

LEVELED Book • P

Why We Sleep



MULTI
level
P•S•V

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Focus Question

How is sleep important to good health?

Words to Know

brain waves
function
naturally

restore
schedule
substance

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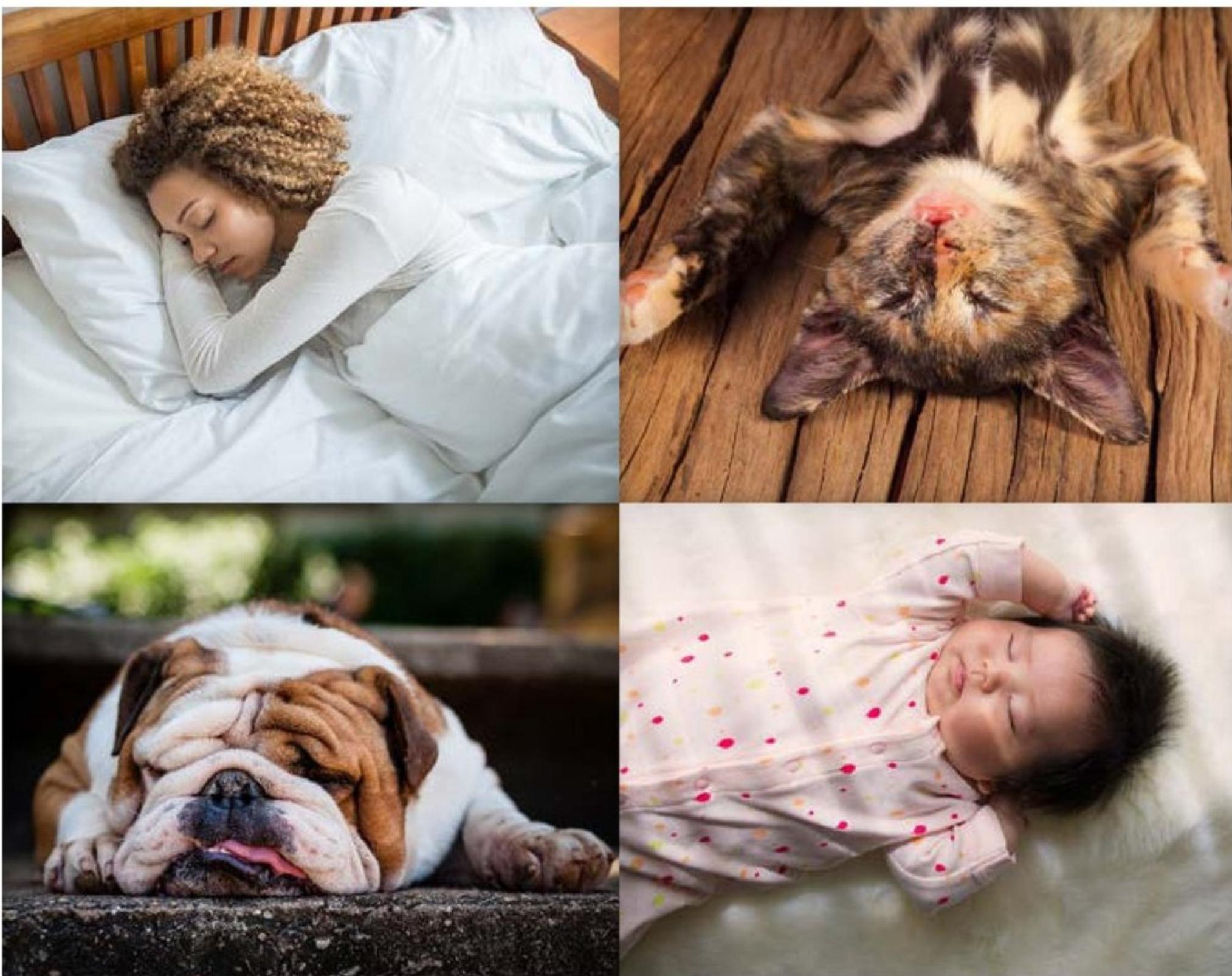
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Introduction

It feels great to curl up between soft sheets and slowly drift off into a sound sleep. Getting a good night's sleep is important. We need sleep to **function** well. Like food and water, sleep helps keep us healthy and ready to go.

Wowser!

Did you know that people spend about a third of their lives asleep? That means someone who is seventy-five years old has spent twenty-five years snoozing!

What Is Sleep?

