Students'life / fragment of the picture by Ivan Koulakov

Module 4 Part 2

Power of Sleep

"A good laugh and a long sleep are the best cures in the doctor's book." – Irish proverb

Grammar Focus: the Passive Voice (more practice)

WARM-UP

Ex.1 Discuss the following questions with your partner or in small groups.

1. Can you notice any connection between sleep and your academic performance?
2. Do you often feel sleepy during the daytime and take *power naps?
3. What is your sleeping pattern?
4. Both quantity and quality of sleep are important, aren't they? Can we estimate them for ourselves?

*Power naps are quick, mid-day naps that typically last 10-30 minutes. Experts note 20 minutes is likely the best power nap duration. Taking a 20-minute power nap can help you feel reenergized, but it helps you avoid deep sleep that makes you groggy when you wake up.

READING

Ex.2 Read the text and divide it into paragraphs. What is the main idea of each paragraph?

The Importance of Sleep in Learning

You might be surprised to learn that just plain being awake creates toxic products in your brain. How does the brain get rid of these poisons? It turns out that when you sleep, your brain cells shrink. This causes an increase in the space between your brain cells. It's like unblocking a stream. Fluid can flow past these cells and wash the toxins out. So, sleep, which can sometimes seem like such a waste of time, is actually your brain's way of keeping itself clean and healthy. So, let's get right to a critical idea. Taking a test without getting enough sleep means you're operating with a brain that's got little metabolic toxins floating around in it - poisons that make it so you can't think very clearly. It's kind of like trying to drive a car that's got sugar in its gas tank. Doesn't work too well. In fact, getting too little sleep doesn't just make you do worse on tests; too little sleep, over too long of a time, can also be associated with all sorts of nasty conditions, including headaches, depression, heart disease, diabetes, and just plain dying earlier. But sleep does more than just allow your brain to wash away toxins. It's actually an important part of the memory and learning process. It seems that during sleep your brain tidies up ideas and concepts you're thinking about and learning. It erases the less important parts of memories and simultaneously strengthens areas that you need or want to remember. During sleep your brain also rehearses some of the tougher parts of whatever you're trying to learn, going over and over neural patterns to deepen and strengthen them. Sleep has also been shown to make a remarkable difference in your ability to figure out difficult problems and to understand what you're trying to learn. It's as if the complete deactivation of the conscious you in the prefrontal cortex at the forefront of your brain helps other areas of your brain start talking more easily to one another, allowing them to put together the neural solution to your learning task while you're sleeping. Of course, you must also plant the seed for your diffuse mode by first doing focused mode work. If you're going over what you're learning right before you take a nap or going to sleep for the evening you have an increased chance of dreaming about it. If you go even further and set it in mind that you want to dream about the material, it seems to improve your chances of dreaming about it still further. Dreaming about what you're studying can substantially enhance your ability to understand. It somehow consolidates your memories into easier to grasp chunks.

And now time for a little sleep.

VOCABULARY

Ex.3 Study the definitions of the words underlined in the text above and translate them in context.

conscious	**(**adj.) aware of, under control, having knowledge
to consolidate	(v.) to unite, to solidify, to strengthen
cortex	(n.) an outer layer of an organ or a body part
to deepen	(v.) to make or become deeper, to extend
disease	(n.) illness, sickness, health disorder
to erase	(v.) to delete, to cancel
to flow	(v.) to move continuously, to stream
to float	(v.) to lie on or just below the surface of a liquid
to get rid of	to get free of something unwanted
to grasp	(v.) to comprehend, to understand
to rehearse [rɪ'hɜːs]	(v.) to repeat, to say over
to shrink	(v.) to dry up, to become smaller in size
simultaneously	(adv.) at the same time, together
to strengthen	(v.) to support, to make healthier
substantially	(adv.) significantly, strongly, essentially

Ex.4 Complete the sentences using the words from Ex.3 in their proper forms.

1. All my jumpers _____ in the wash.
2. Some students couldn't _____ the main points of the lecture.
3. To get rid of pain does not mean to get rid of the _____ itself.
4. Yoga can be used to _____ the immune system.
5. Numerous rehearsals can help _____ information in long-term memory.
6. The skin of an eighty-year-old looks _____ different from that of a twenty-year-old.
7. Try as I might, I cannot _____ such a terrible experience from my memory.
8. He had no _____ memory of how he ended up in *A&E.
9. If a liquid, gas, or electrical current _____ somewhere, it moves there steadily and continuously.
10. The various regions of the brain often work independently, relying on the neurons inside that region to do their work. At other times, however, two regions must work _____ to accomplish the task.

A&E /ˌeɪənd'iː/– Accident and Emergency Department in hospital (US ER – Emergency Room)

DISCUSSION

Ex.5 Discuss the following questions with your partner or in small groups.

1. How does the brain get rid of toxic metabolic products?
2. In what way can lack of sleep affect our overall health in the long term?
3. How does sleep facilitate our learning process?
4. Have you ever been able to find a solution to a difficult problem after a good night's sleep?
5. Can you think of any examples of focused and diffuse modes of thinking?
6. Have you ever dreamt about the material you have been learning? Do you think it can help to study better?
7. In your view, what kind of sleep pattern can facilitate your studying during the semester? And during the examination session?

GRAMMAR PRACTICE

Ex. 6 In the text in ex.2 find three examples of the Passive Voice forms and comment on their structure and use.

1.---
2.---
3.---

The Passive Voice in Scientific Language

Ex.7 Change the active into the passive.

1. They compared the experimental and theoretical data. 2. He has approached this problem in different way. 3. I hope they will obtain some interesting results in the course of their work. 4. They are measuring the radius of the tubes. 5. When the scientific supervisor entered the room, the students were finishing the calculations. 6. The author has presented entirely false picture of his actual procedure of discovery. 7. Faraday had discovered this law before Maxwell wrote it in differential form.

Ex.8 Change the questions into the passive and answer them.

1. Who discovered radioactivity?
2. What alternative sources of energy will people use in future?
3. Who invented the laser?
4. How did Mendeleyev discover the periodic law of elements?
5. Where do people use atomic energy?
6. How do scientists measure the mass of a nucleus?
7. How will one transform a liquid into a gas?
8. What do we call our galaxy?
9. Can a great explosion of a volcano significantly alter global weather patterns for decades?
10. Are researchers developing new types of lasers?