Importance of ‘Nidra’ as one of the Upastambha of life

Jog Anupama Kiran¹, Tandel Dipali Ganjendra², Puradakar G. S.³

1. Final year PG SCHOLAR,
2. Final year PG SCHOLAR, Email- daisy11oct@gmail.com
3. Associate Professor,

Department of Samhita and Siddhanta,
APM’s Ayurveda Mahavidyalaya, sion, Mumbai, Maharashtra

*Corresponding author: ☎:- anupama.k.jog@gmail.com ☏:-

Abstract:
It is interesting to know that the one third one a human’s life is spent on sleeping. Sleep is an essential aspect when it comes to growth and development of living beings; as many of the vital physiological processes occur during sleep. As far as Ayurveda is concerned, sleep i.e. Nidra is considered as one of the three pillars of life. It is called as Bhoootadhatri by Ayurvedic texts as it is considered as an important part on one’s lifestyle. Quality sleep is an indicator of good health as it relieves stress and refreshes the body. Adequate hours of sleeping is required for all the levels of wellbeing such as mental, physical and emotional.

Ayurveda being a science of life, explains daily routine and regimens to be followed by individuals to stay healthy.

Nidra being a day to day phenomenon, ayurvedic texts have detailed information about its definition, types, physiology and health benefits.

Key words: Nidra, Upastambha, Sleep, Ayurveda.

Introduction
Nirukti of nidra is as follows¹

निद्रा- निन्च्रे इति | निद्रि कुठाम्ये |
“निन्द्रे निलोपध्र” ऊँगा | इति रक्न निलोपध्र |

The word nidra is derived from the prefix ‘Ni’ is the Sanskrit root of our English word ‘nether’ or down as in nether world while suffix “dra” may be cognate with the English word ‘drowsy’(to be half asleep). The word nidra is a feminine gender, the root ‘dra’ means undesired and ‘gatau’ to lead it is a state which is hated therefore termed nidra.
In Rigveda we get a quote saying gods were not having any sleep pattern. This is because they lacked the presence of tama guna. The people with the presence of satva guna had less sleep when compared to the ones with tama guna. One can also get the reference of Yoga-Nidra which is particularly said to be sleep of lord Vishnu at the end of a Yuga. In other reference, Yoga-nidra is said to be great sleep of lord Brahma during the period between the pralaya and utpatti. Puranas also talk about Nidra and its benefits. A quote from Skandapurana states that, the nidra taken at proper time and in proper quantity increases digestion power. One can consume good quantity of food, which helps him to increase the power of the body. According to Padmapurana, swastha i.e. helthy person takes nidra at proper time. According to the great epic of Mahabharata the persons who are willing for good health, should not indulge in keeping awake at nights, sleeping in day time, laziness, addiction to bad things and such other factors. Yogasutra states that nidra is a stage in which we cannot experience absences of substances.

Aim-
To understand the significance of Nidra as a Upastambha i.e.pillar of life.

Objectives-
1. To review the ayurvedic and modern literature regarding sleep.
2. To understand physiology of sleep according to ayurvedic and modern texts.
3. To understand the role of quality sleep in maintaining health.

Definition:
According to Charak Samhita sleep is nothing but a combined stage of tired mind and body. It means when the mind withdraws its attention from its work and sense organs get tired due to heavy work load then this combined stage leads to sleep.

Types of Nidra:
Acharya Charaka has mentioned 6 types of nidra:
1) Tamobhava
It is caused by excess of Tama Guna of mana.
2) Shleshma Samudbhava
Nidra caused due to excess of kapha dosha. Chakrapani says, this type of nidra appears in day time along with Tama guna.
3) Mana-Sharir shrama sambhava
It appears when body and mind get tired because of heavy work load. The exertion brings about inactivity of the mind resulting in the dissociation of the mind and the sense organs from their objectives which is responsible for nidra.
4) Agantuki
It is caused due to bhayagand, pralap and is incurable. Chakrapani opines that this type of nidra is known as ‘rishtabhuta’ i.e. nidra indicating death signs.

