



శ్రీ వేపచేదు విద్యా పీఠము

**VEPACHEDU EDUCATIONAL FOUNDATION**

మన సంస్కృతి

Mana Sanskriti (Our Culture)

Chief Editor: Dr. Sreenivasarao Vepachedu, Esq.

## Chronotype and Sleep

Humans are normally diurnal creatures, i.e., they work when there is sun and light, and sleep in the night. Human activity-rest patterns are endogenously controlled by biological clocks and circadian rhythms entrained by the external cues called zeitgebers (time givers), commonly the most important of which is daylight-a light cycle. Chronobiology is the study of biological temporal rhythms, such as daily, tidal, weekly, seasonal, and annual rhythms. Chronotype is an attribute of human beings, reflecting at what time of the day their hormone level, body temperature, cognitive faculties, eating and sleeping reach a certain level, such as peaks and valleys. This phenomenon is commonly reduced to sleeping habits only, referring to people as "larks" and "owls" which refer to morning people (those who wake up early and are most alert in the first part of the day) and evening people (those who are most alert in the late evening hours and prefer to go to bed late), respectively.

National Institutes of Health (NIH) supported research is shedding light on how sleep and lack of sleep affect the human body. The NIH and its partners will continue to work together to advance sleep research<sup>1</sup>.

Researchers have shown that simplified individual chronotype, that is, whether you are a "morning-type" or an "evening-type", depending on the time of day when your physiological functions are more active, markedly influences driving performance. Larks tend to be poor drivers at night, and night owls tend to be poor drivers early in the day, as it is obvious from their active time schedule<sup>2</sup>.

How likely you are to lie today could depend on how well you slept last night. According to recent studies, people not only become less productive when they are tired, but they are also more likely to lie, cheat, or act unethically in other ways, indicating their brains

<sup>1</sup> <http://www.nhlbi.nih.gov/news/spotlight/fact-sheet/sleep-disorders-insufficient-sleep-improving-health-through-research.html>

<sup>2</sup> <http://www.sciencedaily.com/releases/2014/06/140627094553.htm>

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are compromised due to fatigue. Morning people tend to act more unethically at night, and night owls tend to act more unethically early in the day<sup>3</sup>.

Not only your chronotype, but also your health impacts your sleep patterns, e.g., Sleep Apnea. The Greek word apnea means without breath. Therefore, when breathing pauses multiple times during sleep, it is called Sleep apnea. However, pauses fewer than five times per hour are normal. The pauses can last from a few seconds to minutes and can occur more than five times per hour, to as high as 100 times per hour. Sometimes when you start breathing again, you make a loud snort or choking sound. Obstructive sleep apnea, the most common type, is caused by a blockage of the airway, usually when the soft tissue in the back of the throat collapses. The less common form, central sleep apnea, happens if the area of your brain that controls breathing doesn't send the correct signals to your breathing muscles.

Sleep apnea often goes undiagnosed. Doctors usually can't detect the condition during routine office visits. Also, no blood test can help diagnose the condition. Most people who have sleep apnea don't know they have it because it only occurs during sleep. A family member or bed partner might be the first to notice signs of sleep apnea. The most common type of sleep apnea is obstructive sleep apnea (OSA). In this condition, the airway collapses or becomes blocked during sleep. This causes shallow breathing or breathing pauses<sup>4</sup>.

Some of the sleep apnea dangers include: diabetes, increase in blood sugar, hypertension, heart disease, depression, and premature death. Risk factors include: being overweight, being over age 40, smoking, having a family history of sleep apnea, and having a nasal obstruction due to a deviated septum, allergies or sinus problem.

<sup>3</sup> <http://scienceblog.com/73105/people-likely-lie-cheat-theyre-tired/>

<sup>4</sup> <http://www.nhlbi.nih.gov/health/health-topics/topics/sleepapnea/>

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A polysomnogram (PSG) is the most common sleep study for sleep apnea and often takes place in a sleep center or lab to record brain activity, eye movement, blood pressure and the amount of air that moves in and out of your lungs.

FDA approved the first implanted medical device for the treatment of this disorder. The Inspire Upper Airway System (UAS) is intended for consumers with moderate to severe obstructive sleep apnea (OSA), who have specific characteristics (a Body Mass Index under 32 and the absence of complete collapse in the back of the throat) and were not helped by a CPAP device, or could not tolerate the CPAP treatment<sup>5</sup>. The Inspire device is surgically implanted below the collarbone and works with electrical impulses to stimulate the patient's tongue muscles and keep airways open. The Inspire UAS consists of an electrical impulse generator, with leads and sensors that stimulate the nerve that controls the tongue and that sense the patient's breathing<sup>6</sup>.

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*"Earth provides enough to satisfy every man's needs, but not every man's greed." -  
Mahatma Gandhi*

*Hinduism is a way of life, with diversity of religion, and Indian teachings share the  
importance of seva (service).*

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*Om! Asatoma Sadgamaya, Tamasoma Jyotirgamaya, Mrityorma Amritamgamaya, Om  
Shantih, Shantih, Shantih! (Aum! Lead the world from wrong path to the right path, from  
ignorance to knowledge, from mortality to immortality and peace!)*

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<sup>5</sup> <http://www.youtube.com/watch?v=B10ABypyGOo>

<sup>6</sup> <http://www.fda.gov/forconsumers/consumerupdates/ucm330932.htm>

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