

# A Review on Sleep Health and Sleep Disorders

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## Review Article

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## ABSTRACT

[Sleep Health](#) is a new field of research describing how we sleep and the factors that affect it, which in turn is beneficial to our physical and mental health. On an average individual should ideally receive [sleep](#) between seven and nine hours each night, which vary individually, like some feel best with eight hours of sleep, while others feel the same with six to seven hours at night. Healthy [sleep habits](#) will help in living quality life; it might appear obvious that sleep is beneficial and essential. Indeed, even without completely knowing what sleep does for us. Researchers have made to great attempts in understanding the benefits of sleep completely, where they have discovered the importance of sleep in humans and animal metabolism, immune system, memory, learning and other crucial activities. The features in this review article explained about the importance of sleep, stages of sleep and [sleep disorders](#) along with the present and future perspectives in treatment.

## INTRODUCTION

[Sleep](#) study is one of the most interesting subjects since the early Greek philosophers' period. At present researchers introduced excellent ways to study sleep in a particular and systemic way with the help of new technologies like [electroencephalograph](#) (EEG). EEG has made scientists work easy by aiding in measuring the electrical patterns and activity of brain during sleep <sup>[1-6]</sup>.

As per available recent reports about [70 journals](#), 90 Conferences, 30 workshops are exclusively related to Sleep Disorder. There is an enormous increase in cases of [Sleep Disorder](#) because of ignorance of people in identifying and reporting the condition. As per the reports of National Institutes of Health about 12 million Americans were suffering with OSA <sup>[7-14]</sup>. Some of the sleep disorders are critical and interfere with mental, social and emotional functioning. [Polysomnography](#) is a test which is commonly used for identifying some sleep disorders. The Journal of Sleep Disorders & Therapy Presents a unique platform to researchers and scientist to explore the developed and cutting-edge study trends in the field of [Sleep problems](#) and treatment.

[American Sleep Association](#) was established in 2002 by sleep professionals with an aim to improve and strengthen public health by growing awareness regarding the importance of sleep and the problems of sleep disorders and secondary goal is to help other such organizations that share our goal. It believes that everyone in this community can make an optimistic impact on this effort <sup>[15-21]</sup>. [The British Sleep Society](#) is an organisation for scientific, medical and healthcare professionals coping with sleeping disorders. They are a registered British charity with an ultimate goal of improving public health via promoting research and education of sleep and its disorders <sup>[22-26]</sup>. [The Canadian Sleep Society](#) is an organization with an ideal commitment of improving sleep health of all Canadians by supporting the research, promoting high quality clinical care, making the professionals and the public

to know about problems and dangers of sleep disorders. [The European Society for the Advance of the Neuroscience](#) is a national non-profit organization founded in 2013 with an ultimate aim to promote the research of the Scientists worldwide<sup>[27-30]</sup>. This organization works with a mission to improve the advance technology in understanding the brain and the nervous system along with the diagnosis of diseases by gathering Young researchers of different backgrounds, and making way to publish their innovative research.

[OMICS Group](#) organizes conferences on sleep with an aim to make an everlasting relation of upcoming new strategies in the field of Sleep Disorders with the scientific community and thereby giving everyone a healthier and quality life. Recently [2nd International Conference on Sleep Disorders and Medicine](#) which is known as Sleep Medicine 2016 was a grand success and on November 28th -30th, 2016 at Atlanta <sup>[31-35]</sup>. The main theme of this conference is to illuminate the topic of sleep, how it benefits our daily lives and ultimately leading to a healthier and prosperous tomorrow. Kathy Sexton-Radek et al. discussed that the alternative medicine use to induce sleep has high impact on reducing the difficulties in sleep as well as to reduce the chances of [sleep disorder](#) cases globally also another study by Zi-Jian Cai suggests that the slow-wave sleep (SWS) for regulating the emotional balance obstructed by emotional memories were randomly accumulated during waking and the REM sleep is contrary to it, which helps in revising and extending the psychoanalysis in both therapy and theory <sup>[36-39]</sup>. [3rd International Conference on Sleep Disorders and Medicine](#) is going to held on November 5-7, 2017, Madrid, Spain. The main intention is to promote the new developments and innovative ideas in exploring the knowledge by scientific researchers on Sleep disorders and Medicine to the community <sup>[40-42]</sup>.