5) Vyadhyanuvartini
This type of nidra is caused due to other diseases. As tama and kapha are associated with each other, vyadhish in which there is influence of kapha dosha cause this type of nidra.

6) Ratri Swabhavprabhava
This is considered as normal. Nidra which appears at the time of night is called Ratri Swabhavprabhava nidra. By nature, night serves as a causative factor for nidra. Nidra during day time is caused by tamas and is considered abnormal. Ratri Swabhavprabhava nidra is also called as ‘bhoot-dharti’ as it helps in maintaining the life of the human being. It keeps the human being healthy and happy. The word ‘dharti’ indicates to hold or to take care and ‘bhoota’ means all living beings. Hence collectively the word bhutadhatri indicates human being

Sushrutacharya has mentioned 3 types of nidra
1) Vaishnavi
This type of nidra is said to be normal which helps in maintaining the life of beings. It can be corelated to Ratri Swabhavprabhava nidra explained by Charak.
2) Vaikariki
The person with the deprived condition of the kapha dosha and aggravated condition of vata dosha or suffering from any type of troubles get very little or no nidra. This type is called Vaikariki nidra.
3) Tamasi
The kind of nidra which gets in when the sensation carrying channels (srotasa) of the body are choked by kapha dosha, which bounds the quantity of tama guna is known as tamasi nidra. This type of nidra produces unconsciousness at the time of death.

Vriddha Vagbhatacharyya has mentioned 3 types of nidra
1) Kalasvabhavaja
1. Kalasvabhavaja Nidra – it is considered as swabhavaja i.e. normal type of nidra.
2. Aamayakheda prabhava – The nidra caused due to diseases in sharira is called as aamaya kheda nidra. The word ama is used for the factor which generates in the sharira due to the undigested food. According to Ayurveda the ama is responsible for creating the various diseases.
3. Chittakhedaprabhava nidra – The nidra which caused by disturbances or fatigue of the mind, called as chitta kheda prabhava nidra.
4. Dehakhedaprabhava nidra – The nidra which appears due to tiredness of the
body called as deha kheda prabhava nidra.

5. Kaphaprabhava nidra – Nidra which appears due to aggregated kapha dosha called as kapha prabhava nidra. Kapha dosha closely resembles with the tama guna of the mind and combinely they cause the nidra in the night. But when there is increase in the kapha dosha of the body, then the nidra also appears at daytime or may persist for longer time than the normal. In such condition the nidra is called as kapha prabhava nidra.

6. Agantuki nidra – Agantuki nidra is caused by the external factors like accidents, injuries etc. Hence this type of nidra is considered as abnormal.

7. Tamobhava nidra – This type of nidra appears due to the aggregated stage of tamo guna of mind. It results into the sinful behaviour. Therefore, Acharya Sushruta and Acharya Charaka mentioned it as papamula (root of the bad works). This type of nidra mainly appears at the time of death.

Comparison of Types of Nidra mentioned in Brihat-trayi

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<td>Vaikariki</td>
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<td>RatriSwabhadhaprabhava</td>
<td>Vaishnvi</td>
<td>Kalavabhavaja</td>
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Samprapti of Nidra:

1) Charak
According to Charakacharya; Due to their karma, mana and indriya get tired (klanta) and withdraw from their vishaya it leads to nidra.. Nidra (sleep) is nothing but a combined stage of tired mind and body7.

2) Sushrut Samhita
Acharya Sushruta said that hrudya is the seat of chetna in sharira. When this is invaded by tamoguna sharira gets nidra8.

