

UNDERSTANDING ANIDRA THROUGH MODERN CIRCADIAN RHYTHM AND
AYURVEDIC PRINCIPLES

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ABSTRACT

Sleep(Nidra) is a fundamental physiological process essential for health and wellbeing. Ayurveda describes *Nidra* as one of the *Trayopastambha* (three supporting pillars of life), while its absence, termed *Anidra*, leads to both physical and psychological disturbances. *Anidra* is primarily attributed to vitiation of *Vata* and *Pitta doshas*, *Kasha kshaya*, and improper lifestyle practices. In modern science, sleep regulation is governed by the circadian rhythm, an intrinsic 24-hour biological clock controlled by the suprachiasmatic nucleus and influenced by melatonin secretion and light–dark cycles. Disruption of this rhythm through irregular routines, stress, or environmental factors results in insomnia, metabolic disorders, and impaired cognitive performance. Both Ayurveda and contemporary science highlight the importance of regular daily regimen, balanced diet, and lifestyle practices in restoring normal sleep patterns. An integrative approach combining circadian rhythm alignment with Ayurvedic therapies such as *Abhyanga*, *Shirodhara*, *medhya rasayana* (e.g., *Brahmi*, *Jatamansi*, *Ashwagandha*), and adherence to *dinacharya* may provide effective strategies for the management of *Anidra*.

KEYWORDS: *Anidra*, Insomnia, Circadian Rhythm, Anidra, Insomnia.

1. DEFINITION

Nidra (sleep) is one of the *Trayopastambha* (three pillars of life) along with *Ahara* (food) and *Brahmacharya* (regulated lifestyle).^[1]

Anidra (absence of sleep) or *Nidranasha*^[2] (loss of sleep) is considered both a *Vyadhi* (disease) and a *Lakshana* (symptom).

2. NIDANA (Causative Factors)

Dosha-related causes:

Vata prakopa – excessive thinking, travel, anxiety, stress, late-night activity

Pitta prakopa – anger, overwork, indigestion, excessive heat exposure

Kapha kshaya – lack of stability and calmness needed for sleep

Lifestyle causes (Aharaja & Viharaja)

Irregular eating habits, heavy food at night

Excessive use of stimulants (coffee, tea, tobacco, alcohol)

Night shifts, jet lag, excessive screen use (blue light exposure)

Excessive daytime sleeping

Manasika causes (Psychological)^[5]

Chinta (worry), Shoka (grief), Bhaya (fear), Krodha (anger)

3. LAKSHANA (Clinical Features)

Difficulty falling asleep

Frequent awakening during night

Non-refreshing sleep

Daytime sleepiness & fatigue

Irritability, stress, headache

Impaired concentration & memory

In Ayurveda, *Anidra* is considered as a disease belonging to the category of *Nanatamaj Vatavyadhi*.^[6]

5. Samprapti (Pathogenesis)

Aggravated *Vata* causes excessive activity of mind (*chanchalata*)

Depleted *Kapha* fails to provide stabilityIncreased *Rajas* & *Tamas* imbalance in *Manas* (mind).^[4]

This leads to disturbance in *Mana*, *Indriya*, and *Sharira samyoga* → resulting in loss of sleep.(*Anidra*)

6. Chikitsa Management^[3](A) *Nidrajanana Upaya* (Sleep-promoting measures)

Abhyanga (oil massage, especially with sesame oil or medicated oils like *Bala Taila*)

Shiro Abhyanga (head massage with Brahmi oil)
Shirodhara (continuous pouring of medicated oil/decoction on forehead)
Nasya with Anu Taila or Ksheerbala Taila
Pinda Sweda (mild fomentation)

(B) Ahara (Dietary Management)

Warm milk with nutmeg, turmeric, or Ashwagandha at night
 Light, easily digestible food at dinner
 Avoid stimulants (coffee, tea, spicy food) at night

(C) Aushadhi (Medicinal Herbs & Formulations)^[5]

Ashwagandha (*Withania somnifera*) – *Rasayana*, *Vatahara*, promotes sleep
Tagara (*Valeriana wallichii*) – mild sedative
Jatamansi (*Nardostachys jatamansi*) – calms mind, reduces stress
Brahmi (*Bacopa monnieri*) – improves cognitive function, induces calmness
 Classical preparations:
Brahmi Ghrita^[3]
Kalyanaka Ghrita
Sarpagandhadi Vati
Manasmitra Vatakam

(D) Achara Rasayana (Lifestyle & Behavioral Therapy)^[5]

Follow proper *Dinacharya* and *Ratri Charya*
 Sleep at fixed time, wake at fixed time
 Meditation, pranayama, yoga nidra
 Avoid mental strain before bedtime
 Evening walk or mild exercise

7. Modern Correlation

Anidra ≈ Insomnia (difficulty in initiation, maintenance, or quality of sleep).

