

A REVIEW OF BENEFITS OF SLEEP

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ABSTRACT

The main aim of *Ayurveda* is to maintain the healthy status of healthy person and then curing the diseases of diseased person. So in order to maintain healthy status food, sleep and controlled sex are the important factors as per *Ayurveda*. Sleep is a universal phenomenon and occupies a large portion of a human beings life. Benefits of *nidra* are mentioned in *ayurveda*. In this article an attempt is made to throw some light on its mechanisms with the help of findings in modern science. Findings of modern research also point towards sleep as a factor essential for life just like the concept of *nidra (sleep)*, as *trayopstambha* in ayurveda.

Keywords: *nidra, trayopstambha, sukha, bala, pushti*

INTRODUCTION

Swasthya swasthyarakshanam means protecting the health of a healthy person is the aim of *ayurveda*. This lays emphasis on preventive aspect. *Ayurveda* has mentioned *aahar* (food), *nidra* (sleep), *brahmacharya* (celibacy) as *trayopstambha*, three pillars which support the health of the body. So needless to say, for maintenance of health, special thought to sleep is important. More so, in the present scenario of hectic lifestyle, changed and extended work timings, fast and extensive travelling, the concept of sleep and its health benefits needs to be given a lot of importance. Insomnia is one of the commonest complaints heard in clinical medicine. Sleep is one of the factors responsible for sustaining living body. *Charak* says that *nidra* (sleep) is *dehastithikarini*, means just like food, sleep is the factor responsible for existence of living body.⁵

AYURVEDIC CONCEPT

Ayurveda is an ancient science having a wholesome and holistic view about the health of human beings. So, descriptive guidelines are given for following the factors responsible for maintenance of health and non production of disease. *Dhatu* is the main factor for *aarogya* (health). Also three helping points are mentioned which support our well being just like pillars support the house. Sleep is one of these points.

Sleep is also mentioned as *adharniya vega*, means an urge which should not be controlled. If controlled may lead to complaints like *jrumbha, angmarda, tandra, shiroroga and akshigaurav*.

Bala, varna, upchaya is achieved due to proper sleep. Also like *aahar, nidra* is *dehastithikarini*. Importance of *nidra* lies in the fact that it is one of the

factors, the other being *aahar*, responsible for *sthaulya* or *karsya* of the body.¹

Vidhipurvak nidra bestows *sukha*, *pushti*, *bala*, *vrushata*, *dnyan* and finally *jeevita* and *asamyak nidrasevana* leads to opposite namely *dukha*, *karshya*, *abala*, *kleebata* and finally *alpayu* or *mriyu* depends on it.¹

Sushruta samhita says timely sleep (*kalashayan*) leads to *pushti*, *varna*, *bala*, *utsaha*, *agnidipti*, *atandra* and *dhatu-samyak*.² Here both physical and mental aspects are included. Means sleep bestows nourishment, strength, sexual urges, learning, good digestive ability, complexion, proper proportion of body constituents required for health as physical benefits. Mental benefits include enthusiasm, learning and happiness. The opposite is caused due to improper sleep. A person cannot survive without sleep. Ultimately life and death depends on it. The underlying mechanism for these is not described. The quantity and quality of sleep is individualistic and most of the benefits are subjective in nature.

MODERN CONCEPT

Sleep is defined as unconsciousness from which the person can be aroused by sensory or other stimuli. It is one of the many states of brain.³

Research is still going on about sleep. A normal man spends approximately 1/3rd part of his life span in sleep. Usually a person sleeps about 8hrs in a 24hrs period, the range of deviation is 4 to 10 hrs/day, although the infants and children sleep more while old sleep less.⁴

Physiological effects and functions of sleep-

The utility of sleep is not satisfactorily known. Some people sleep less, some more and yet both of them may be normal. However sleep deprivations are commonly associated with deterioration of higher functions of the brain eg learning, memory, judgement etc, if more prolonged and intense, deterioration of functions of lower levels of brain eg disorders of motor functions like tremors, nystagmus, dysarthria etc can occur in addition.⁴

Sleep causes

- i) Effects on the nervous system (more important) and
- ii) Effects on other structures of the body. Lack of sleep affects the functions of central nervous system. Prolonged wakefulness is often associated with progressive malfunction of the brain and sometimes even causes abnormal behavioral activities of the nervous system. For e.g. the increased sluggishness of thoughts that occurs towards the end of prolonged wakeful period. Also a person can become irritable or even psychotic after forced wakefulness of prolonged periods. Therefore, we can assume that sleep in some way not currently understood restores both normal levels of activity and normal balance among the different parts of the central nervous system.³

There are many theories regarding functions of sleep which suggest that sleep plays an active role in processes such as synaptic plasticity and memory function, emotional regulation, metabolic function and energy balance, macromolecule biosynthesis, removal of toxic substances and metabolic waste or prophylactic cellular maintenance.⁷

Role of sleep in physical restoration-

A research published in Neuroscience on functions of sleep states that, there are many theories which explain the role of sleep as a period of physical restoration that serves as a time of growth and repair for the body but much remains unknown.⁶

