

# Teaching NeuroImages: Sleep-onset REM period during routine EEG

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## Correspondence

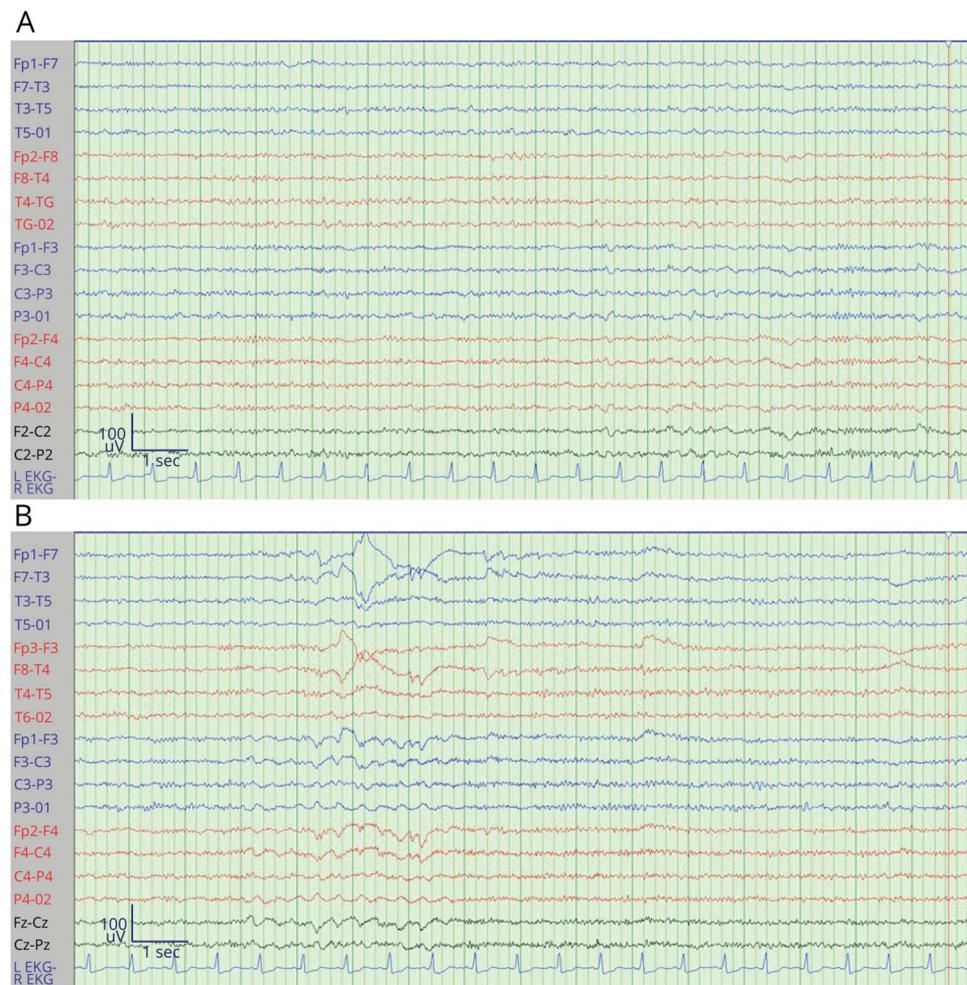
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**Figure** Two consecutive EEG pages in bilateral longitudinal (double banana) montage



(A) EEG sample with sleep spindles in normal stage N2 sleep. (B) On the contiguous second page, there is a burst of high-amplitude lateral eye movements with concurrent sawtooth waves, indicative of REM. Also note muscle quiescence. This sleep-onset REM period could be misinterpreted as sharp waves.

A 76-year-old incarcerated man presented with word-finding difficulties and underwent a routine EEG. Shortly after reaching stage N2 sleep, EEG showed brisk lateral eye movements with concurrent sawtooth waves (figure), indicating sleep-onset REM period (SOREMP). Normal REM sleep is reached 90–120 minutes after sleep onset. SOREMP is an abnormal EEG

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finding thought to be suggestive of narcolepsy. However, it may also be present in 3.9% of the general population<sup>1</sup> and is normal in infants. It is also associated with severe sleep deprivation, obstructive sleep apnea, and alcohol or medication (selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, tricyclic antidepressants, monoamine oxidase inhibitors) withdrawal. In the inpatient setting, it is usually caused by sleep deprivation.<sup>2</sup>

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### Disclosure

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org/N](http://Neurology.org/N) for full disclosures.

### Appendix Authors

Name	Location	Role	Contribution
<b>Karl A. Kasischke, MD</b>	University of South Florida, Tampa	Author	Analyzed data, drafted and revised the manuscript
<b>Amanda Pennington, MD, PhD</b>	University of South Florida, Tampa	Author	Analyzed and presented data
<b>Selim R. Benbadis, MD</b>	University of South Florida, Tampa	Author	Designed study and revised the manuscript

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