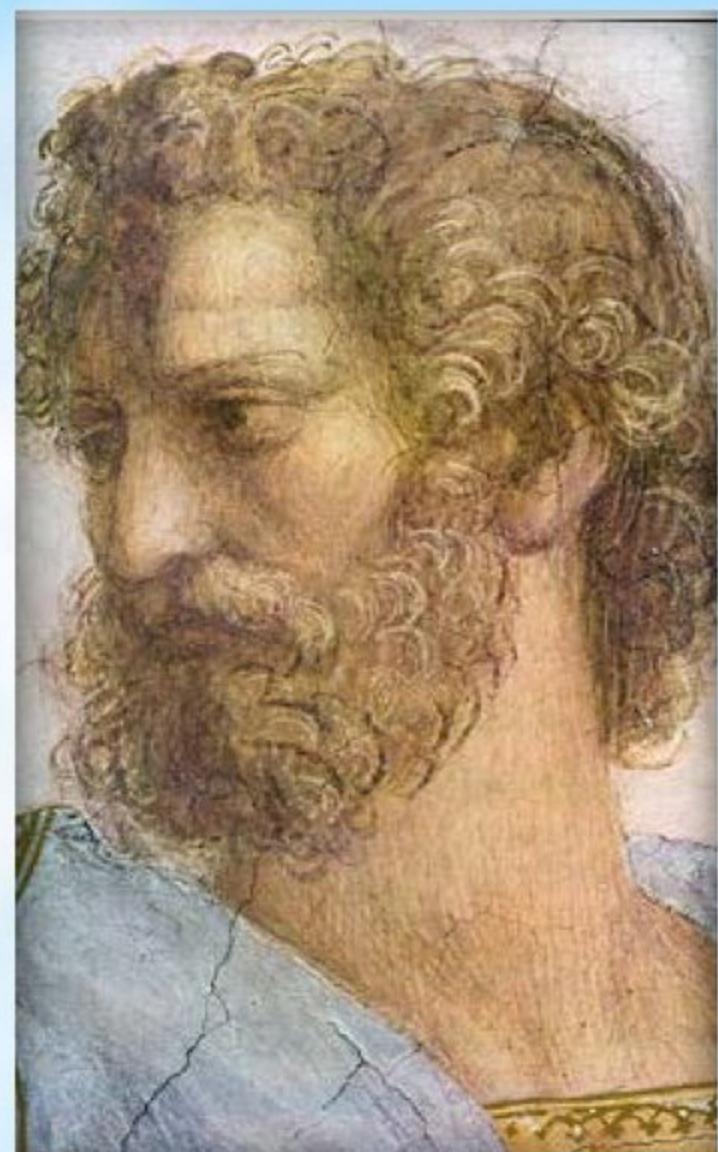
Falling asleep happens **naturally** and at regular times. It's also easy to stop sleeping; a loud noise is often all that is needed to wake a sleeping person.

So what is sleep? And what makes us fall asleep? An ancient Greek thinker believed that eating made people sleep. That idea is not as strange as it sounds. Most people are ready for a nap after enjoying a big meal.

Do You Know?

The Greek thinker Aristotle believed that after people ate food, warm vapors went to their heads. The vapors then cooled and went to their hearts, causing people to feel sleepy.

While this is not true, how sleepy you feel does depend on the kind of food that you eat. Some foods cause a sleepy feeling, while others, like chocolate, have caffeine. Those foods can make you perk up instead of wind down.



