

Sleep and academic performance

Many students tend to skimp on sleep so they can use that time for things they consider more important, such as studying and their social life. However understandable that may be, it's definitely not the right way to go about things; the busier you are, the more you have to make sure that you don't miss out on your beauty sleep!

There are many reasons why we need sleep; it helps our body and mind recover, strengthens the immune system, re-energizes us and helps us process experiences. And, relevant here, sleep helps us remember study material.

What happens to your memory during sleep?

However passive sleep may seem, in reality a complex neurological factory is working hard. During wakefulness, most new information gets stored temporarily in the short-term memory part of your brain. Only during sleep, this new information gets integrated into already existing neural networks, ready to be stored for the long term. During sleep, memories are being 'replayed', strengthening their accessibility. During this process, new and existing networks get re-organized, facilitating a higher level of abstraction and insight, while clearing brain capacity for new learning tasks (Feld & Diekelmann, 2015).



Effects of sleep on learning

Repeated studies have shown that test subjects remember more after taking a nap than staying awake – even if all they're doing is just relaxing. For example, pre-school children listening to storybooks learned more new words if they were allowed to nap after hearing the story (Williams and Horst, 2014). Mander et al. (2011) conducted a study in which adult students had to learn pairs of photo portraits and their names. The students were tested directly after learning as well as couple of hours later: performance got worse with time, except for the ones who were allowed to sleep for 1,5 hours: they even got slightly better (not significant).

Not only is sleep essential for acquiring and storing knowledge, it's also vital for learning skills. For example, subjects had to type key sequences, such as 4-1-3-2-4, until they reached a constant speed. In a second test later in the day, no significant further improvement was found, except for the group that had slept for a while. Subjects in that group increased their speed by 16%. The next day, after one night's sleep, the whole group had improved by a further 20%. These numbers improved even further after two nights of sleep (Stickgold, 2005). So, it seems that sleep plays a very important role when learning skills.

Finally, sleep also helps us to gain new insights. Wagner et al. (2004) demonstrated this by giving test subjects a task that they could solve more easily once they had found a 'hidden rule'. The subjects who had slept found this hidden rule almost three times more often than those who had stayed awake.

Timing of your study sessions

Studies show that the beneficial effects of sleep are biggest when there is a time-span of less than three hours between studying and sleeping (Gais, Luca & Born, 2006; Talamini, 2008). That

is why you could benefit from doing a revision of that day's learning material in the evening. However, it's not a good idea to revise just before you go to bed. Wendelien Bohmers, psychologist at the sleep centre at the Martini Hospital in Groningen, recommends to keep the last 1-2 hours before going to bed study-free, in order to sleep well. In conclusion, a revision session around 2-3 hours before going to bed is ideal.

Sleep duration & biorhythm

Bohmers: 'Over the past 30 years we have all started to sleep about 1.5 hours less per night, partly due to the 24-hour world we live in. However, that really isn't good for us.'

Although the amount of sleep we need can vary greatly from person to person (ranging from 5 to 10 hours per night), young people need an average of 8 to 9 hours per night. 'The first four hours of sleep are the most important. This is when you get the most deep sleep and recover the most. So, if you're really busy, don't try to work through the night; still go to sleep for a few hours.'

The right time to go to sleep also varies from person to person. 'It is best to stick to your own biological rhythm. For some people, this sleep rhythm starts at 10 p.m., but for others it doesn't start until 1 a.m.'

But what's really important is that everyone has a regular rhythm. 'For your sleep rhythm, the most important thing to do is getting up at a fixed time, because this resets your biological clock. At the weekend it is recommended not to sleep more than 1.5 hours longer than you usually would during the week. If you do this a few times and your rhythm has shifted, go to bed on time again in the evening and don't lie in too long the following morning. This way, you'll be able to quickly get back to your normal rhythm again.'

Helpful habits for a good sleep

Getting up immediately

Even if you've slept badly, don't snooze too long in the morning. Bohmers: 'The urge to snooze is often a sign of sleep deprivation, or that your sleep rhythm isn't quite right. Check if this applies to you. Snoozing is tiring; you are constantly awakened from a light sleep. It's better to get up straight away, or to set your alarm clock at the time that you really have to get up. Then make sure you are surrounded by daylight as soon as possible, for example, by going outside or sitting by a window. Daylight gets all your internal rhythms kick-started.'

Darkness

The opposite applies to darkness at the end of the day. Around 1 to 2 hours before you go to bed, darken your surroundings by switching off as much light as possible. Also avoid blue light from TV, laptops and phones. If this doesn't help, you can even try wearing sunglasses.

Anxiety

Do you worry a lot or suffer from anxiety due to your long to-do list? Take the time to write down your worries and things you have to do, so that you don't take them to bed with you. This way, your thoughts stay on paper and don't keep swirling around in your head.

Relaxation

Make sure you have plenty of breaks and enough relaxation during the day. You can't be super busy all day and then expect to be able to go to bed and just switch off.

Foods and drinks

Also remember: eating at regular times and drinking water is good for you. Coffee and energy drinks, on the other hand, aren't a great idea: they do help for a while, but after that you usually get an enormous dip.

Sports

Exercising or doing sports can help you to fall asleep. Doing this in the evening hours works best, but make sure you stop at least two hours before bedtime, so that your body has some time to cool down from the workout. And the same goes for studying: stop on time, and do something relaxing before you go to bed.

And finally...

Conclusion: If you're busy, don't skimp on your sleep!

To improve your sleep: 'The sleep book – how to sleep well every night' van Guy Meadows

References

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