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IMPACT OF NIDRA ON MANOVAHA SROTAS AND NERVOUS SYSTEM: AN INTEGRATED PHYSIOLOGICAL REVIEW

Dr. Rekha Chauhan[1], Prof. (Dr.) G. S. Indoriya[2], Dr. Kalpana Negi[3], Dr. Tejendra Singh[4]

1. *MD Scholar, Department of Kriya Sharir,Himalaya Ayurvedic College, Uttarakhand Ayurved University, Dehradun, Uttarakhand, India.*
2. *Prof. & HOD, Department of Kriya Sharir; Himalayiya Ayurvedic College, Uttarakhand Ayurved University, Dehradun, Uttarakhand, India.*
3. *Assistant Prof, Department of Kriya Sharir; Himalayiya Ayurvedic College, Uttarakhand Ayurved University, Dehradun, Uttarakhand, India.*
4. *PhD Scholar, Department of Swasthavritta Evam Yoga; Parul Institute of Ayurveda, Parul University, Vadodara, Gujarat, India.*

Corresponding Author

Name: Dr. Rekha Chauhan

MD Scholar, Department of Kriya Sharir

Institution: Himalaya Ayurvedic College, Uttarakhand Ayurved University, Dehradun, Uttarakhand, India.

chauhan.rekhac5@gmail.com

Phone: +91-8859775428

ABSTRACT

Background: Sleep (Nidra) is recognized in Ayurvedic literature as one of the Trayopastambha (three essential pillars of life), alongside Ahara (food) and Brahmacharya (regulated conduct). It plays a vital role in maintaining the equilibrium of Manovaha Srotas (the channels responsible for mental functions) and the optimal functioning of the nervous system as understood in modern physiology. This integrated physiological review aims to analyze the impact of Nidra on Manovaha Srotas through classical Ayurvedic concepts and to correlate these with contemporary neurophysiological mechanisms. Adequate and qualitative sleep supports Sharira (body) and Manas (mind) by nourishing Dhatus (tissues), regulating Doshas, and rejuvenating cognitive functions, memory consolidation, and emotional stability. Disturbances in Nidra can vitiate Vata Dosha, leading to derangement of Manovaha Srotas, manifesting as various psychosomatic disorders, stress-related conditions, and neurodegenerative diseases. Modern neuroscience supports this by demonstrating how sleep influences synaptic plasticity, neural detoxification via the glymphatic system, and hormonal modulation affecting the hypothalamic-pituitary-adrenal (HPA) axis. The review thus highlights the profound interconnectedness between classical Ayurvedic concepts and current scientific insights, emphasizing the necessity of maintaining healthy sleep patterns for the preservation of mental health and neurophysiological balance.

Keywords: Nidra, Manovaha Srotas, Nervous System, Sleep Physiology, Vata Dosha, Neurophysiology

1. INTRODUCTION

Nidra (sleep) is recognized in Ayurveda as one of the Trayopastambha (three supporting pillars of life), along with Ahara (diet) and Brahmacharya (regulated conduct). It is not merely the absence of wakefulness but a dynamic physiological process essential for the restoration and rejuvenation of body and mind. Classical texts such as the Charaka Samhita and Ashtanga Hridaya describe Nidra as a natural phenomenon that sustains life (Jeevana), bestows strength (Bala), happiness (Sukha), and longevity (Ayu).[1]

In Ayurvedic physiology, the concept of Manovaha Srotas represents the intricate network of channels responsible for the processing and conveyance of mental functions, including thought, perception, emotions, and memory.[2] When Nidra is adequate, the Manovaha Srotas function harmoniously, supporting a stable mind (Manas), balanced Doshas, and healthy sensory and motor activities. Conversely, improper or disturbed sleep is regarded as a major cause of mental and psychosomatic disorders (Manas Roga).[3]