Aristotle

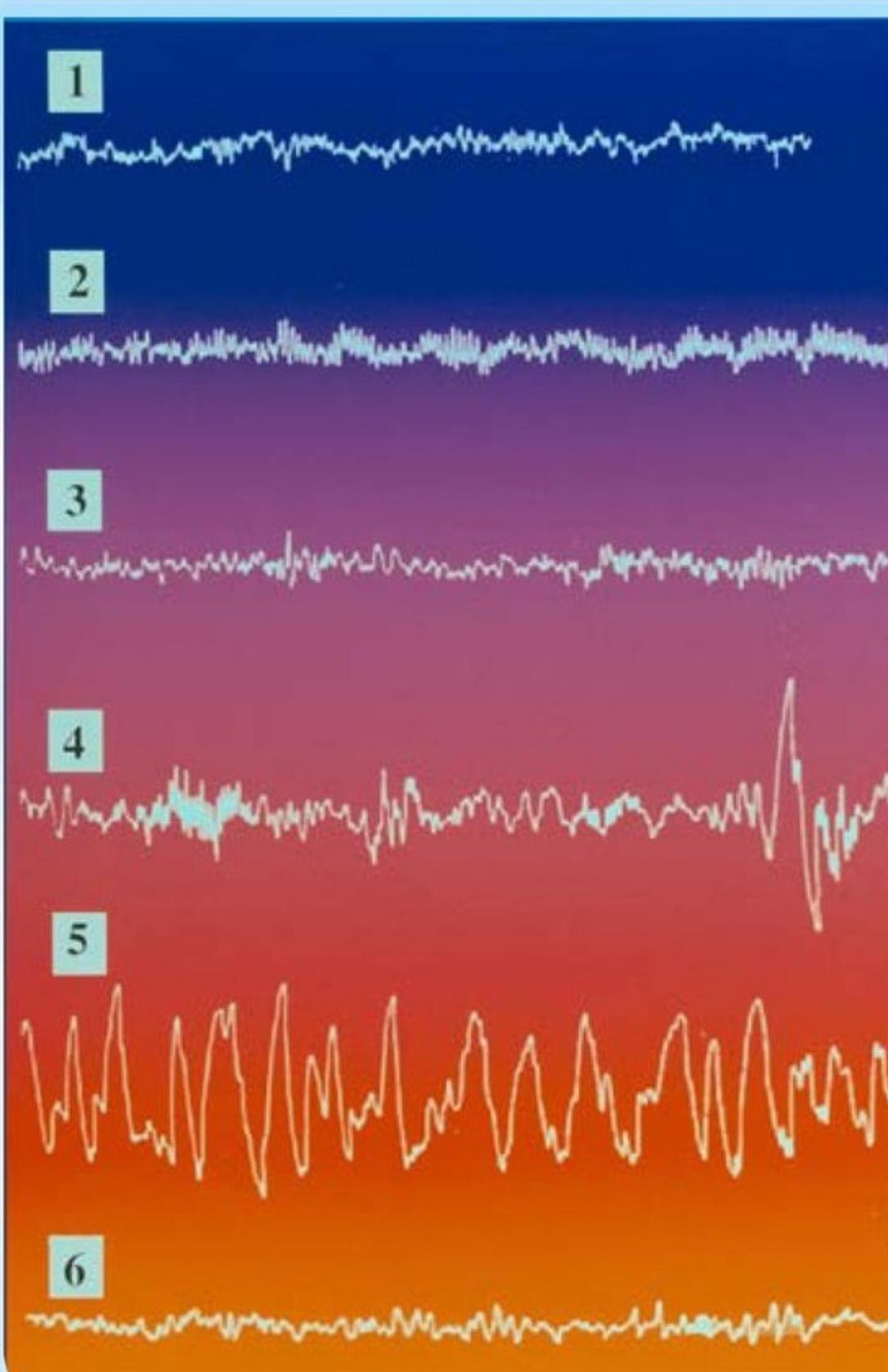


A special machine is used to record brain waves.

Doctors learned more about sleep in modern times. They studied the brains of sleeping people. The studies showed that the brain does not really shut down during sleep—it just works differently. This discovery led to more studies on sleeping brains.

Doctors wanted to know just what causes changes in **brain waves**. They learned that the body makes a special **substance** as it uses energy. During the day, more and more of this substance travels to the brain. There, it slows down the parts of our bodies that are active when we are awake.