According to the Energy Allocation model of sleep proposed by Schmidt, the sleep wake cycle evolved to perform unique and essential biological processes during sleep as a way to decrease the energy requirements of wakefulness and reduce total daily expenditure. The point which favours the restorative function of sleep is the observation that hormones released during sleep have a predominant anabolic function such as growth hormone, as opposed to hormones associated with wakefulness, which tend to have a catabolic effect such as cortisol which is suppressed during sleep.⁶

Sleep and Immunity-

The immune regulatory functions of sleep are still not well understood, but recent work points to sleep acting as an adjuvant to enhance the early stages of immune response.⁶ It has been observed that people sleeping for 7-9 hrs per day have significantly lower rates of illness.¹⁰

In an epidemiological study, sleep duration <5 hrs (versus 7 hrs) was related to larger body mass index, obesity, diabetes, hypertension, hypercholesterolemia, heart attack and stroke. Insufficient sleep is also associated with alterations in hypothalamic-pituitary-adrenal axis, and endocrine and metabolic effects of sleep restriction resemble normal ageing and, thus may increase the severity of age related diseases. Also sleep restriction shows increased activity of the sympathetic nervous system.⁶

Sleep for learning and memory-It is well documented that sleep is essential for motor skill learning. Many studies have postulated specific roles for sleep stages in learning and memory. Sleep both encodes essential information to storage and also removes the emotionality from memories; thereby depotentiating recall of adverse events over time.⁶ REM sleep is important for it is somewhat concerned with the consolidation of memory.⁴

Along with this, the effects of sleep loss on neurocognitive performance are both striking and acute. The experimental studies suggest that among healthy adults neurocognitive performance is impaired when the nightly sleep period is restricted to less than 7 hrs.⁶

Research on sleep and emotional brain function describes an intimate and causal relationship between the two. Clinically it is observed that nearly all mood and anxiety disorders co occur with one or more sleep abnormalities. Sleep loss leads to impairments of attention, alertness and memory. Also subjective reports of irritability and emotional volatility are consistently associated with sleep loss.⁸

Sleep as a necessity for survival-

A research published on sleep and maturation says that, the temporal organization of sleep and circadian rhythms enable the coordination of a wide

range of cellular and metabolic processes which together enable stability and survival.⁷

Sleep and looks-

An experimental study published in BMJ says that, as illustrated by the expression 'beauty sleep' an individual's sleep history may play an integral part in the perception and judgement of his or her attractiveness and health. Sleep deprived people are perceived as less attractive, less healthy and more tired compared with when they are well rested.⁹

DISCUSSION

Anukulvedaniyam sukham is the definition for *sukha*. *Sukha* is something which human being craves for both physically and mentally. It is the comfortable state of body and mind. A person feels happiness, blissful state when all the underlying functions of body and mind are at optimum. Sleep has a wide impact on this. *Vatvruddhi* is associated with sleep loss, loss of strength and loss of sensory functions. Conversely proper sleep induces proper proportions of *vata* and *kapha*. *Kapha* is synonymous with *bala* (Strength). Sleep has a role in physical restoration, a time for the growth and repair, positive effect on the immune response, increased secretion of anabolic hormones like growth hormone. Also a person sleeping well is less likely to fall ill. A well slept person is perceived as healthier, more attractive. All this leads to the effects of *sukha*, *pushti*, *varna* and *bala*. Subjectively a person feels fresh and is ready for next day's work after a good sleep. He is perceived as less tired. So we can say that appropriate sleep bestows a person with *utsah*. Enthusiasm is a mental attribute and is subjective.

Only ingestion of food is not enough. It should be properly digested and assimilated for nourishment. Improper sleep due to reasons like shift working, late night sleep etc leads to digestive disturbances. Conversely sleeping at and for adequate time helps in digestion (*agnidipti*). Sleep has a positive effect on digestion and metabolism. All this leads to proper nourishment and health (*dhatusamya*).

Proper *nidra* has a positive effect on *dnyangrahan*. On the mechanism of how sleep occurs Ayurved opines that mind gets tired (*klant*), sense organs get exhausted and do not perceive their *vishaya*, and hence no knowledge occurs. For knowledge to occur mind and sense organs should function optimally and this is achieved by taking rest, taking good sleep. Sleep is very much essential for proper functioning of CNS. Sleep deprivation leads to the derangements of functions of brain. Also sleep has positive effect on alertness, motor skill learning and memory consolidation.

Performing so many functions, sleep is definitely important for good physical and mental health, and ultimately for existence and long healthy life span. The derangements in the functions of body and mind due to sleep loss indirectly point towards the utility of sleep.

Also as mentioned above due to sleep and circadian rhythms, a wide range of cellular and metabolic processes are coordinated which together enable stability and survival.⁷ So, we can say in some manner *jeevita* depends on sleep.

The terms in *ayurveda* are packed with meaning. For explanation and correlation, wherever possible, extensive study is required. Vast amount of research is going on in modern science. For more insight into the topic, deeper study should be done.

CONCLUSION

The benefits of *nidra* in human beings is mentioned in *ayurveda* but not described in detail. Much research is going on in the field of sleep in modern science. The mechanism of benefits mentioned in *ayurveda* can be understood with its help. Findings of modern research also point towards sleep as a factor essential for life just like the concept of *nidra* as *trayopstambha* in ayurveda.

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