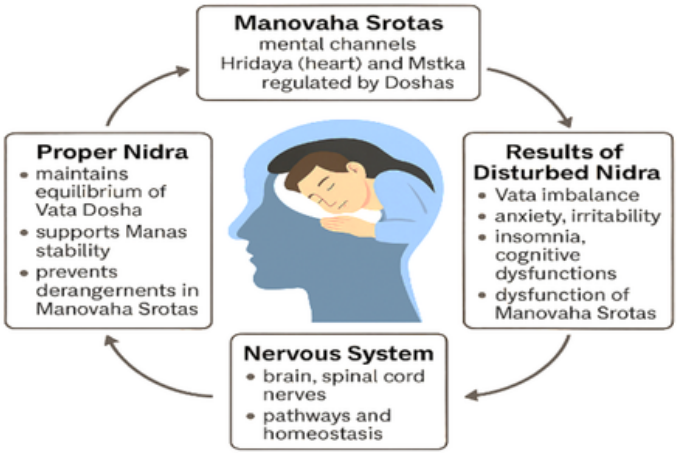
Modern physiology corroborates the vital role of sleep in maintaining the structural and functional integrity of the nervous system. Sleep modulates neurotransmitter secretion, supports synaptic homeostasis, and enables the clearance of metabolic waste from the brain. Disruptions in sleep cycles are directly linked to cognitive decline, neurodegenerative diseases, mood disorders, and impaired immune function, demonstrating how ancient observations about Nidra align with contemporary neuroscientific findings.[4]

Several Ayurvedic scholars have highlighted the close association between Vata Dosha and sleep. Since Vata governs the nervous system's impulses and motor functions, its imbalance often manifests as sleep disturbances, insomnia (Anidra), or excessive sleep (Atinidra).

Thus, understanding the connection between Nidra and Vata provides a practical framework for managing sleep-related neurological and psychological conditions.[5]

An integrated study of Nidra, Manovaha Srotas, and the nervous system provides unique insights into preventive and curative measures for various mental health conditions. By bridging classical Ayurvedic knowledge with modern neurophysiology, researchers and clinicians can develop holistic approaches to promote healthy sleep and restore mental equilibrium. This approach is increasingly relevant in today's fast-paced lifestyle, where sleep deprivation is a significant public health concern.[6]

This review aims to critically analyze classical Ayurvedic descriptions of Nidra and Manovaha Srotas, explore their parallels with modern sleep physiology and nervous system functions, and discuss their integrated impact on mental health and disease prevention. Such an understanding highlights the timeless relevance of Ayurvedic principles and underscores the need to incorporate them into modern wellness and medical practices.[7]



AIM AND OBJECTIVES:

Aim:

To critically review and analyze the impact of Nidra on Manovaha Srotas and the nervous system through an integrated Ayurvedic and modern physiological perspective.

OBJECTIVES:

1. To study classical Ayurvedic references related to Nidra and Manovaha Srotas.
2. To explore the physiological role of sleep in modern neuroscience.
3. To identify correlations between Ayurvedic concepts and modern sleep physiology.
4. To highlight the role of Nidra in maintaining mental and neurological health.
5. To suggest integrated preventive and therapeutic insights for sleep-related disorders.

MATERIAL AND METHOD:

This review was conducted by systematically collecting data from classical Ayurvedic texts including the Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya for descriptions related to Nidra and Manovaha Srotas. Relevant modern scientific literature, textbooks of neurophysiology, and peer-reviewed research articles were also reviewed using electronic databases such as PubMed, Google Scholar, and ResearchGate. Comparative analysis was performed to integrate classical concepts with modern physiological understanding, emphasizing the mechanisms, functions, and clinical significance of sleep in maintaining mental and nervous system health.