3) Ashtanga Samgraha
According to Vriddha vagbhat At the time of sarga (utpatti), tamoguna is prominent and due to the prominence of tamoguna at night nidra occurs. Hence it is called as tamoguna and tamomayee. Due to Avarana of Kapha i.e. shleshma in strotasa and due to shrama indriya retired from their karma and nidra occurs.  
4) Shrangdhar:  
According to Sharangdhar Aggrevation of tamoguna and kapha causes nidra.  
5) Kaiydev Nighantu  
According to Kaiydev Nighantu Increase in Kapha dosha causes srotorodh which leads to nidra. Klama to indriya and mana leads to retirement of indriya from their vishaya resulting in nidra. When Hridaya i.e. chetana sthana is filled with tamoguna, nidra appears. This nidra is called as Tamomula.  

Benefits of nidra:  
Acharya Charaka, Acharya Sushrut and Acharya Vagbhata quote the same verse mentioning merits and demerits of sleep.  
Samyak nidra gives us sukha, pushti, bala, vrushta, gyan and jivan. Asamyak nidra causes dukha, karshya, abala, klibata, agyan and ajivita.  
Sukha (happiness), dukha (unhappiness), pushti (good physique), karshya (emcitation), vrushta (sexual power), klibata (impotence), gyan (knowledge), and agyan (illiteracy), jivita (long life), ajivita (death) all these factors are depending on nidra.  
If someone has taken a good sleep in the night then he may remain happy and active the whole day. The sleep helps in building the body and general physique. But in the other hand if sleep not taken regularly then it may adversely affect the health. Also, the next line of quote suggests the same thing through strength and disability. The strategy behind this is that the sleep not taken for 2 to 3 days or more affects mostly on the mind and the strength of the working organs. Thus, it can cause adverse effect on the body i.e. it may cause general debility. Sleep can also affect the sexual power of the human being as it helps in strengthening the body and ultimately helps in increasing the proper digestion of the diet and through this, it helps in converting the aahara rasa (digested food) upto the sukra dhatu. The sleep can also affect the life of man thoroughly as it may also cause death if not taken for so many periods.  
In another verse by Charkacharya it is stated that the nidra (sleep) which was taken at proper time, period (saivayukta nidra) gives us aarogya and purnaayu (full term life) like the flashed true knowledge providing siddhi (accomplishment to yogi).  
Acharya Charaka described some factors in the treatment of Aatikrushata.
(leanness), achintanachya karya (freedom from anxiety about any work), paushtik aahar seven and lastly taking swapna (adequate sleep). These factors lead to bruhana and make the man like a varaha.

As proper aahar is required for maintenance of health similarly nidra as required for sukha and aarogya. Stholya and karshya depends on nidra.

Nidra taken at proper time gives us pushti (good physique), varna (glowness of skin), bala (power), utsaha, agnidipti and dhatu samya.

As per Acharya Bhavprakasha Jagaran causes rukshata (dryness) and decreases kapha dosha and poison intoxication. Samyak nidra (the sleep taken at proper time i.e. in night) maintains dhatusamya. It also gives pushti, bala, utsaha and agnidipti.

View of Modern science regarding sleep:

Definition of Sleep:
1. The natural, easily reversible periodic state of many living things that is marked by the absence of wakefulness and by the loss of consciousness of one's surroundings, is accompanied by a typical body posture (such as lying down with the eyes closed), the occurrence of dreaming, and changes in brain activity and physiological functioning, is made up of cycles of non-REM sleep and REM sleep, and is usually considered essential to the restoration and recovery of vital bodily and mental functions.

2. A condition of body and mind which typically recurs for several hours every night, in which the nervous system is inactive, the eyes closed, the postural muscles relaxed, and consciousness practically suspended.

Types or Phases of Sleep

1. REM (Rapid Eye Movement)
REM is characterized by the presence of rapid eye movements during sleep. It is seen in 4th stage of sleep cycle. This type of sleep is less restful than slow-wave sleep and is associated with dreaming and bodily muscle movements. During REM sleep a person’s threshold to be aroused by external stimuli is higher than during slow-wave sleep. Heart rate and breathing become irregular during REM sleep, a feature of the dream state.

