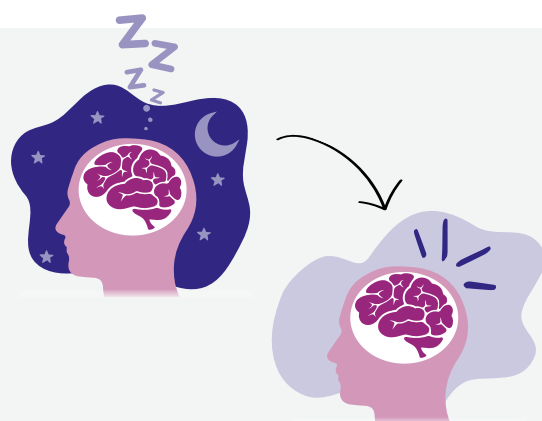


# Newly identified distinct 'wave' of brain activity marks transition from sleep to wakefulness

Scientists discovered a distinct wave pattern in brain activity marking the transition from sleep to wakefulness. This pattern differs between REM and non-REM sleep and could improve understanding of sleep disorders.

Each morning, your brain **transitions from being asleep to waking up** in a state of full awareness. It feels instant, but how does this complex switch happen so smoothly?

Researchers studied this by analysing the brain activity of over 1,000 awakenings.



Each awakening revealed that our brain wakes up differently depending on the sleep stage:



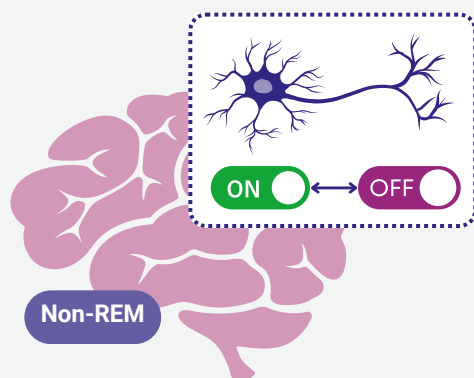
**Non-REM** (associated with deep sleep) awakenings begin with **slow waves**, followed by faster, wake-like activity.



**REM** (associated with vivid dreams) awakenings skip the slow waves and **go straight to fast activity**.

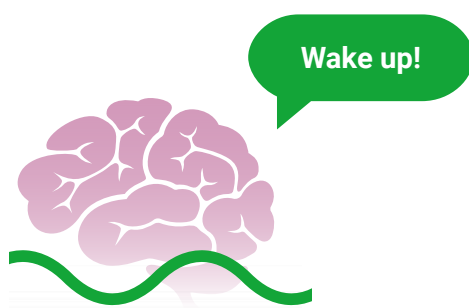
## Bistability

During non-REM sleep, certain neurons switch on and off, called **bistability**. Because of this bistability the brain first enters the slower sleep-like waves before entering the faster activity. In REM sleep, this pattern is absent, allowing the brain to wake up faster, but also feeling more sleepy upon awakening.



## Waking up in non-REM sleep

The researchers discovered that there are **different types of slow waves** during non-REM sleep. These waves seem to determine whether you stay asleep or wake up. They also determine how sleepy you'll feel when waking up.



These findings will contribute to future research into **sleep disorders** like insomnia or conditions involving incomplete awakenings.

Click here for more information and the complete press release



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