CONCETUAL STUDY:

In Ayurveda, Nidra (sleep) is recognized as one of the Trayopastambha (three supporting pillars of life), along with Ahara (food) and Brahmacharya (regulated conduct).[8] This classification highlights the importance given to sleep in maintaining health, vitality, and longevity. Unlike the modern view that often treats sleep as a passive or secondary biological need, Ayurveda describes Nidra as an active, natural process essential for sustaining Sharira Bala (physical strength), Medha (intellect), Ayu (lifespan), and Sukha (mental happiness).[9]

According to Charaka Samhita (Sutrasthana 21/36–40), Nidra occurs naturally when the Manas (mind), Indriyas (sense organs), and body become fatigued and withdraw from their respective activities.[10] This state of withdrawal results in the temporary cessation of sensory perception and voluntary action, allowing the body and mind to rejuvenate. Charaka also classifies sleep based on its causation, such as Tamasika Nidra (sleep due to mental dullness), Ratricharya Nidra (natural night sleep), Agnimandya Nidra (sleep due to indigestion), Roga Nidra (sleep caused by disease), and Apathya Nidra (sleep induced by improper lifestyle or excessive day sleep).[11]

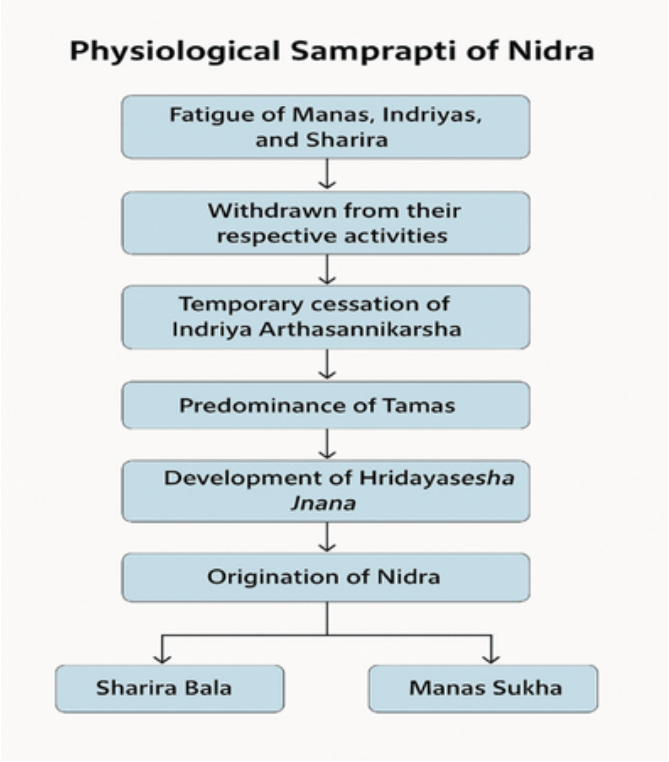
The ancient texts describe Nidra as the best natural remedy for Sharira Rasa (tissue nutrition) and Dhatu Pushti (tissue building). It provides rest and restoration to the physical body and mind, allowing repair at both the gross and subtle levels. Adequate Nidra helps maintain the equilibrium of Doshas, particularly Vata Dosha, which governs the nervous system, sensory impulses, and mental activities.

When sleep is proper in duration and quality, it stabilizes Vata and promotes mental calmness, emotional balance, and healthy cognitive functions.[12]

Conversely, the classics describe that improper or disturbed Nidra (Anidra or Alpanidra) leads to multiple health issues such as fatigue, weakness, tremors, heaviness in the eyes and head, irritability, poor concentration, and even Unmada (psychological disorders). Excessive sleep (Atinidra) is equally condemned, as it aggravates Kapha Dosha and leads to lethargy, indigestion, metabolic disorders, and dullness of mind. Hence, Ayurveda emphasizes moderation and regularity in sleeping habits to maintain a healthy mind-body state.[13]

