

**EFFECT OF NIDRA ON HUMAN BODY – A REVIEW ARTICLE**

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**ABSTRACT**

*Ayurveda* is the holistic science deals with the knowledge of *Ayu*, where the *Ayu* refers to the life. Its main aim is to protect the health of healthy person as well as to subside diseases of the diseased persons. For this purpose *Ahara*, *Nidra* and *Bramhacharya* (*Trayaupastamba*) are explained to maintain health of healthy person. *Ahara*, *Nidra* and *Bramhacharya* are three variables three variables that play a significant part in the sustaining of a living organism's health and are referred as sub pillars (*Upastambha*) of human physiology. *Ayurveda* is only media to attain the *sukhayu* by the *shareera*. This *shareera* is formed by Tri-dosha, *Sapta-dhatu* and *mala*. *Ayurveda* is the ancient medical science which has an eternal approach to provide multidimensional

cure for mankind. *Ayurvedic* texts describes the main three triads of life. These are *Ahara*, *Nidra* and *Brahmacharya* and *nidra* is important as food, therefore we must know concept of sleep in day to day lifestyle. If *Nidra* is not taken properly, it may affect physical and mental health. Lack of *Nidra* is called as *Anidra* (insomnia). In the *Ayurvedic* classical texts, the entire study of *Nidra* and its classifications are given. Sleep is defined as unconsciousness

from which person can be aroused by sensory or other stimuli. As per *Ayurveda* when the mind including sensory and motor organs is exhausted and they dissociate themselves from their objects then the person sleeps. In this study “effect of *Nidra* on human body – a review article” is explained.

**KEYWORDS:-** *Ayurveda*, *Anidra*, sleep, insomnia.

## INTRODUCTION

### Etymological derivation of *nidra*

*Nidra* is feminine word derived from *Ni + Dra + Rak + Ta*. It is a state of confinement to the consciousness of an individual.

### Definition

1. *Acharya Charaka* explains that *Nidra* or sleep is nothing but the combined state of mind and body. It simply means that when mind gets exhausted or tired from its work and *Indriyas* withdraws themselves from their objects due to heavy workload, then the individual sleep.<sup>[1]</sup>
2. According to *Sushruta Samhita*, *Hridya* is the seat of *Chetna* (consciousness) and when it is dominated by *Tamas*, person gets sleep. It is natural process.<sup>[2]</sup>
3. According to *Acharya dalhana*, *Nidra* is a state of amalgamation of mind and intellect. In this state the person feels happiness and joy at physical level as well as sensorial level.<sup>[3]</sup>

### Synonyms of *nidra*

According to *amarkosh*

- *Shayanam*
- *Swapha*
- *Svapana*
- *Samvesha*

### According to *sabdaratnavali*

- *Sambhashah*
- *Supti*
- *Svapanam*

## MATERIAL AND METHODS

Ayurveda classical textbooks, Journals, Authentic journals, Manuscripts, Websites, Dictionary are used for this conceptual study.

## AIM AND OBJECTIVES

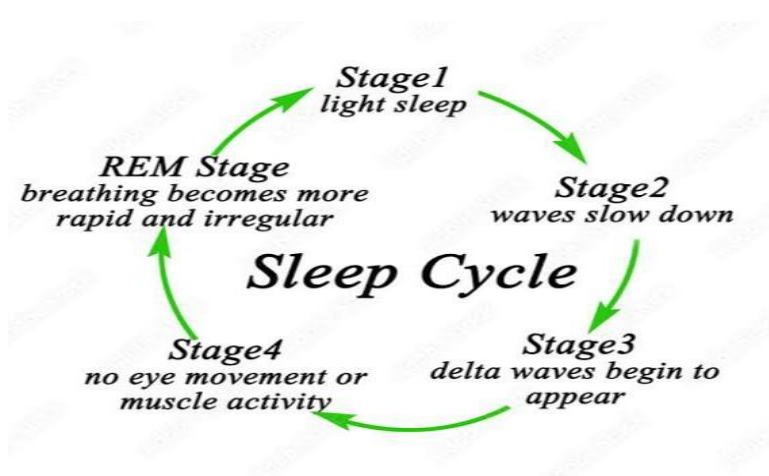
- To understand the role of *Nidra* in promotion and maintenance of the health and wellness.
- To understand effect of *Nidra* in manifestation of lifestyle disorders.
- To understand factors affecting *Nidra*.
- To understand role of *Nidra* in prevention

## Classification of *nidra*

Types of *nidra* according to different *acharya*-

S. no.	Charaka	Sushruta	Vagbhatta
1	Tamobhava	Vaishnvi	Tamobhava
2	shleshmasamudbhava	Vaikariki	Aamayakhedaprabhavaja
3	Manasharira shrama Sambhava	Tamsi	Chittakhedaprabhavaja
4	Agantuki	-	Aagantuki
5	Vyadhyanuvaritini	-	Kaphaprabhavaja
6	Ratriswabhavaprabhava	-	Dehakhedaprabhavaja
7	-	-	Kalasvabhavaja

Mental and physical exertion brings about inactivity of the mind resulting in the dissociation of the mind and the sense organs from their objects which are responsible for asleep. But if there is excessive exertion, this may cause vitiation of *Vata* leading to sleeplessness. Thus, even though, exertion is a causative factor for sleep, excessive exertion is responsible for the aggravation of *vata* which causes sleeplessness. By nature, the night serves as a causative factor for sleep. Sleep during the day time is caused by *Tamas*.