Awake and Asleep



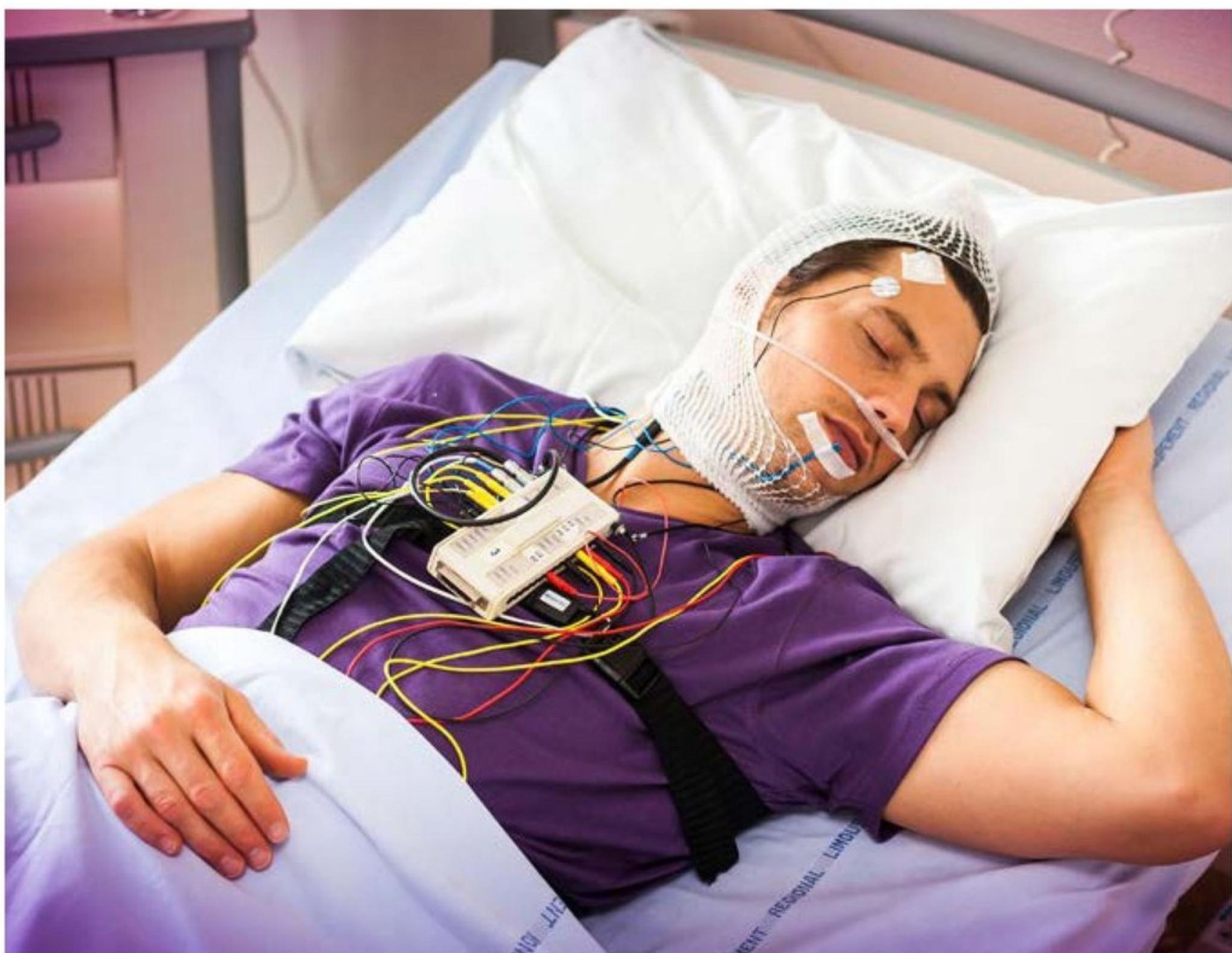
- 1 awake
- 2 awake with eyes closed
- 3 falling asleep
- 4 asleep
- 5 deep sleep
- 6 asleep, dreaming

Certain machines can record the brain activity of sleeping people. A sleeping person's brain, mainly while dreaming, can be just as active as it is when that person is awake. Tighter waves happen with more brain activity, and looser waves happen during relaxation.