Several ancient Acharyas underline that healthy Nidra is seasonally variable and must adapt to one's Prakriti (constitution), age, and physical or mental exertion. For example, Kapha Prakriti individuals naturally tend toward longer sleep durations, while Vata Prakriti individuals may have lighter, more disturbed sleep. This personalized approach to sleep explains why Ayurveda recommends tailored regimens and Dinacharya (daily routine) to ensure that sleep supports individual constitution and environmental changes.[14]

In essence, Nidra in Ayurveda is not simply a state of rest but a therapeutic pillar deeply connected to Dhatu nourishment, Ojas (vital essence) replenishment, and Manovaha Srotas maintenance. By regulating sleep, one harmonizes the mind-body network, prevents Vata aggravation, and fosters mental clarity, immunity, and strength. This holistic view makes Nidra a vital component of both preventive and curative aspects of health in Ayurvedic practice.[15]



MANOVAHA SROTAS:

In Ayurveda, the term Srotas refers to the intricate channels through which various substances, energies, and functions circulate within the body to maintain life and health. Among these, Manovaha Srotas holds a special place, as it denotes the subtle pathways that carry and regulate the activities of Manas (mind). The word Manovaha itself signifies its role: "Manas" means mind, and "Vaha" means to carry or conduct, thus describing the functional link between mind and body through invisible yet vital pathways.[16]

Classical Ayurvedic texts such as the Charaka Samhita and Sushruta Samhita describe Manovaha Srotas in detail. Charaka mentions that the Hridaya (heart) is the principal site of Chetana (consciousness) and Manas, while Sushruta also includes the Mastishka (brain) as an important seat for mental faculties. Together, the heart and brain are regarded as the roots (Moola) of Manovaha Srotas. These channels are also interrelated with Pranavaha Srotas (channels of vital life force) and Rasavaha Srotas (channels of circulating nutrition), which indirectly nourish and support mental functions.[17]

Unlike gross physical channels like blood vessels or ducts, Manovaha Srotas is subtle and functional, representing pathways of thought, perception, memory, emotions, and higher cognitive activities. It acts as the medium for the interaction between Indriyas (sensory organs), Manas (mind), and Buddhi (intellect). When these channels function properly, they ensure clarity of thought, sharp memory, stable emotions, healthy sleep, and balanced sensory and motor coordination.[18]

The functional balance of Manovaha Srotas is maintained by the Doshas, especially Vata Dosha, which governs all movements, impulses, and transmissions within the nervous system. Pitta Dosha supports mental sharpness and analytical ability, while Kapha Dosha provides emotional steadiness and memory retention. Any imbalance of Vata, in particular, can disturb the flow in Manovaha Srotas, leading to conditions like insomnia (Anidra), restlessness, anxiety (Chittodvega), or mood disorders.[19]

When these channels are obstructed (Sanga), injured (Vimargagamana), or hyperactive (Atipravritti), they manifest as various psychological and psychosomatic disorders. Classical texts describe that improper Nidra (sleep) is both a cause and a result of Manovaha Srotas dysfunction. Chronic sleep deprivation aggravates Vata Dosha, which further disturbs mental equilibrium, creating a vicious cycle of insomnia, fatigue, and mental instability.[20]

Modern physiology parallels this ancient understanding. Manovaha Srotas can be correlated with the brain, spinal cord, sensory pathways, neurotransmission, and the autonomic nervous system. Functions like thought processing, emotional control, consciousness, and sleep-wake regulation involve the limbic system, reticular activating system, and various neural circuits — reflecting the same intricate relationship described in Ayurveda. Thus, the study of Manovaha Srotas bridges ancient Ayurvedic wisdom and modern neurophysiology, highlighting the vital role of Nidra in keeping these subtle pathways healthy and balanced.[21]

MODERN REVIEW - NERVOUS SYSTEM:

The nervous system is the master control and communication system of the human body. It is responsible for receiving sensory input from the external and internal environment, processing and interpreting this information, and generating appropriate motor and autonomic responses. Structurally, it is broadly divided into two main parts: the Central Nervous System (CNS), which includes the brain and spinal cord, and the Peripheral Nervous System (PNS), which consists of all the nerves outside the CNS, including cranial and spinal nerves.

