

HEALTH&LIFESTYLE: SLEEP, HOW IT AFFECTS OUR PERFORMANCE AS MEDICAL STUDENTS

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Abstract. *Firstly, before I delve into the subject let us understand what does it mean to be healthy and how does one's lifestyle affect a person's health. Health according to the World Health Organization (WHO) is "a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity". The specifics of a healthy lifestyle may vary from person to person. Generally, it will include a balance diet, physical exercise, time for family and important relationships, hobbies and downtimes, vacations and a good quality sleep. All of these must harmoniously exist to generate a sense of contentment and satisfaction.*

Keywords: *health, lifestyle, sleep, affects, performance, medical, students.*

Introduction. Sleep is known to be "the natural periodic suspension of consciousness during which the powers of the body is restored" (Merriam-Webster Dictionary). Basically, sleep is a moment where we go into a state of unconsciousness in order for the body to regenerate and rejuvenate itself. The medical profession as we all may know is highly demanding and those who are in it must be competent to tackle all the challenges it brings.

Competence requires our main cognitive center, the brain to be functioning at its best and this can only be achieved through an adequate amount of sleep. Studies have shown that humans need between 6 to 8 hours of sleep [1]. Deprivation of sleep otherwise known as insomnia, may increase the probability of health issues such as cardiovascular disease, depression, obesity, neuronal disease and other harmful health complications to occur. Statistically, it is shown that 25% of Americans suffer insomnia and 10% of adults in the USA suffer from long term insomnia and these figures are showing an increasing trend [2]. While no concrete statistical data can be brought forward to show the occurrence of insomnia in other countries worldwide, it is estimated to be between 20%-50% of the world's population. Moreover, prevalence of insomnia in medicine is fairly high and sadly it has widely been accepted that being sleep deprived is normal once you enter the medical field [3].

Now let us discuss briefly how a good night's sleep can help increase productivity and efficiency of a medical students' daily life. Studies done by scientists in humans and animals have shown that sleep plays a critical role in ensuring a rigid immune system, efficient metabolism, sharp memory, enhanced learning and a general sense of wellbeing [4] all of which is needed in order for the med student to be successful. As a medical student myself I can relate to the long sleepless nights every thriving med student endures. We need the hours to read, complete tasks and prepare ourselves for the following day of learning and practice. To reach an exceptional standard of excellence, med students who would later on graduate to become a doctor is expected to sacrifice their sleep and time to study and acquire knowledge that someday would save another person's life. However, without balance nothing can exist in peace and harmony.

As medical students we need to be able to balance our hours of studying with adequate amount of sleep to give time for our brains to recover and process the acquired information, for our body to regenerate itself removing the aches and pain it endures daily. How does sleep help us

with our learning and memory? because in the end, medicine is all about understanding and memorizing. Learning and memory has been described in terms of three steps: acquisition (gaining new information), consolidation (process by which a memory becomes stable) and recall (ability to access information voluntarily or involuntarily). These steps are essential for proper memory function. Acquisition and recall occur in the state of wakefulness, consolidation on the other hand takes place during sleep through the strengthening of neural connections formed in the brain. In addition, researchers have suggested that specific brainwaves during different stages of sleep are associated with the formation of specific types of memory [5].

The earliest sleep and memory research focused on declarative memory, which is the knowledge of fact-based information, or "what" we know (for example, the capital of France, or what you had for dinner last night). In one research study, individuals engaged in an intensive language course were observed to have an increase in rapid-eye movement sleep, or REM sleep. This is a stage of sleep in which dreaming occurs most frequently. Scientists hypothesized that REM sleep played an essential role in the acquisition of learned material. Further studies have suggested that REM sleep seems to be involved in declarative memory processes if the information is complex and emotionally charged, but probably not if the information is simple and emotionally neutral.

Researchers now hypothesize that slow sleep-wave which is deep, restorative sleep, also plays a significant role in declarative memory by processing and consolidating newly acquired information. Studies of the connection between sleep and declarative memory have had mixed results, and this is an area of continued research. Research has also focused on sleep and its role in procedural memory the remembering of "how" to do something (for example, riding a bicycle or playing the piano). REM sleep seems to play a critical role in the consolidation of procedural memory. Other aspects of sleep also play a role: motor learning seems to depend on the number of lighter stages of sleep, while certain types of visual learning seem to depend on the amount and timing of both deep, slow-wave sleep (SWS) and REM sleep.[5] Now that we have some understanding of sleep and why it plays a crucial part in our lives as medical students, let us see what happens when we are sleep deprived for extended periods of time and the consequences it may bring.

When we have been awake for a certain period, it is normal for us to lose our concentration easily, decrease in our motivation to do something, and experience an increasing difficulty to receive new information. This can be easily explained as a result of fatigue or tiredness. Being chronically tired to the point of fatigue or exhaustion means that we are less likely to perform well. Neurons do not fire optimally, muscles are not rested, and the body's organ systems are not synchronized. Lapses in focus from sleep deprivation can even result in accidents or injury. Low-quality sleep and sleep deprivation also negatively impact mood, which may hinder learning. Alterations in mood affect our ability to acquire new information and subsequently to remember that information. In the research or clinical setting, scientists measure sleepiness using a variety of methods.

After a period of sleep deprivation, there are noticeable changes in brain activity, as measured by an electroencephalogram (EEG). These changes correspond to a lower level of alertness and a general propensity to sleep. Any period of continual wakefulness beyond the typical 16 hours or so will generally lead to these measurable changes.[6] Now that we know chronic

sleep deprivation affects different individuals in a variety of ways, it is clear that a good night's rest has a strong positive impact on learning and memory.

Conclusion. To conclude, it is hoped that through this humble writing of mine and compilation of opinions and researches from various sources, we may understand our purpose, objectives and mission as medical students and more importantly realize the significance of sleep and how delicate the balance is between adequate hours of sleep we need and the amount of hard work sacrifices our noble profession demands. To put it simply, we need good amount of sleep to be able work hard and we are required to work hard to perform. It is like a cycle and we need to be aware of the components that allows the cycle to revolve properly to help us achieve our dreams of becoming a great doctor.

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