**Types of sleep (According to modern)****The sleep is of two types**

1. Rapid eye movement sleep or REM sleep
2. Non rapid eye movement sleep NREM sleep

**REM sleep (Rapid eye movement sleep)**

REM sleep is the type of sleep associated with rapid conjugate movement of the eyeballs which occurs frequently. Though the eyeballs move, the sleep is deep. It is also called paradoxical sleep. It is about 20-30% of total sleep. Dreams occur during this sleep period.

**Behavioural changes during REM sleep**

- Arousal. As mentioned above, it is difficult to arouse an individual from REM sleep as it is from deep sleep.
- However, when awakened from REM sleep, the individual is immediately alert and aware of the environment. Dreaming occurs during REM sleep, so it is also called 'dream sleep'.

**Physiological changes during REM sleep**

- REMs are the hallmark of this state of sleep and that is why the name REM sleep. REMs (saccadic eye movement) are bursts of small jerky movements that bring the eye from one fixed point to another to allow a sweeping of visual images of dreams.
- Heart rate and respiration rate become irregular.
- Middle ear muscles are also active during REM sleep.
- Penile erection in males and engorgement of clitoris in females may occur during REM sleep.
- Teeth grinding may be seen in children.

**Non rapid eye movement (NREM) sleep**

NREM sleep is the type of sleep without the movements of eyeballs. It is also called slow wave sleep. The dreams do not occur in this sleep. It is about 70-80% of total sleep.

**Behavioural changes during NREM sleep**

- Progressive reduction in consciousness.
- An increased resistance to being awakened, it is more difficult to wake up a person from stages 3 and 4 than from stages 1 and 2 of NREM sleep.
- When awakened, the person does not report dreaming.

- Auditory reaction times become longer as stage 1 sleep approaches.

### Physiological changes during NREM sleep

- Muscle tone decreases progressively.
- Heart rate and blood pressure are decreased.
- Respiration rate is also increased.
- Body metabolism is lowered.
- Pituitary shows pulsatile release of growth hormones and gonadotropin.

### Neurotransmitters and Sleep

Serotonin which is a neurotransmitter is required to induce sleep. Decreased level of serotonin produces insomnia I.e. lack of sleep or disturbed sleep.

### Factors affecting sleep

The Factors which minimize sensory stimulation and favor the onset of natural sleep are-

- Darkened room
- Comfortable surrounding temperature
- Silence
- Physical and mental relaxation
- Satiation of basic urge such as hunger or sex
- Low – frequency stimulation, such as by patting, rocking in a cradle or sitting in a moving vehicle.

### Significance of nidra<sup>[4]</sup>

*Ahara, Nidra* and *Brahmacharya* are compared with the triangles are termed as the three *Upastambhas* or *Tripods*. *Nidra* is one of the important factor among these three *upsthamhas*. proper diet, proper sleep is also essential for body maintenance of the body. Corpulence and emaciation are specially conditioned by proper or improper sleep and diet.

### Causes of *nidranasha*

Suppression of the urge for sleep causes yawning, malaise, drowsiness, headache and heaviness in the eyes<sup>[5]</sup>

Sleep is lost due to *Vayu, Pitta*, stress, wasting and trauma<sup>[6]</sup>

**Treatment of *nidranasha***

Resorting to sound sleep and *samvahana* (gentle massage) is advised in such cases.<sup>[7]</sup>

Sleep is restored by the opposites.<sup>[8]</sup>

**Physiology of sleep**

According to modern science mind along with sensory and motor organs are exhausted due to work/exertion and they dissociate themselves from their object as a result sleep happens. When Mind is fatigued then sleep occurs. According to Howell, sleep is due to cerebral ischaemia. Cerebral cortex is the seat of higher centers like pre and post central gyrus & associated area etc., which have the correlation with mental activities described in Ayurveda. So due to the reduction in cerebral blood supply Mind becomes calm that causes sleep.<sup>[9]</sup>