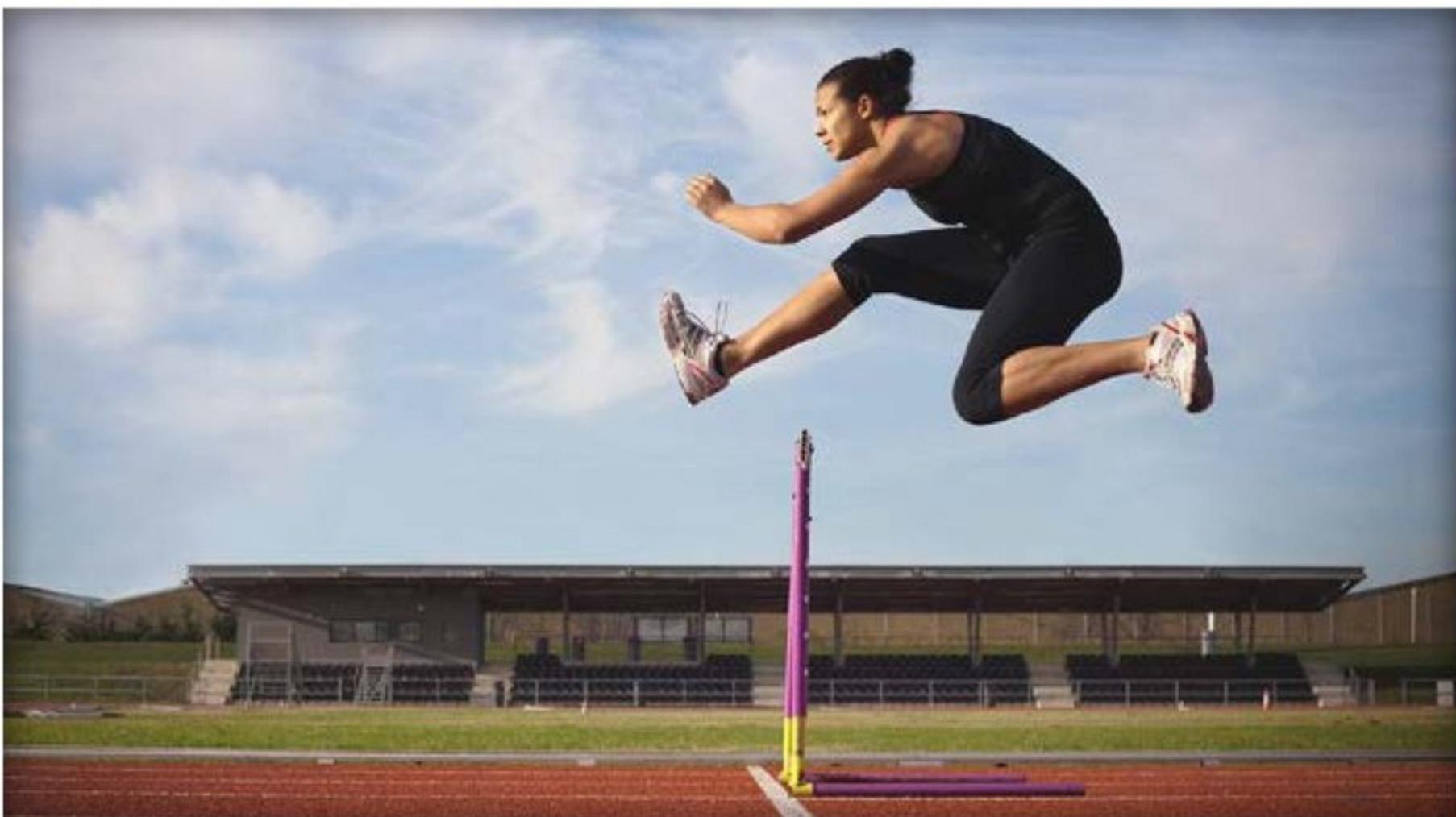
Source: VEM / Science Source

The Need for ZZZs

If our brain doesn't shut off while we sleep, what does it do? The answer: it helps us learn by storing memories. The brain must organize new information we have learned. This happens while we sleep. It's sort of like cleaning a closet. The brain sets things up to make it easier for us to remember and use what we've learned.



Scientists study a man's brain and body activity during sleep.

