

Study explores impact of circadian rhythm on driving fatigue in morning people after lunch

December 21 2023, by David Bradley



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A [new study](#) in the *International Journal of Human Factors and Ergonomics* has revealed the impact of circadian rhythm on driving

fatigue in morning people, "larks," as opposed to "night owls," with a particular focus on the post-prandial lunchtime dip.

Morning people, often referred to as "larks," exhibit a [natural inclination](#) to rise early and be most alert and productive during the early part of the day, in contrast to "night owls," who tend not to awaken early and peak in the later hours and often well into the night. The study by an Indonesian team has investigated the combined effects of task-related factors and the "post-lunch dip" on morning-type individuals during simulated driving and has uncovered key insights into the dynamics of driving [fatigue](#).

Kadek Heri Sanjaya of the National Research and Innovation Agency in Bandung, Auditya Purwandini Sutarto of the Universitas Qomaruddin in East Java, and Kristiana Asih Damayanti and Natasha Hadi of the Universitas Katolik Parahyangan in Bandung, Indonesia, undertook a study with twelve male participants who identified as morning people.

They gave them simulated driving tasks both before and after lunch. The team hoped to address an existing gap in the literature, particularly concerning the impact of monotonous driving environments on fatigue and performance within the morning chronotype group.

The researchers found that there was a significant influence of the "post-lunch dip," which is a well-known increase in sleepiness following lunch, on [reaction times](#), alertness, and self-reported fatigue among morning people. The team suggests that the phenomenon might be attributed to the body's natural circadian rhythm and the post-prandial state, underscoring the challenges morning individuals face as the day progresses.

Somewhat paradoxically, the received wisdom that suggests time spent driving and an interaction between sleep- and task-related factors should

have a significant impact, this was not observed with the volunteer morning people. The team explains that in their study, post-prandial driving fatigue in the afternoon was influenced by the [morning](#) people as a result of circadian rhythm factors rather than the duration of the driving task.

The researchers acknowledge that the small scale of their study limits how the results might be generalized until a bigger study with an improved design is undertaken.

Nevertheless, it contributes new insights into the nuanced factors influencing driving fatigue and performance in this chronotype group. The team says that it is important to consider both chronotype and time of day when developing [theoretical models](#) of driving behavior and developing road safety measures to reduce the number of vehicle accidents.

More information: Kadek Heri Sanjaya et al, Morning chronotypes and post-lunch dip: an investigation of driving fatigue in well-rested subjects, *International Journal of Human Factors and Ergonomics* (2023). [DOI: 10.1504/IJHFE.2023.135478](https://doi.org/10.1504/IJHFE.2023.135478)

Provided by Inderscience

Citation: Study explores impact of circadian rhythm on driving fatigue in morning people after lunch (2023, December 21) retrieved 27 April 2024 from <https://medicalxpress.com/news/2023-12-explores-impact-circadian-rhythm-fatigue.html>

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