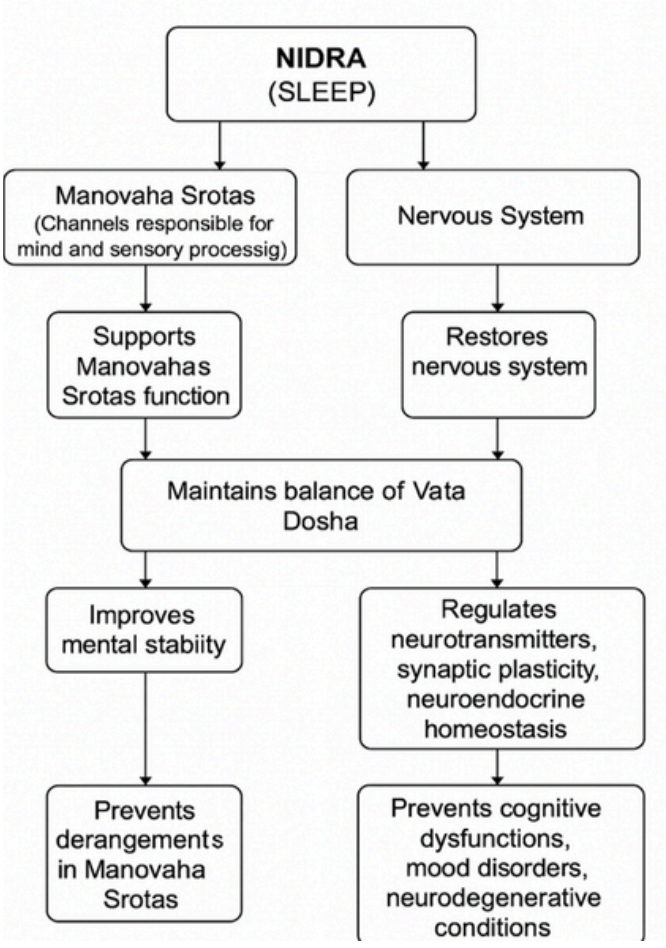
Functionally, the nervous system is categorized into the somatic nervous system, which governs voluntary control of skeletal muscles and conscious sensory perception, and the autonomic nervous system (ANS), which regulates involuntary functions like heart rate, digestion, respiration, and glandular activity. The ANS is further divided into the sympathetic and parasympathetic divisions, which work in balance to maintain homeostasis. This balance is deeply influenced by sleep, rest, and the body's circadian rhythm.

Modern neurophysiology explains that sleep is regulated by specific brain structures and neurochemical systems. The hypothalamus, pineal gland, brainstem, and reticular activating system (RAS) play crucial roles in controlling sleep-wake cycles. Neurotransmitters like serotonin, melatonin, gamma-aminobutyric acid (GABA), acetylcholine, and orexins coordinate the onset and maintenance of different stages of sleep. Adequate sleep ensures restoration of neural connections, memory consolidation, metabolic detoxification, and hormonal balance.

Disruptions in sleep have direct consequences for the nervous system. Sleep deprivation impairs synaptic plasticity, alters neurotransmitter levels, heightens sympathetic tone, and weakens the immune response.Chronic sleep disturbances contribute to cognitive decline, mood disorders, anxiety, depression, and even increase the risk for neurodegenerative diseases like Alzheimer's and Parkinson's disease. Thus, sleep serves as a natural reset mechanism for the nervous system, aligning with the Ayurvedic concept of Nidra supporting Manovaha Srotas.