2. NREM (Non-Rapid Eye Movement)
Non-REM sleep is characterised by deep sleep. During non-REM sleep the blood pressure, breathing and metabolic rate are all depressed significantly. Bodily movements do not occur during non-REM sleep. Non-REM sleep is also referred to as slow wave sleep as during this period the brain waves are very strong and of a very
low frequency (i.e. slow). While non-REM sleep is sometimes referred to as dreamless sleep, dreams and even nightmares can occur during non-REM sleep. These are not associated with movement and are not remembered as they are not consolidated to memory during this sleep phase, mainly seen in 1\textsuperscript{st} and 3\textsuperscript{rd} stage of sleep.

There is switching between activation and inhibition of these neurons result in a characteristic cycling of NREM and REM phase during the Sleep period.

Sleep Cycles – Each night 4 to 6 cycles of REM and non-REM.

**Stages of Sleep**

**Stage 1** - Non-REM sleep is the changeover from wakefulness to sleep. During this short period (lasting several minutes) of relatively light sleep, your heartbeat, breathing, and eye movements slow, and your muscles relax with occasional twitches. Your brain waves begin to slow from their daytime wakefulness patterns. Stage 1 is the beginning of the sleep cycle and is a relatively light stage of sleep. Stage 1 can be considered a transition period between wakefulness and sleep.

**Stage 2** - Non-REM sleep is a period of light sleep before you enter deeper sleep. Your heartbeat and breathing slow, and muscles relax even further. Your body temperature drops and eye movements stop. Brain wave activity slows but is marked by brief bursts of electrical activity. You spend more of your repeated sleep cycles in stage 2 sleep than in other sleep stages.

**Stage 3** - Non-REM sleep is the period of deep sleep that you need to feel refreshed in the morning. It occurs in longer periods during the first half of the night. Your heartbeat and breathing slow to their lowest levels during sleep. Your muscles are relaxed and it may be difficult to awaken you. Brain waves become even slower. It also acts as a transitional period between light sleep and a very deep sleep.

**Stage 4** - Most dreaming occurs during the fourth stage of sleep, known as rapid eye movement (REM) sleep. REM sleep is characterized by eye movement, increased respiration rate, and increased brain activity. The American Sleep Foundation suggests that people spend approximately 20 percent of their total sleep in this stage. REM sleep is also referred to as paradoxical sleep because while the brain and other body systems become more active, muscles become more relaxed. Dreaming occurs due to increased brain activity, but voluntary muscles become immobilized.

*The Sequence of Sleep Stages*
It is important to realize that sleep does not progress through these stages in sequence. Sleep begins in stage 1 and progresses into stages 2, and 3. After stage 3 sleep, stage 2 sleep is repeated before entering REM sleep. Once REM sleep is over, the body usually returns to stage 2 sleep. Sleep cycles through these stages approximately Four or Six times throughout the night.

**Light Sleep** – Stage 1, 2
**Deep Sleep** – Stage 3, 4

**Physiology**

The hypothalamus contains groups of nerve cells that act as control centres affecting sleep and arousal. Within the hypothalamus is the **suprachiasmatic nucleus** (SCN) – clusters of thousands of cells that receive information about light exposure directly from the eyes and control your behavioural rhythm. The SCN in turn influences melatonin secretion from the pineal gland.

The **brain stem** communicates with the hypothalamus to control the transitions between wake and sleep. (The brain stem includes structures called the Pons, medulla, and midbrain.) Sleep-promoting cells within the hypothalamus and the brain stem produce a brain chemical called **GABA**, which acts to reduce the activity of arousal centres in the hypothalamus and the brain stem. The brain stem (especially the Pons and medulla) also plays a special role in REM sleep; it sends signals to relax muscles essential for body posture and limb movements, so that we don’t act out our dreams.

