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# Brain wave activity associated with circadian preferences

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A new study from the University of Helsinki, Finland, shows that individual circadian preference is associated with brain activity patterns during the night.

Sleep spindles are bursts of oscillatory brain activity visible on an EEG that occur mainly during stage 2 sleep. Sleep spindles are linked for example to sleep maintenance and strengthening of the memory traces during sleep.

The study explored the association between individual circadian preference and sleep spindle activity among 170 17-year-old participants, who underwent a sleep EEG monitoring at their home environment.

"We observed a significantly weaker spindle activity among the morning preference group compared to other groups. The spindle activity also decreased more towards the morning hours," explains the principal investigator, Professor Anu-Katriina Pesonen. – This might be a potential facilitator underlying earlier circadian rhythm.

The study published in *Scientific Reports* shows for the first time a link between circadian preference and sleep maintaining sleep microstructures, indicated by sleep spindle activity.

The research was conducted in Sleep & Mind -research group at the University of Helsinki, Faculty of Medicine.

**More information:** Ilona Merikanto et al. Circadian preference towards morningness is associated with lower slow sleep spindle amplitude and intensity in adolescents, *Scientific Reports* (2017). DOI: 10.1038/s41598-017-13846-7

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