

Wind farm and traffic noise found to stimulate the brain during sleep

December 2 2021



Credit: Pexels

Sleeping people respond to both wind farm noise and road traffic noise, but not usually enough to wake them up, according to new Flinders University research.

Published in the *Journal of Sleep Research*, researchers used an electroencephalogram (EEG) to analyze the brainwaves of 23 young healthy people while they experienced 3-minute samples of [wind farm noise](#) and road traffic noise played at different noise levels (33, 38 and 43 dBA).

"These noise levels span the approximate range of recommended maximum average indoor and outdoor noise levels at night," says lead author Claire Dunbar from Flinders Health and Medical Research Institute: Sleep Health.

"By noting changes in their brain waves, we found the participants responded similarly to both wind farm and road noise, especially when the sound was louder. Then, during light sleep, we found low-level wind farm noise caused a greater brain activation response, compared to road traffic noise played at the same [noise level](#)."

However, the authors say the effects of the sounds were brief, with most participants' [brain waves](#) returning to baseline sleep activity levels 30 seconds after the start of each noise, with very few people actually waking up, either briefly or for a prolonged period.

"This tells us the overall impacts of the noise on the participants' sleep was relatively small," says Ms Dunbar.

The research is an important step towards applying more sensitive brain signal analysis techniques, compared to traditional manual sleep scoring methods, the authors say. With the new approach, researchers can better understand the impacts of noise on sleep, particularly at low noise levels and with different noise characteristics, where sensitive methods are most needed.

"While this study shows there is a response to wind farm and road traffic

noise while an individual is sleeping, more research using a similar technique with a larger group of people and longer exposure times is still needed to help better understand noise impacts on sleep and potential longer-term effects," says Ms Dunbar.

The research is part of an ongoing series of studies being undertaken at Flinders University to investigate the effects of wind farm noise compared to traffic noise on different aspects of sleep.

"EEG power spectral responses to wind [farm](#) compared with [road traffic noise](#) during sleep: A laboratory study" is published in the *Journal of Sleep Research*.

More information: Claire Dunbar et al, EEG power spectral responses to wind farm compared with road traffic noise during sleep: A laboratory study, *Journal of Sleep Research* (2021). [DOI: 10.1111/jsr.13517](#)

Provided by Flinders University

Citation: Wind farm and traffic noise found to stimulate the brain during sleep (2021, December 2) retrieved 27 April 2024 from <https://medicalxpress.com/news/2021-12-farm-traffic-noise-brain.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.