect, and who sleeps and gets up perfectly will be free from all miseries.^[10]

2.7. Garga Samhita

One should rise at *Brahma Muhurta*, chant the holy names of Lord Krishna and Lord Balarama, and bow down before one's guru. Only then should one place his feet on the ground.^[11]

2.8. Acharya Vagbhat

Awaken during the *Brahma Muhurta* (early morning) to stay healthy and protect your life.^[12]

2.9. Precautions while Rising in Brahma Muhurta

According to Arunadatta, certain rules, precautions, and methods have to be taken care of while rising in *Brahma Muhurta*. Before waking up in the morning, one should ensure proper digestion of the food taken during the last night.^[13]

2.10. Ancient Traditions

According to Hindu mythology, worshiping God in the early morning, or *Brahma Muhurta*, is the most auspicious time of day. It is thought that prayers said during this period go straight to God. Recognizing the divine presence in every area of the body, a sacred verse spoken in the morning acts as a prayer to the +almighty. In particular, Goddess Lakshmi is linked to the fingertips, Goddess Saraswati to the palm, and Goddess Gouri to the wrist. It is believed to be auspicious to begin the day with respect for one's own body and a prayer to Mother Earth, Lord Vishnu's wife. Hindu texts state that a person should rise early during *Brahma Muhurta* if they want to be healthy throughout their life.

2.11. Morden Concept

“During this time, energy levels are optimized, and mental clarity is at its peak. Rising with the sun allows the body to harmonize with its natural rhythm. The early morning sun's ultraviolet rays are rich in Vitamin D. Research by biologists and physiologists has extensively explored the circadian rhythm, suggesting that this period is linked to hormonal changes that foster mental growth and development. The release of nascent oxygen, which easily binds with hemoglobin to form oxyhemoglobin, also nourishes even the most remote tissues.”^[14]

2.12. Criteria for Circadian Rhythm

A biological rhythm must meet three key criteria to be considered circadian. First, the rhythm must have an endogenous free-running period of approximately 24 h, persisting in constant conditions such as darkness. Second, the rhythm must be entrainable, meaning external stimuli such as light and heat can reset it. This process is called entrainment, and the external stimulus used to entrain the rhythm is called the Zeitgeber, or time giver. Finally, the rhythm must exhibit temperature compensation, maintaining its circadian periodicity over a range of physiological temperatures.

Circadian rhythms enable organisms to anticipate and prepare for regular environmental changes, allowing them to capitalize on resources such as food and light. This has led to the suggestion that circadian rhythms provide a selective advantage in evolutionary terms. In addition, circadian rhythms play a crucial role in regulating and coordinating internal metabolic processes with the environment.

2.13. Biological Clock in Humans

The suprachiasmatic nucleus (SCN) is used to illustrate how light and darkness affect circadian rhythm and associated physiology and

behavior. The hypothalamus contains two separate cell groupings called the SCN, which are essential for controlling the body's internal clock. A regular sleep-wake cycle is completely lost when the SCN is destroyed.

The eyes, which include both specialized photosensitive ganglion cells that project directly to the SCN and classical photoreceptors (rods and cones) for conventional vision, provide the SCN with information about light exposure. Through the retinohypothalamic tract, these cells aid in synchronizing the master circadian clock and contain the photopigment melanopsin.

When grown, SCN cells keep their rhythm even when no outside stimuli are present. The pineal gland secretes melatonin, which peaks at night and decreases during the day, providing information about night length.^[15]

2.14. Characteristics of *Brahma Muhurta*

Waking up early in the morning can delay the aging process by reducing oxidative stress in the body. Synchronizing with the biological clock helps maintain overall health and well-being. In the 8th chapter of *Vimana Sthana* while elaborating characters of Shishya (scholar) Acharya Charak stated that the disciple should be healthy and solely devoted to study. He should get up early in the morning or the last quarter of night.^[16] According to Acharya Charak the recurrence of all sensations is checked through *yoga* and *moksha*. The absolute eradication of sensation is attained through *moksha*. *Yoga* is a means to attain *moksha*.^[17] Ancient classical believed that by getting up early in the morning, man gains beauty, praise, intelligence, money, health, a long age, and his life becomes beautiful, as a lotus.^[18] A regular sleep schedule, aligned with nature's rhythms, promotes productivity, balance, and harmony.

3. DISCUSSION

Ayurveda emphasizes preventive health through lifestyle practices such as *Dinacharya* (daily routine), *Ritucharya* (seasonal regimen), and *Sadvritta* (ethical conduct). Central to *Dinacharya* is waking up during *Brahma Muhurta*, approximately 1.5 h before sunrise, considered an optimal time for aligning with the body's natural rhythms.

The findings of this review suggest that *Brahma Muhurta* has a positive impact on circadian rhythms and human health. The practice of waking up during *Brahma Muhurta* can help regulate the body's internal clock, improve sleep quality, make it easier to wake up, and increase energy levels, and even alleviate symptoms of depression by suppressing morning melatonin production and promoting consistent sleep patterns. In the present context, the objective of science is to maintain the equilibrium of tissues. *Brahma Muhurta* can maintain his health throughout life and prevent unhealthy conditions. Circadian rhythm regulates sleep-wake cycles, hormone release, and other bodily functions. The pre-dawn hours align with the body's natural rhythms that promote alertness and heightened awareness. This early morning period is marked by tranquility and heightened mental clarity, making it ideal for meditation, yoga, and self-reflection. Engaging in such practices during *Brahma Muhurta* can enhance physical, mental, and spiritual well-being.

The circadian clock is an internal, self-sustaining biological system that regulates physiological and behavioral rhythms on a roughly 24 h cycle. Light serves as a primary external cue, or zeitgeber, that synchronizes this internal clock with the environment. Exposure to light, regardless of its source, can reset the circadian clock by

influencing the biochemical oscillators within the body, thereby aligning physiological and behavioral patterns with the external day-night cycle. Aligning daily routines with this time supports the balance of the body's tissues (*Dhatusamyavasta*) and maintains harmony with the biological clock, promoting overall health and longevity. To incorporate this practice, one can gradually adjust their wake-up time earlier by 15-min increments, facilitating a smooth transition to waking during *Brahma Muhurta*.

4. CONCLUSION

Brahma Muhurta, a pivotal time in the 24 h cycle, amplifies human potential by harmonizing biological processes and nurturing neurons and vital organs. Aligning one's lifestyle with the biological clock regulates mental stability, preserves health, and fosters holistic well-being. By embracing *Brahma Muhurta*, individuals can: regulate circadian rhythms and enhance sleep quality, strengthen immunity and overall physical health, enhance mental clarity, focus, and spiritual growth, and improve emotional well-being and mitigate stress.

Incorporating *Brahma Muhurta* into daily life can have a profound impact on overall health, leading to transformative benefits that encompass physical, mental, emotional, and spiritual well-being.

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6. AUTHORS' CONTRIBUTIONS

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9. CONFLICTS OF INTEREST

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10. DATA AVAILABILITY

This is an original manuscript, and all data are available for only review purposes from the principal investigators.

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Table 1: Dominance of *Ritu* with the time of the day

Time of the day	<i>Ritu</i>
Beginning of the day	<i>Vasant Ritu</i>
Mid-day	<i>Grishma Ritu</i>
Last part of the day	<i>Shishir Ritu</i>
First part of the night	<i>Varsha Ritu</i>
Midnight	<i>Sarad Ritu</i>
Early Morning	<i>Hemant Ritu</i>