## SLEEP STAGES

Our brain regulates and controls the transitional stages between wakefulness and sleep which in turn plays a vital role in indicating depth and quantity of sleep. [Sleep](#) is also highly influenced by external environmental factors like light. Scientists are about to establish a clear concept of sleep. Normally we pass through five sleep stages and one complete sleep cycle involves an average time of 90 to 110 minutes. [Polysomnography](#) is used to measure the stages of sleep which is involves measuring of sleep patterns, brain wave activity, eye movement, respiration and heart rhythm <sup>[43-48]</sup>. The two important categories of sleep are [rapid eye movement sleep](#) (REM) and non-rapid eye movement sleep (NREM), which are scientifically referred to as active and quite sleep respectively. REM sleep is again divided in to four separate stages <sup>[49-51]</sup>.

[REM sleep](#) involves rapid movements of the closed eye which can be measured using electrooculography (EOG), activity of brain during sleep consists of low-amplitude brain waves, brains oxygen and energy consumption is high during this stage, neurologically [REM sleep](#) is accelerated by the neurotransmitter acetylcholine and suppressed by serotonin. There will be irregular and rapid breathing along with high blood pressure in REM sleep compared to Non-REM sleep. Muscles will be in relaxed condition during non-REM sleep while they are completely paralysed and unresponsive during REM sleep which is termed as atonia which is result of brains suppression of control muscle movement. Most of the vivid dreams we come across sleep are during REM sleep due to muscular atonia<sup>[52-55]</sup>.

Stage 1 involves short sleep where one drift in and out of [sleep](#) also they can be awakened quickly and easily. At this stage of sleep, the movement of eyes is slow and muscle activity is decreased. In this stage, many individuals can experience muscle contractions continued by a sense of falling.

In stage 2 movements of eye stops and slower [brain waves](#) activity with an occasional sudden burst of continuous brain waves. When an individual enters stage 3 there will be slow brain waves known as delta waves which will interspersed with faster and smaller waves <sup>[56-58]</sup>.

In stage 4 our brain produces delta waves only. Stages 3 and 4 are considered as delta sleep or [deep sleep](#) and rather complex to wake any individual from this stage. In deep sleep there will be no movement of eye or muscle activity. This is the stage where children experience bedwetting, [night terrors](#) and sleepwalking <sup>[59-67]</sup>.

## SLEEP DISORDERS

A [sleep disorder](#) or somniphathy is characterized by sleep pattern alterations in an individual or animal and most of them involved in producing disruption in sleep functions. This Disruption of sleep may be caused by a

different factors and conditions which are serious enough in causing difficulties in normal physical and mental health. You can start monitoring your signs and [sleep patterns](#), and that making change in health habits starting from morning to night bedtime. If that doesn't work you could turn to sleep professionals who're trained in [sleep treatment](#) and thereby find the exact ways to improve your sleep health and quality of life [68-72].

Sleep disorders are classified into [circadian rhythm sleep disorders](#) which involves the time of sleep, parasomnias, dyssomnias, sleeping sickness. Some of the common sleep disorders are [Obstructive sleep apnea](#) that involves difficulty in breathing during sleep, narcolepsy which is characterized by over daytime sleepiness and drowsiness often with sudden onsets of sleep anywhere which makes the patient difficult to stay awake for long time. Hypersomnia involves excessive drowsiness at odd times [73-81]. Cataplexy is sudden loss of muscle tone after waking up from sleep. Other sleep disorders are parasomnia, [sleep paralysis](#), snoring, night terrors, delayed sleep phase disorder, bruxism, bed wetting, shift work sleep disorder, restless legs syndrome, [kleine-levin syndrome](#) and [sleepwalking](#).

[Open Access Journals](#) related to sleep disorders play major role in promoting the research and recent advances in almost all areas of Neuroscience and sleep studies for benefit of society. Some remarkable research findings and reviews have been published in [Journal of Sleep Disorders: Treatment and Care](#), it is a peer reviewed journal that publishes the most reliable source of content and information on the latest discoveries and current interventions in sleep studies [82-93]. [Journal of Sleep Disorders & Therapy](#) is an open access peer reviewed journal which provides a platform to share the information among the scientists and researchers, also [Open Access](#) methods have been resembled the most effective tool for dissemination of information for the betterment of the scientific society [94-101].

## CONCLUSION

This review discussed an overview of sleep and their disorders. Most of the [sleep problems](#) and sleep disorders if once diagnosed or identifies it can be easily managed with help of sleep specialist. The starting goal is to identify and treat every condition which may be responsible secondarily for daytime or excessive sleepiness or inability to have sufficient [quality sleep](#). However, treatment of sleep disorders is best handled by a sleep expert.

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