The **thalamus** acts as a relay for information from the senses to the **cerebral cortex**. During most stages of sleep, the thalamus becomes quiet, letting you tune out the external world. But during REM sleep, the thalamus is active, sending the cortex images, sounds, and other sensations that fill our dreams.

The **pineal gland** receives signals from the SCN and increases production of the hormone **melatonin**, which helps put you to sleep once the lights go down. Melatonin is synthesized from Tryptophan.

The **basal forebrain**, near the front and bottom of the brain, also promotes sleep and wakefulness, while part of the **midbrain** acts as an arousal system. Release of adenosine (a chemical by-product of cellular energy consumption) from cells in the basal forebrain and probably other regions supports your sleep drive.

The **amygdala**, an almond-shaped structure involved in processing emotions, becomes increasingly active during REM sleep.

**SLEEP MECHANISMS**

There are two internal biological mechanisms in body; Circadian rhythm
and homeostasis which work together to regulate when you are awake and sleep.

- **Circadian rhythm**
  They control your timing of sleep and cause you to be sleepy at night, to small extent between 2 to 4 pm. and your tendency to wake in the morning without an alarm. Your body’s biological clock, which is based on a roughly 24-hour day, controls most circadian rhythms. Circadian rhythms synchronize with environmental cues (light, temperature) about the actual time of day, but they continue even in the absence of cues.

- **Sleep-Wake Homeostasis**
  It keeps track of your need for sleep. The homeostatic sleep drive reminds the body to sleep after a certain time and regulates sleep intensity. This sleep drive gets stronger every hour you are awake and causes you to sleep longer and more deeply after a period of sleep deprivation.

**Quality and Quantity of sleep**
Counting hours is important, but so is measuring soundness in sleep. The National Sleep Foundation has recently released the key indicators of good quality sleep Health report which includes

1. Sleeping more time while in bed (at least 85% of total sleep)
2. Falling asleep in 30 mins or less.
3. Waking up no more than once per night.

<table>
<thead>
<tr>
<th>Age and condition</th>
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<td>New born (0–3 months)</td>
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<tr>
<td>Infants (4–11 months)</td>
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<tr>
<td>Toddlers (1–2 years)</td>
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<tr>
<td>Preschoolers (3–4 years)</td>
<td>10 to 13 hours</td>
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<tr>
<td>School-age children (5–12 years)</td>
<td>9 to 11 hours</td>
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<tr>
<td>Teenagers (13–17 years)</td>
<td>8 to 10 hours</td>
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<tr>
<td>Adults (18–64 years)</td>
<td>7 to 9 hours</td>
</tr>
<tr>
<td>Older Adults (65 years and over)</td>
<td>7 to 8 hours</td>
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</tbody>
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**Benefits of Sleep according to modern science:**

1. **Sleep keeps your heart healthy**-
   Heart attacks and strokes are more likely to occur during the early morning hours, which may be due to the way sleep interacts with the blood vessels. Lack of sleep has been associated with worsening of blood pressure and cholesterol,
which are risk factors for heart disease and stroke.

2. **Sleep may help to prevent Cancer**

Melatonin, a hormone that regulates the sleep-wake cycle, is thought to protect against cancer as it appears to suppress the growth of tumours.

3. **Sleep reduces Stress**

When your body is sleep deficient, it goes into a state of stress. The body's functions are put on high alert, which causes high blood pressure and the production of stress hormones. High blood pressure increases your risk for heart attack and stroke, and the stress hormones make it harder to fall asleep.

4. **Sleep Reduces Inflammation**

Increased stress hormones caused by lack of sleep raises the level of inflammation in your body. This creates a greater risk for heart-related conditions, as well as cancer and diabetes. Inflammation is thought to cause the body to deteriorate as we age.

5. **Sleep Improves Your Memory**

Deep sleep is a very important time for your brain to make memories and links, and getting more quality sleep will help you remember and process things better.