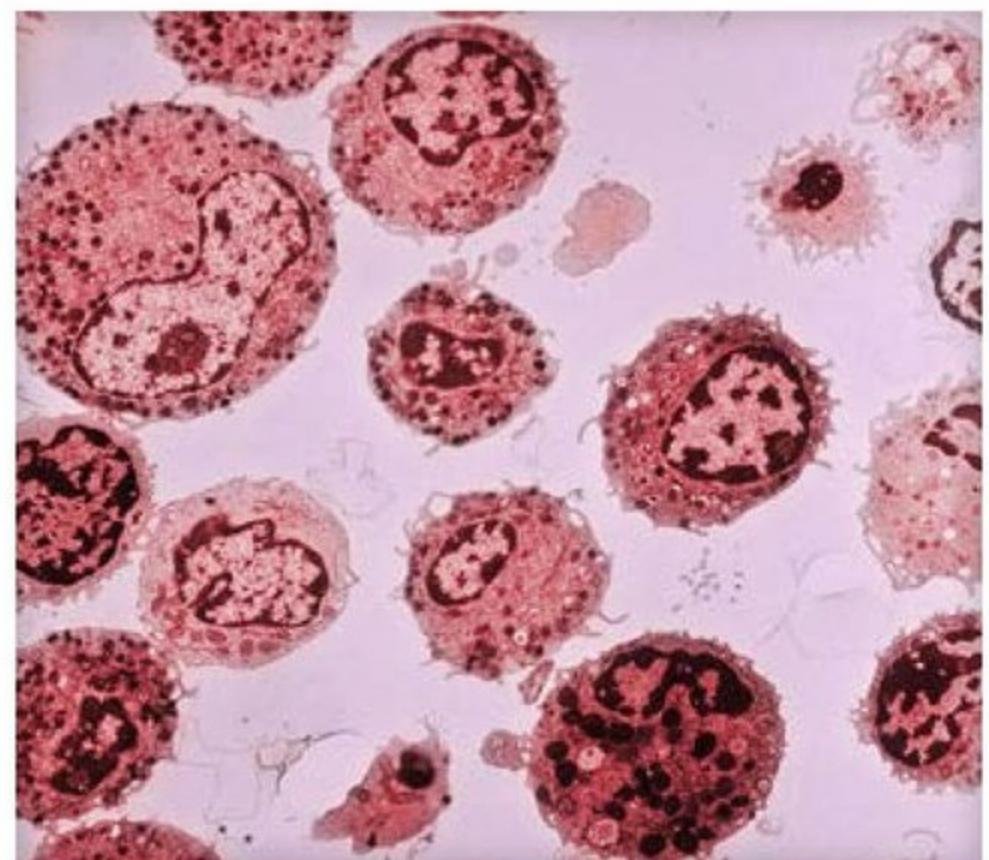


Athletes need sleep to build up body tissues and keep their energy up.

Sleeping helps our body as well as our brain. When we are awake, we use energy. Body cells get worn down. When we sleep, new cells grow. Sleep helps keep the body from wearing down.

For this reason, sleep is important to athletes. During training, they constantly break down cells. They need enough rest to **restore** their body and make it stronger. This is also the reason that new babies sleep so much. Most babies double their birth weight in five months. Babies can only grow if there is more building-up activity than breaking-down activity.

Sleep also helps us fight sickness and heal wounds. It strengthens the body's cells that fight germs. During sleep, the body uses energy to heal instead of using it to play or work. That's why doctors tell their sick patients to stay in bed and sleep.



During sleep, special blood cells multiply to fight sickness.

Sleep Problems

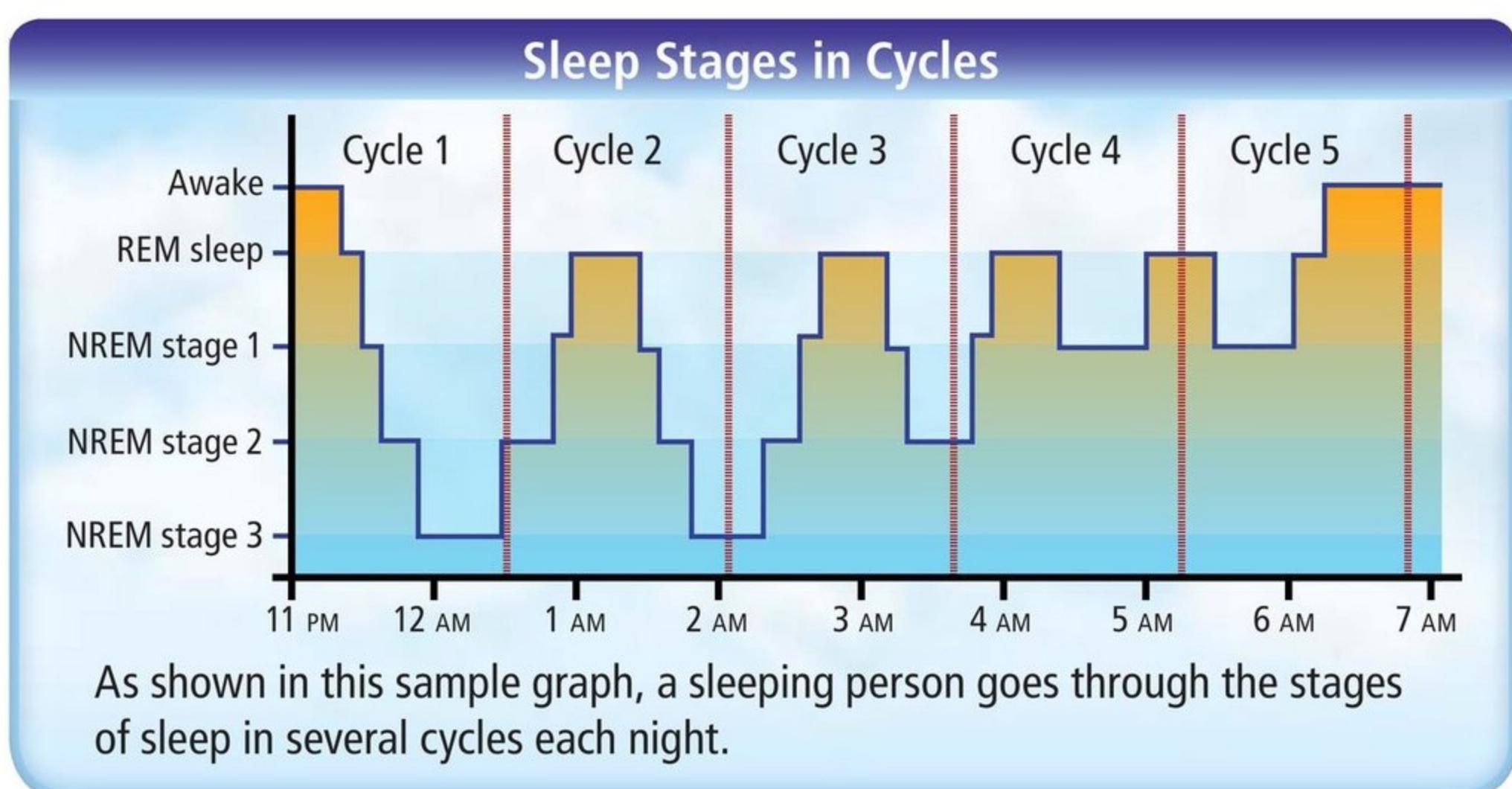
There are a number of different sleep problems. Here are three of the best-known ones.