Insomnia can also be classified as according to its⁷
 nature of origin Such as

1. Primary Insomnia -It is caused by its own set of causative factors, where vata dosha takes a primary role in the manifestation of the disease. Anidra explained under vata nanatmaja vyadhi can be considered as primary insomnia.

2. Secondary Insomnia- Anidra due to various physical and psychological disorders. Certain medications like decongestants, bronchodilators, beta blockers and long term use of sleep medication also induce insomnia.

Causes: stress, anxiety, depression, circadian rhythm disturbance, stimulants.

Complications: hypertension, diabetes, depression, memory loss, poor immunity

8. Prognosis

Sadhya (curable) when due to temporary factors like stress, irregular routine.

Kricchrasadhya (difficult to cure) if chronic, associated with psychiatric or systemic illness.

Anidra in Ayurveda is not just a symptom but a disorder affecting both *Sharira* (body) and *Manas* (mind)

Management requires a holistic approach—herbal remedies, *Panchakarma* therapies, diet, and lifestyle alignment with circadian rhythm.

1. Circadian Rhythm

The circadian rhythm is the natural, internal process that regulates the sleep–wake cycle and repeats roughly every 24 hours.

Derived from the Latin words *circa* (“around”) and *diem* (“day”).

It is the biological clock of the body, synchronizing physiological functions with day–night cycles.

2. Regulation Mechanism

Controlled by the Suprachiasmatic Nucleus (SCN) in the hypothalamus.

Light exposure is the main regulator (*zeitgeber*).

Melatonin, secreted by the pineal gland in darkness, promotes sleep.

Other hormones (cortisol, growth hormone, insulin) also follow circadian rhythms.

3. Major Functions

Sleep–Wake cycle – determines when we feel alert or sleepy.

Hormonal rhythm – melatonin (night), cortisol (early morning peak).

Metabolic regulation – appetite, digestion, insulin sensitivity.

Body temperature – lowest during night, highest in evening.

Cognitive performance – peak in the day, reduced at night.

4. Disruption of Circadian Rhythm

Causes

Shift work, jet lag, irregular sleep schedule.

Excessive screen exposure (blue light suppresses melatonin).

Late-night eating, stress, irregular routines.

Effects

Short-term: insomnia, fatigue, poor concentration.

Long-term: obesity, diabetes, hypertension, depression, decreased immunity, even cancer risk (due to hormonal imbalance).

5. Management & Alignment

Maintain regular sleep–wake timings.

Morning sunlight exposure helps reset biological clock.

Avoid blue light (mobiles, laptops) before bedtime.

Practice good sleep hygiene: dark, cool, quiet room; avoid caffeine & heavy meals at night.

Exercise at fixed times (preferably morning/evening, not late night)

In Ayurveda: following *Dinacharya* (daily regimen) — waking up at *Brahma Muhurta*, eating meals at proper

times, sleeping early — naturally aligns with circadian rhythm.

6. Ayurvedic Connection

Ayurveda doesn't mention "circadian rhythm" directly, but its *Dinacharya* (daily routine) and *Ritucharya* (seasonal routine) describe the same principles.

Example

Brahma Muhurta (before sunrise) — ideal for waking, aligns with cortisol peak.

Ratricharya — sleeping at night, when melatonin is secreted.

Proper mealtimes — in sync with digestive fire (Agni) and metabolic rhythms.

Circadian rhythm is the natural timekeeper of the body.

Ayurveda emphasizes living in harmony with this rhythm through *Dinacharya* and *Ritucharya*, which helps prevent disorders like *Anidra* (insomnia), lifestyle diseases, and mental health issues.

Interconnection between Anidra and Circadian Rhythm

1. Ayurvedic View (Anidra)

Nidra (sleep) is one of the *Trayopastambha* (three pillars of life).