From an integrative perspective, the Ayurvedic view of Manovaha Srotas overlaps remarkably with the nervous system's functional network. While Ayurveda uses the concept of Doshas to explain the regulatory aspects, modern science details the electrochemical signaling and anatomical pathways. Proper Nidra maintains this delicate balance, stabilizing Vata Dosha and ensuring the smooth functioning of neuronal pathways. Therefore, understanding the nervous system's role in sleep physiology bridges ancient wisdom and modern neuroscience, highlighting the need for holistic approaches to mental health and neurological well-being.

IMPACT OF NIDRA ON MANOVAHA SROTAS AND NERVOUS SYSTEM:



RESULTS AND FINDINGS:

- Nidra maintains balance of Manovaha Srotas and stabilizes Vata Dosha.
- Disturbed sleep causes Vata imbalance, leading to mental disorders.
- Modern science supports that sleep restores brain function and neurotransmitter balance.
- Lack of sleep damages neural pathways, matching Ayurvedic views on Manovaha Srotas dysfunction.
- Proper sleep prevents cognitive decline and psychosomatic issues.
- Integrating both views highlights Nidra as vital for mental and nervous system health.

DISCUSSION:

The review establishes that Nidra is not simply a passive rest state but an active restorative process vital for mental and physical health. Classical Ayurvedic literature places Nidra among the three pillars of life, equal in importance to Ahara (food) and Brahmacharya (regulated conduct). This highlights the ancient understanding that adequate sleep is indispensable for sustaining Bala (strength), Ayu (longevity), and Sukha (happiness).[22]

The central role of Manovaha Srotas in mental functioning is well explained in Ayurveda. The Hridaya (heart) and Mastishka (brain) are identified as its main sites, showing a remarkable resemblance to the modern understanding of the heart-brain connection and neurophysiology. Proper Nidra nourishes and supports these pathways, allowing clear perception, memory, and emotional balance.[23]

Modern physiology provides scientific evidence that aligns closely with this ancient view. During sleep, the brain undergoes vital processes such as synaptic pruning, neurotransmitter regulation, and metabolic waste clearance through the glymphatic system. These functions mirror the Ayurvedic idea of Nidra as a state that renews and recharges Manovaha Srotas. Disturbed sleep disrupts these functions, leading to stress, mood swings, impaired cognition, and long-term neurodegenerative changes.[24]

The link between Vata Dosha and sleep disorders is also supported by modern observations. Insufficient sleep heightens sympathetic activity, disrupts neuroendocrine balance, and triggers anxiety-like symptoms — validating the Ayurvedic description of Vata aggravation in Anidra. The concept of Manovaha Srotas dysfunction, therefore, finds strong support in the understanding of stress pathways and neural imbalance described in modern science.[25]

Overall, the integrated view confirms that Nidra is central to mental and neurological well-being. Strengthening Manovaha Srotas through proper sleep hygiene, Vata pacifying regimens, and lifestyle modifications has both preventive and therapeutic value. This underlines the timeless relevance of Ayurvedic principles and the scope for incorporating them into modern healthcare to manage insomnia, stress, and related mental health conditions more holistically.[26]

CONCLUSION:

This integrated review reaffirms that Nidra is a fundamental pillar for sustaining the health of Manovaha Srotas and the entire nervous system. Classical Ayurvedic texts and modern neurophysiology both emphasize that sound, adequate sleep restores mental balance, maintains neurotransmitter harmony, and prevents the derangement of pathways essential for cognition, emotion, and sensory functions. Disturbed or insufficient Nidra leads to Vata aggravation, resulting in insomnia, anxiety, and various psychosomatic disorders — conditions that modern science correlates with stress-related neural dysregulation and neurodegenerative risks. Therefore, recognizing sleep as a vital therapeutic tool highlights the practical relevance of Ayurvedic wisdom in today's fast-paced world. Promoting good sleep hygiene, balancing Vata Dosha, and supporting Manovaha Srotas can together help prevent and manage many mental health challenges, offering an effective bridge between timeless tradition and modern clinical practice.

CONFLICT OF INTEREST – NIL

SOURCE OF SUPPORT - NONE

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