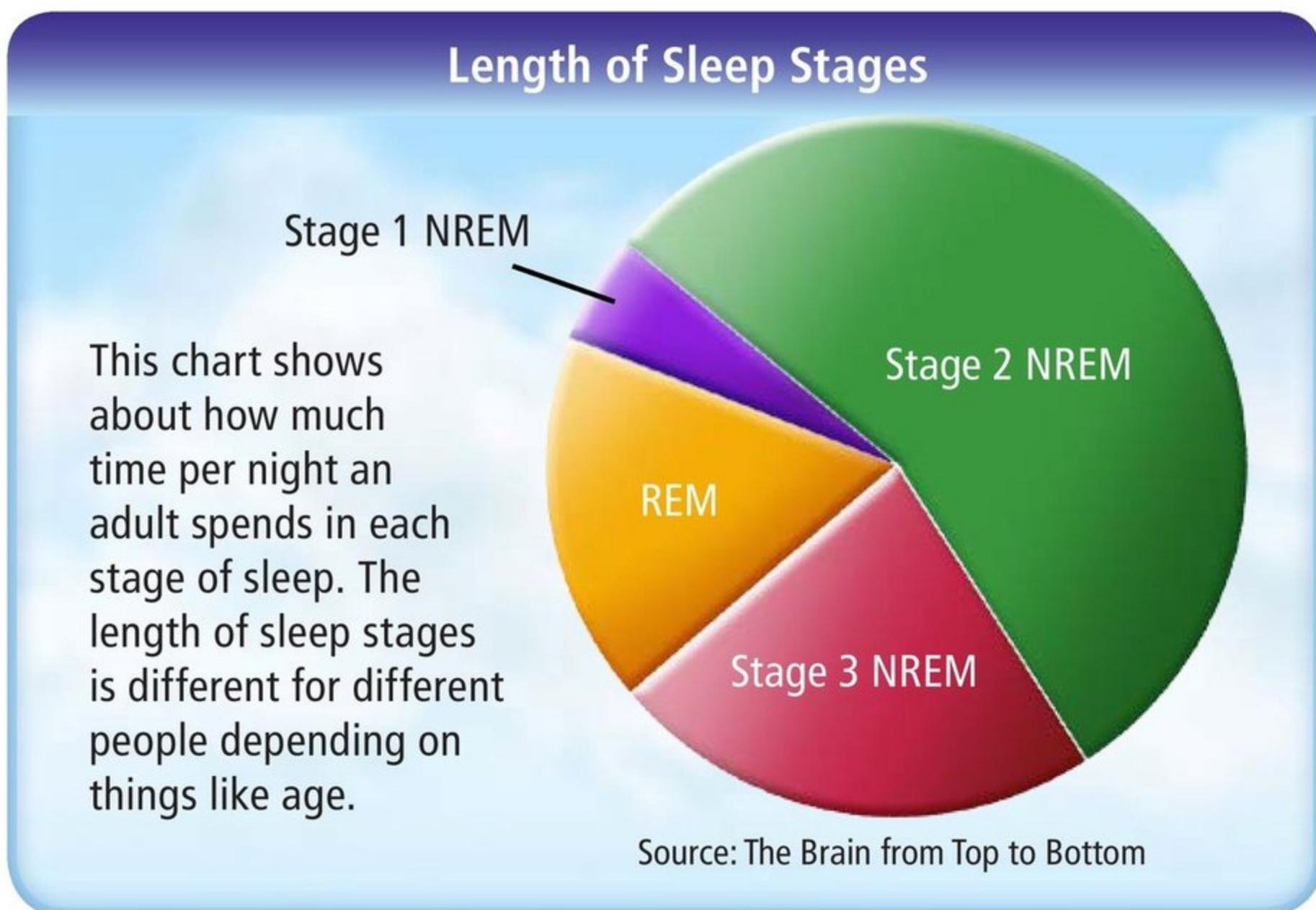
- *Insomnia* is difficulty falling asleep. Stress and worry may cause insomnia. Bad pain or sickness may make it very difficult to sleep.
- *Narcolepsy* is almost the opposite of insomnia. People with narcolepsy may suddenly fall asleep at any time. Some peoples' muscles may become weak, causing them to fall to the ground, unable to move.
- *Sleepwalking* is more common in teenagers than adults. Sleepwalkers move about with their eyes open while asleep. They walk, talk, or even do chores. This usually lasts for less than ten minutes. While it is not harmful to wake a sleepwalker, it's best to lead him or her back to bed.

