

**Actuele lesbrief Engels – A Good Night’s Sleep**

**Voor de docent**

Het belang van een goede nachtrust kan niet worden onderschat. Recent DNA-onderzoek laat zien waarom slaap eigenlijk zo belangrijk is.

**ERK-niveau**

Lezen B1 - *Lezen om informatie op te doen – Kan belangrijke feitelijke informatie begrijpen in korte verslagen en artikelen. (LEB1-3a)*

Leesstrategieën - *Kan de betekenis van zo nu en dan voorkomende onbekende woorden afleiden uit de context en de betekenis van zinnen herleiden, op voorwaarde dat het besproken onderwerp bekend is.*

*- Kan digitale technologie zoals internet en zoekmachines gebruiken om woord- en zinsbegrip te controleren, indien toegestaan.*

**Intro**

Did you sleep well last night? Or do you know that bad feeling when you haven’t slept well? Scientists have started to find out why sleeping well is important for your health.

Assignment 1

For this assignment you may use a dictionary or English-language Internet sources to help you.

a Make a list of words related to sleep. Start with the English words you already know. Next, look up any words you know in Dutch but not in English. Copy them too.

b Collect all words you and your classmates found. Which word came up most? And which ones in second and third place?

**A Good Night’s Sleep**

It can be hard to understand that we need to sleep when we really want to stay awake. But scientists know we must sleep and they are now discovering why. Scientists know we need sleep to survive. We know it too, unless we’re overtired and not thinking straight. But until now, not even scientists knew why we need sleep.

The science journal Nature Communications just published a new study. It shows we need sleep because that’s when our body repairs the DNA in our nerves. DNA is a tiny structure in every cell in our body. It holds the instructions about how our body should grow and function. It is arranged in strings called chromosomes.

When we’re awake, broken DNA builds up in our nerve cells in our brains. Only when we are asleep the repairs can happen quickly enough before more broken DNA builds up. You can compare it to a car with a problem that gets worse every time it is used. The car must be repaired. But it must stand still to be repaired. A mechanic can’t repair the car while it’s travelling at 100 km/h.

Animals as simple as worms and as complex as humans all sleep. In other words, sleep is common for all kinds of creatures. So professor Applebaum from Bar-Ilan University in Israel thought that it must be to do with something all animals have. This is a nervous system.

Professor Applebaum and his student David Zada bred special zebrafish. They changed the way the DNA looked so they could study the DNA in the nerve cells of the fish. Using a powerful microscope, they watched what happened to the DNA while the fish were awake and asleep. They saw that when the fish were awake, the repair couldn’t keep up with the damage that happened to DNA as part of normal life. If the scientists kept the fish awake by tapping on the fish tank, the damage was so great the fish were in danger of dying.

When the fish were asleep, the damage happened slower and the repair happened faster.

“It’s surprising, because the brain goes into a rest state, but the chromosomes move about twice as much during sleep,” Appelbaum told the Guardian. Chromosome is the name for threads of DNA in our cells, like a string of beads.“There is repair going on in the day, but sleep allows you to catch up.”

Sleep allows DNA damage to slow down and repair to speed up, which helps keep us healthy.

This is the second recent study that suggests we need to sleep to repair DNA. Siu-Wai Choi at Hong Kong University tested blood samples from doctors who had to stay awake at work for many hours. She found more DNA damage in the samples than if the doctors had been able to sleep.

*Based on: theguardian.com*

Assignment 2

Read the text. For each definition, find the word or words it describes in the text and write them down.

a aquarium

b a basic unit of living things

c to do something you did not have time to do earlier

d to hit something lightly

e to look at two or more things closely and see what is similar or different about them

f the network of nerve cells and fibres around the body

g a person who repairs machines, such as car engines

h to remain alive

i small freshwater fish from the Himalayas, common as pets in fish tanks

j small pieces of glass, wood, stone, etc., with a hole in it

k so tired that you cannot sleep

l specialised cells in our body that carry messages as tiny electrical signals

Assignment 3

1 Choose the best summary.

1 Scientists have discovered that zebrafish need more sleep than worms.

2 Scientists warn that cars cannot be repaired when they are travelling too fast.

3 Sleep is important because it helps to repair the DNA in nerve cells.

4 Sleep is something all animals do, but only humans need it to survive.

b What did professor Applebaum do with the zebrafish?

1 He changed their DNA to repair all the broken nerves and cells.

2 He studied their DNA while they were awake and sleeping.

3 He tapped on the fish tank so the fish would stay alive.

4 He trained them to sleep at night and be awake during the day.

c “There is repair going on in the day, but sleep allows you to catch up.”
What does Applebaum mean?

1 DNA in cells is damaged and repaired all the time. When we are sleeping more DNA is repaired than damaged.

2 It’s impossible to sleep when DNA is repaired during the day. At night you have a chance to finally sleep.

3 Repairing DNA costs a lot of energy, so everybody gets overtired. Sleep is important to get fresh energy.

4 The study shows that zebrafish make repairs all day long. This is why they need extra sleep at night.