

# Predicting daydreaming and mind blanking

June 30 2021

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The occurrence of 'slow waves', a pattern of neural activity commonly associated with the transition to sleep, could predict whether someone is about to daydream or mind blank, and how they will respond to the environment. The study, published in *Nature Communications*, suggests this neural activity may be important in understanding different

conscious states.

Lapses of attention can occur when we are awake and are associated with mind wandering (daydreaming), or mind blanking, where the stream of consciousness halts. As these attentional lapses occur more often when people are tired, they could be linked to a neural phenomenon called 'local sleep', where certain [brain regions](#) show signs of being in [slow-wave sleep](#) while the rest of the brain is alert. This association has been shown in sleep-deprived rodents and humans, but has not been demonstrated in well-rested humans.

Thomas Andrillon and colleagues recorded whole brain [electrical activity](#) with electroencephalography in 26 well-rested adults while they performed a sustained attention task focusing on images of faces or numbers for an average of 1.7 hours. They were instructed to press a button in response to certain facial expressions or digits to maintain their focus. The participants were interrupted at random moments every 30 to 70 seconds, and were asked to indicate their [mental state](#) as task-focused, mind-wandering or mind-blanking, and level of sleepiness. This was measured alongside pupil size and task performance.

The authors found that slow waves in frontal brain areas preceded daydreaming and impulsive behavior, whereas when they occurred in regions further back in the brain such as the [parietal lobe](#), it was followed by mind blanking and slow responsiveness. The authors suggest that a common neural signature occurring in different brain regions precedes different conscious states.

Although the slow waves they identified here very closely resemble those encountered during sleep, the authors note that other techniques such as intracranial recording will be needed to verify that they share common underlying mechanisms.

**More information:** Thomas Andrillon et al, Predicting lapses of attention with sleep-like slow waves, *Nature Communications* (2021).  
[DOI: 10.1038/s41467-021-23890-7](https://doi.org/10.1038/s41467-021-23890-7)

Provided by Nature Publishing Group

Citation: Predicting daydreaming and mind blanking (2021, June 30) retrieved 25 April 2024 from <https://medicalxpress.com/news/2021-06-daydreaming-mind-blanking.html>

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