Sleep Patterns

Not all sleep is the same. Sleep goes through different stages. Doctors studied how people move and breathe when sleeping. They also looked at heart rates. They found that these things change as people sleep.

Doctors learned that there are two types of sleep. One kind is rapid, or fast, eye movement (REM) sleep. The other kind is non-rapid eye movement (NREM) sleep. NREM sleep has three different stages. The first stage is short. It happens when people first feel sleepy and start to doze.





During stage 2 NREM, muscles don't move much. Sleepers can no longer tell what is going on around them. This is the part of sleep when memories start to be made. Half or more than half of all sleep time is spent in stage 2 NREM sleep.

During stage 3 NREM, sleepers begin to dream. The brain continues to store memories. It is usually very hard to wake someone from this deep sleep. This stage lasts for nearly a quarter of sleep time.

REM sleep is different from the other stages of sleep. During REM sleep, the sleeper's closed eyes move quickly from side to side. It's as if he or she is watching a ping-pong match. Yet the sleeper's body is completely still. Muscles are frozen in place during REM sleep. Perhaps that is because people tend to have wild dreams then.

Sweet (and Not So Sweet) Dreams

We dream when we are in REM and deep sleep. We dream every night, although we don't always remember our dreams. All dreams are like stories that play out in our mind.

Not all of these stories are happy ones. Nightmares are scary dreams that can make sleepers wake up upset. Young children sometimes have bad nightmares called *night terrors*. Night terrors can cause them to scream and move about without being fully awake.

For many years, people have wondered if dreams had secret meanings. Long ago, some people believed they were messages from the gods. Today, some people think that dreams come from our imagination. Others think dreams have hidden messages.



Getting a Good Night's Rest

Many things should happen when our tired head hits the pillow. When they don't, we can have problems during the day.

Too little sleep can make us cranky and cause us to make more mistakes. We may have a hard time solving problems. Our bodies struggle, too. Wounds take longer to heal. We might feel too hot or too cold.



Naps don't always make up for a lack of good nighttime sleep. However, a quick nap can make us feel and work better.



Stick to a sleep schedule, even on weekends. This can help you fall asleep and stay asleep all night.

It is very important to have good sleep habits. Try to go to bed and wake up at the same time each day. This helps keep your body on **schedule**. You should also limit your screen time. Try not to watch television or use a computer, tablet, or smartphone right before bedtime. Also limit your activity before going to bed. Going for a walk is fine, but avoid a lot of exercise.

Good sleep habits keep the body healthy and the mind sharp. Remember, if you don't snooze, you just might lose!

Glossary

brain waves (<i>n.</i>)	patterns of brain activity that can be measured in electric currents (p. 7)
function (<i>v.</i>)	to act or work as expected (p. 4)
naturally (<i>adv.</i>)	as happening in nature, without anything added or changed (p. 5)
restore (<i>v.</i>)	to return something to how it was earlier (p. 9)
schedule (<i>n.</i>)	a plan for when and where one or more events will take place (p. 15)
substance (<i>n.</i>)	a certain kind of matter (p. 7)

Why We Sleep

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Word Count: 788

Connections

Writing

Think about your bedtime routine and sleep habits. Using information from the book, write about whether you would change your habits.

Math

If people spend about one-third of their lives asleep, how many years have you spent asleep so far?



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