Anidra (insomnia) arises due to Vata and Pitta vitiation and Kapha kshaya, often triggered by irregular routines, stress, and mental disturbances.

Dinacharya (daily regimen) and *Ratricharya* (night regimen) are emphasized to maintain natural sleep.

2. Modern View (Circadian Rhythm)

Circadian rhythm is the internal biological clock, regulating sleep–wake cycles, hormones, metabolism, and body temperature.

Melatonin secretion at night induces sleep, while cortisol peaks in the morning to promote wakefulness.

Disruption (due to artificial light, irregular sleep schedule, late-night work) → insomnia & systemic diseases.

3. How Circadian Rhythm Disruption Leads to Anidra

Late-night screen exposure suppresses melatonin → difficulty in falling asleep.

Shift work / irregular schedule → misalignment of internal clock → fragmented sleep.

Late-night meals → impaired digestion (Agni dushti) + disturbed metabolism → Vata-Pitta aggravation → insomnia.

Stress & anxiety (mental Rajas dominance) → hyperactive brain → disturbed rhythm & sleeplessness.

Aspect Anidra (Ayurveda) Circadian Rhythm (Modern Science)

Cause- Vata-Pitta vitiation, Kapha depletion, improper lifestyle Disruption of SCN regulation, melatonin suppression, irregular sleep cycle

Symptom- Sleeplessness, restlessness, fatigue, irritability, Insomnia, poor sleep quality, daytime sleepiness.

Management- Abhyanga, Shirodhara, Rasayana (Ashwagandha, Brahmi, Jatamansi), *Dinacharya* Sleep hygiene, light therapy, melatonin regulation, fixed sleep–wake cycle Common Goal Restoring balance of Doshas & mind Restoring circadian synchronization.

Integrative Understanding

Anidra in Ayurveda = clinical outcome of circadian disruption in modern science.

Both highlight the importance of regular lifestyle, proper timing of food, sleep, and activity.

Integration

Morning exposure to natural light + *Brahma Muhurta* jagarana (early waking)

Evening calming practices (meditation, Abhyanga) + avoiding blue light

Ayurvedic herbs (Ashwagandha, Jatamansi) + melatonin regulation strategies.

Anidra is the manifestation (disease condition).

Circadian Rhythm disruption is often the underlying mechanism.

Ayurveda and modern science both stress aligning lifestyle with natural day–night cycles to restore healthy sleep.

DISCUSSION

Sleep is a vital physiological process emphasized in both Ayurveda and modern medicine. Ayurveda considers Nidra as one of the *Trayopastambha* (three pillars of life), whose disturbance leads to Anidra (insomnia). Classical texts like Charaka Samhita and Ashtanga Hridaya describe Anidra as a result of Vata-Pitta aggravation, Kapha depletion, and mental disturbances such as stress, anger, and fear.

Modern science explains sleep regulation through the circadian rhythm, governed by the suprachiasmatic nucleus (SCN) of the hypothalamus and regulated by melatonin secretion. Disruption of this rhythm due to shift work, excessive screen exposure, irregular food habits, or stress closely resembles the Ayurvedic concept of Anidra. Both systems highlight lifestyle irregularities as the root cause.

An integrative approach provides deeper insight. Ayurveda prescribes *Dinacharya* (daily regimen), *Ratri Charya* (night regimen), *Abhyanga*, *Shirodhara*, and herbs like *Ashwagandha*, *Brahmi*, *Jatamansi* for restoring sleep, while modern science emphasizes sleep hygiene, light therapy, and behavioral modifications. When correlated, both approaches converge on the importance of synchronizing human activity with natural light–dark cycles, thereby re-establishing balance in both body and mind.

CONCLUSION

The interconnection between *Anidra* and circadian rhythm reflects the unity of traditional wisdom and modern chronobiology. *Anidra* in Ayurveda and circadian rhythm disruption in modern science are essentially two perspectives of the same pathology. Both recognize that improper lifestyle, stress, and irregular routines disturb the natural sleep process.

Thus, integrating Ayurvedic principles of *Nidrajanana* (sleep-inducing measures) with modern circadian rhythm management strategies can offer a holistic approach for the prevention and treatment of *Anidra*. Maintaining regularity in sleep, diet, and lifestyle according to *Dinacharya* and circadian cycles not only restores healthy sleep but also prevents long-term systemic disorders.

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