

# Previously unknown sleep pattern revealed in new research

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Credit: Maurajbo/Wikipedia.

(Medical Xpress)—There's no need to panic if you didn't get a solid eight hours of beauty sleep last night. According to new University of Sydney research, sleep duration naturally waxes and wanes over a period of days regardless of individual lifestyle, timing of sleep or waking, and social and environmental influences.

With further research, the discovery could have important implications for predicting [work performance](#), managing fatigue-related accidents after [shift work](#), and treatment recovery in clinical populations.

"[Sleep](#) requirements vary in a cyclical fashion and between individuals. If you incur a sleep debt, your body will signal a need to catch up on extra sleep," says Dr Chin Moi Chow, principal investigator of the article published in *Nature and Science of Sleep*.

"As you increase your [sleep duration](#) to recover from the debt, your ability to prolong wakefulness increases. Then, as prior [wakefulness](#) increases, sleepiness is inevitable, and a need for further sleep develops again."

Dr Chow and colleagues Shi Wong and Dr Mark Halaki, from the University's Faculty of Health Sciences, monitored a group of healthy young males over a fortnight using an [actigraph](#) - a small activity recording device worn like a wristwatch on the non-dominant arm - designed to measure sleep patterns.

To the researchers' fascination, the actigraph data showed participants' sleep duration oscillated in a sine wave pattern - a phenomenon that had not previously been observed. Clear periodic patterns were found in the majority of the participants, varying from periods of between two and 18 days.

The cyclic pattern observed in the research suggests that the sleep balance mechanism operates on an ongoing basis in daily life, with changes in sleep duration constantly accompanied by compensatory adjustments.

Interestingly, despite the fact that participants in the study habitually slept below the recommended seven to eight hours a night, they still maintained a cyclic sleep duration pattern.

"Our sleep quantity and quality vary according to a range of factors," Dr Chow says. "Some individuals have a slower accumulation or faster

dissipation of sleep pressure, which may define their pattern of total sleep time."

Variations in daily sleep duration may also arise from differences such as slight variations in the body clock or external factors like temperature, daylight, exercise, or eating and drinking patterns.

"Changing your [sleep patterns](#) on weekends, or resetting the pattern through shift work, could alter your sleep duration cycle and could put the body under significant strain," says Dr Chow.

This research is part of Dr Chow's broader interest in the lifestyle factors influencing sleep. The team hopes to follow the research by examining the cyclical phenomenon in special groups such as long or short sleepers and people with insomnia.

Provided by University of Sydney

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