**Physiological Variations during sleep<sup>[10]</sup>**

During sleep most of body functions are reduced to the basal level

1. **Plasma level** –Plasma volume decreases by 10% during sleep.
2. **Cardiovascular system** –During sleep, the heart rate reduces. It varies between 45-60 beats per minutes. Systolic pressure falls to about 90-110 mm. of Hg.
3. **Respiratory system**–Rate and force of respiration are decreased. The respiration becomes irregular.
4. **Gastrointestinal tract** – Salivary secretion decreases during sleep. The secretion of gastric juice isn't effected or may be increased slightly.
5. **Excretory system** –The formation of urine decreases
6. **Sweat secretion** – Sweat secretion increases during sleep.
7. **Lacrima secretion** –Decreases during sleep
8. **Muscle tone** – Muscle tone reduces. Pupils are constricted. Eyeballs move up and down. Tone in all the muscles of the body except ocular muscles decreases very much during sleep. It is called sleep paralysis.

**Functions of sleep**

Happy status of mind, nourishment of body, strength of body, virility, knowledge and life are gifts of sleep.<sup>[11]</sup> Timely sleep offers appropriate weight gain, better complexion, desire to work, fresh and alert status of sensory organs. It also responsible for balanced status of body entities. Gaining or losing weight is directly dependent on two principle factors in physiology of living being, namely food and sleep as natural necessities of life.

## Mechanism of sleep

Sleep occurs due to the activity of some sleep inducing centers in brain. Stimulation of these centers induces sleep.

## Sleep centers

Two centers are located in brainstem which induce sleep

1. Raphe nucleus
2. Locus ceruleus of pons

## Role of raphe nucleus

It is situated in lower pons and medulla. Activation of this nucleus results in non-REM sleep. It is due to release of serotonin by the nerve fibers arising from this nucleus. Serotonin induces NREM sleep.

## Role of locus ceruleus of pons

Activation of this center produces REM sleep. Nor adrenaline released by the nerve fibers arising from locus ceruleus induces REM sleep.

## Applied physiology (Sleep disorders)

### Insomnia

Insomnia is the inability to sleep or abnormal wakefulness. It occurs due to mental conditions such as alcoholic addiction and drug addiction.

### Hyper somnia

Hypersomnia is the excess sleep or excess need to sleep. Raphe nucleus and locus ceruleus if both are hyper activated then hyper Somnia occurs.

### Narcolepsy and Cataplexy

Narcolepsy is the sudden attack of uncontrollable sleep. Cataplexy is sudden outburst of emotion. Both the diseases are due to hypothalamic disorders.

### Sleep requirement<sup>[12]</sup>

Ages	Hours of sleep required
Birth to 1 month	18 – 20 hrs
1 to 6 month	15 – 18 hrs
6 months to 1 year	14 - 16 hrs
1 to 2 years	12 – 14 hrs

2 to 5 years	10 -12 hrs
5 to 16 years	9 – 10 hrs
Adults	8 hrs
Old persons	4 – 6 hrs

### Requiriements of sleep in *Sattvika*, *Rajsika* and *Tamsika* person<sup>[13]</sup>

Sattviaka person	Rajasika person	Tamsika person
4 – 6 hours of sleep	8 hoursof sleep	10 -12 hours of sleep

### Dominance of *Dosha* and Sleep pattern according to age

Age	Dominance of <i>dosha</i>	Sleep pattern
<i>Balyavstha</i> (childhood)	<i>Kapha</i>	<i>Ati –nidrata</i> (excess sleep)
<i>Yuvavstha</i> (adulthood)	<i>Pitta</i>	<i>Alpa – nidrata</i> (less sleep)
<i>Vriddhavstha</i> (old age)	<i>Vata</i>	<i>Nidranasha</i> (insomnia)

### Effect of sleep occurring in night

The normally occurring sleep in night is supporting, nourishing and hence it is called as *Bhutadhatri*<sup>[14]</sup> Sleep is caused due to excess of *Kapha Dosha* and *Tamas*. Sleeping only during night is healthier as it reduces *Tamas* and heaviness of *Kapha Dosha* and produces dryness in the body. Proper sleep at night creates lightness in the body and person then becomes fresh and starts all the activities with good strength.<sup>[15]</sup>

### Effect of night awakening

Vigil during night causes roughness of the body; sleep during day time causes unctuousness and dosing in sitting posture does neither cause roughness nor unctuousness. Dosing in sitting posture is mainly seen amongst the monks of monasteries.<sup>[16]</sup>

## CONCLUSION

After critically analyzing and discussing the concepts through various *Ayurvedic* texts, the present study reveals the following conclusions. *Ahara*, *Nidra* and *Brahmacharya* are subpillers or *Upasthambhas*, these are necessary for maintaining one's health and well-being. *Nidra* is a melodious present given by nature to mankind. It is natural process. If we are not taking proper quantity and quality of sleep this will disturb the health of an individual because sleep occurs on the basis of biological clock.

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