

Study links length of REM sleep to animals' body temperature

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Warm-blooded animal groups with higher body temperatures have lower amounts of rapid eye movement (REM) sleep, while those with lower body temperatures have more REM sleep, according to new research from UCLA professor Jerome Siegel, who said his study suggests that

REM sleep acts like a "thermostatically controlled brain heater."

The study in *Lancet Neurology* suggests a previously unobserved relationship between body temperature and REM sleep, a period of sleep when the brain is highly active, said Siegel, who directs the Center for Sleep Research at the Jane and Terry Semel Institute for Neuroscience and Human Behavior at UCLA.

Birds have the highest body temperature of any warm-blooded, or homeotherm, animal group at 41 degrees while getting the least REM sleep at 0.7 hours per day. That's followed by humans and other [placental mammals](#) (37 degrees, 2 hours of REM sleep), marsupials (35 degrees, 4.4 hours of REM sleep), and monotremes (31 degrees, 7.5 hours of REM sleep).

Brain temperature falls in non-REM sleep and then rises in REM sleep that typically follows. This pattern "allows homeotherm mammals to save energy in non-REM sleep without the brain getting so cold that it is unresponsive to threat," Siegel said.

The amount of humans' REM sleep is neither high nor low compared to other homeotherm animals, "undermining some popular views suggesting a role for REM [sleep](#) in learning or emotional regulation," he said.

More information: Jerome M Siegel, Sleep function: an evolutionary perspective, *The Lancet Neurology* (2022). [DOI: 10.1016/S1474-4422\(22\)00210-1](https://doi.org/10.1016/S1474-4422(22)00210-1)

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