

# Why do we sleep?

By Scientific American, adapted by Newsela staff on 03.22.19

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Image 1. A man turns in for a night of sleep. There are plenty of theories about why humans sleep, but nobody really knows for sure. Photo by: Getty Images Getty Images

If you think about it, sleep is kind of strange. We are weak when we are asleep. We have no idea what is happening around us. Our bodies are at risk. Imagine an alien came to visit Earth. It would see humans sleeping for hours and hours at a time. This would probably seem very odd indeed.

However, sleeping is not useless. Sleep may energize the body's cells. It can clear waste from the brain and help us learn and remember things. But what happens in our heads when we sleep?

Our brains create electrical charges, called brain waves. Brain waves change depending on what we are doing. Scientists have recorded brain waves during sleep and found two sleeping states. One is called non-REM, or NREM. The other is called REM. The two states happen every 90 minutes or so, several times during the night.

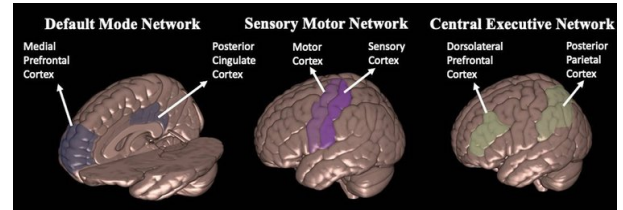
NREM has four different stages. The first two stages are "light." Waking up from these stages is easy. The next two stages are the deepest stages of sleep. They are the hardest to wake up from.

During NREM sleep, our brains still take in information. As our sleep gets deeper, though, we notice less. We lose touch with the outside world.

## Entering The Dream State

REM is the sleep state where we dream. As we dream, a part of our brain called the frontal cortex stops working. The frontal cortex helps us control what we do. It helps us think and make decisions. Without it, we feel less connected to ourselves. The brain is open to the weird world of dreams.

Scientists have a pretty clear idea of what happens when we sleep. Why do we sleep, though? Scientists do not know for sure, but they have some ideas. They think REM sleep may help us remember things, for example. It makes strong connections in the brain. These connections help us store memories. They may also help us get rid of, or forget, unimportant things. Some scientists did a study on this. Their research suggests that sleep helps the brain decide which memories were important and which ones weren't.



During the day, we learn. The connections in our brain grow stronger. As we sleep, though, connections in the brain weaken. By cutting away extra connections, sleep "clears the slate." Then, we can learn again the next day.

## Fighting Off Brain Diseases

Scientists also found that sleep cleans out things that are bad for the brain. This could be why we sleep, too. During sleep, the space between brain cells grows. This lets harmful toxic proteins wash out. This means that sleep could keep people from getting brain diseases.

Scientists do not exactly know why we sleep. However, they know sleep helps our bodies and minds. They know it is important to get enough sleep.

We are still trying to figure it all out. Give us a break! We are asleep most of the time.

## Quiz

1 What is a disadvantage of sleeping?

- (A) having scary dreams
- (B) being in a weak state
- (C) building up toxic proteins
- (D) filling the brain with memories

2 Read the introduction [paragraphs 1-5]. Select the paragraph that shows WHY sleep is helpful for humans.

- (A) If you think about it, sleep is kind of strange. We are weak when we are asleep. We have no idea what is happening around us. Our bodies are at risk. Imagine an alien came to visit Earth. It would see humans sleeping for hours and hours at a time. This would probably seem very odd indeed.
- (B) However, sleeping is not useless. Sleep may energize the body's cells. It can clear waste from the brain and help us learn and remember things. But what happens in our heads when we sleep?
- (C) Our brains create electrical charges, called brain waves. Brain waves change depending on what we are doing. Scientists have recorded brain waves during sleep and found two sleeping states. One is called non-REM, or NREM. The other is called REM. The two states happen every 90 minutes or so, several times during the night.
- (D) NREM has four different stages. The first two stages are "light." Waking up from these stages is easy. The next two stages are the deepest stages of sleep. They are the hardest to wake up from.

3 Which sentence correctly describes brain waves?

- (A) Brain waves stop when people sleep.
- (B) Brain waves clear waste from the brain.
- (C) Brain waves change while people sleep.
- (D) Brain waves only change when a person dies.

4 Read the paragraph below from the section "Entering The Dream State."

*Scientists have a pretty clear idea of what happens when we sleep. Why do we sleep, though? Scientists do not know for sure, but they have some ideas. They think REM sleep may help us remember things, for example. It makes strong connections in the brain. These connections help us store memories. They may also help us get rid of, or forget, unimportant things. Some scientists did a study on this. Their research suggests that sleep helps the brain decide which memories were important and which ones weren't.*

Which question is answered in this paragraph?

- (A) How might REM sleep help the brain?
- (B) How long does REM sleep last?
- (C) Why are some memories important?
- (D) Why do some people sleep more than others?

- 5 A dad wakes up his daughter. She says she was dreaming about cows.  
Which type of sleep was she in?
- (A) light NREM
  - (B) deep NREM
  - (C) REM
  - (D) nearly awake
- 6 What does the section "Entering The Dream State" show the reader?
- (A) what happens during NREM sleep
  - (B) what would happen if an alien saw humans sleeping
  - (C) the types of brain diseases humans have
  - (D) the purpose of the frontal cortex in the brain
- 7 A woman does not sleep.  
What might happen to her brain?
- (A) Toxins might build up.
  - (B) Water might build up.
  - (C) She might never get tired.
  - (D) She might have lots of dreams.
- 8 What information will the reader find in the section "Fighting Off Brain Diseases"?
- (A) how sleep helps to remove harmful things from the brain
  - (B) how much REM sleep is needed every night
  - (C) what the different stages of sleep are for
  - (D) where dreams are controlled in the brain