6. **Sleep May Help You Lose Weight**

Researchers have found that people who sleep fewer than 7 hours per night are more likely to be overweight or obese. It is thought that a lack of sleep impacts the balance of hormones in the body that affect appetite. The hormones Ghrelin and Leptin, which regulate appetite, have been found to be disrupted by lack of sleep.

7. **Napping Makes You "Smarter"**

Napping during the day is an effective, refreshing alternative to caffeine that is good for your overall health and can make you more productive. People who nap at work show much lower levels of stress. Napping also improves memory, cognitive function, and mood.

8. **Sleep Makes You More Alert**

A good night's sleep makes you feel energized and alert the next day. You'll sleep better the next night and increase your daily energy level.
9. **Sleep May Reduce Your Risk of Depression**

People with serotonin deficiencies are more likely to suffer from depression. You can help to prevent depression by making sure you are getting the right amount of sleep: between 7 and 9 hours each night.

10. **Sleep Helps the Body Repair Itself**

Sleep is a time to relax, but it's also a time during which the body is hard at work repairing damage caused by stress, ultraviolet rays, and other harmful exposure. Your cells produce more protein while you are sleeping. These protein molecules form the building blocks for cells, allowing them to repair the damage.

11. **Effect of sleep on Growth**

HGH is released by the brain into the bloodstream during sleep, and its release is part of the repair and restoration function of sleep. Human growth hormone promotes a healthy metabolism, enhances your physical performance, and may even help you live longer. In normal healthy people, the major period of HGH release occurs during the first period of Stage 3 sleep stage during the night. During this stage of sleep, HGH is released and works to restore and rebuild your body and muscles from the stresses of the day.

**Sleep inducing products** - Carbohydrates, Banana, Peanuts, Milky products, Fig etc which are rich sources of Tryptophan.

**Sleep affecting products** – Caffeine, Beta-blockers, Benzodiazepines, NSAIDs and Protein rich diet.

**Discussion:**

The Ayurvedic and modern views related to sleep can be correlated as follows:

According to Kaiydev Nighantu Increase in Kapha dosha causes srotorodh which leads to nidra. Klama to indriya and mana leads to retirement of indriya from their vishaya resulting in nidra. When Hridaya i.e. chetana sthana is filled with tamoguna, nidra appears.

The **pineal gland** receives signals from the SCN and increases production of the hormone *melatonin*, which helps put you to sleep once the lights go down. Release of adenosine (a chemical by-product of cellular energy consumption) from cells in the basal forebrain and probably other regions supports your sleep drive. **There are two internal biological mechanisms** in body; Circadian rhythm and
homeostasis which work together to regulate when you are awake and asleep.

- Ayurveda has claimed long life (Jivita) and death (Ajivita) factors are dependent on nidra which is third main pillar of life. Modern science has given that including good quality sleep in daily regimen can reduce the chances of heart diseases, stroke, cancer. It also boosts immune system for health of human body.

- Sukha and Dukha i.e. Happiness and sorrow state of mind is also dependent on daily sleep. Satisfaction (feeling of fullness) is the ultimate goal of the life, sleep helps in achieving it. Factors like stress, depression which take us away from that satisfying mental state. Sleep acts as the anti-depressant and stress buster in human life.

- Quality of sleep also affects Gyaan (knowledge) and agyaan (ignorance). Proper sleep helps in improving memory. Even half an hour nap can refresh the body and brain. Sound sleep at night reduces physical exertion and makes you alert for next morning.

- Sleep has its effect on human’s physique as well. Ayurveda has given importance to nidra in order to gain or lose weight. Modern science claims that body repair mechanisms take place during sleep. As human growth hormone is released by brain stem in blood during sleep; it can be said that sleep promotes metabolism, enhances physical performance.

**Conclusion:**

- Sleep plays a vital role in good health and well-being throughout your life. Getting enough quality sleep at the right times can help protect your mental health, quality of life and safety.

- To combat the lifestyle disorders and lead a healthy life, ideal Nidra plays important role.

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