Research Explains Wide Variations in Animal Sleep Habits

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An extensive research analysis by a neuroscientist at UCLA's Semel Institute and the Veterans Affairs' Neurobiology Research Laboratory concludes that environment and diet largely determine sleep needs. Appearing in the Oct. 27 edition of the peer-reviewed journal *Nature*, the analysis shows that meat-eating species sleep the most and grazing animals the least.

Sleep amounts range from 20 hours in the little brown bat to only two hours in the horse. Animals that have less sleep do not appear to make up for this by sleeping more deeply.

The analysis concludes that sleep functions to keep animals safe by restricting waking to the hours when an animal is most likely to be successful at finding food and avoiding danger.

Human sleep follows the rules that determine sleep time in other animals, the analysis concludes. Humans sleep somewhat less than animals with similar physiological features, suggesting that we may have evolved to have more waking hours in order to better compete with other humans.

"Conventional wisdom in much of neuroscience has been that sleep has a single vital function across animals, just as food and water have universal functions," said Dr. Jerome Siegel, professor-in-residence at the UCLA Neuropsychiatric Institute and chief of neurobiology research at the VA Greater Los Angeles Healthcare System, Sepulveda.

"Yet some animals can go without sleep for long periods of time with no ill effects, whereas sleep deprivation in others can be lethal," Siegel said. "These new conclusions explain why some animals can survive and reproduce optimally with only a few waking hours, whereas others need to eat all day and must have reduced sleep time."

The Semel Institute of Neuroscience and Human Behavior at UCLA is an interdisciplinary research and education institute devoted to the understanding of complex human behavior, including the genetic, biological, behavioral and sociocultural underpinnings of normal behavior, and the causes and consequences of neuropsychiatric disorders. More information about the institute is available online at www.npi.ucla.edu/.

The VA Greater Los Angeles Health Care System's Neurobiology Research Laboratory is a part of the Sleep Research Group. This multidisciplinary group of investigators is pursuing innovative ways to prevent and treat sleep disorders. Current studies focus on body-temperature regulation during sleep, brain mechanisms regulating sleep and circadian rhythms, narcolepsy and its causes, and the role of sleep in epileptic events.

Source: UCLA