Disrupted Circadian Rhythms May Drive Anxiety and Exacerbate Brain Disorders

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Summary: Researchers report sleep disruptions may not only be a symptom of neurological diseases, circadian rhythm disruptions may drive the brain pathology that contributes to anxiety, dementias and other disorders.

Source: SfN.

Sleep disruptions are associated with many brain disorders, including anxiety, dementias, and traumatic brain injury. While these disruptions are sometimes viewed as a side effect of brain disorders, new findings presented today suggest that aberrant sleep-wake cycles can also drive brain pathology. The studies were presented at Neuroscience 2018, the annual meeting of the Society for Neuroscience and the world's largest source of emerging news about brain science and health.

As a deeper understanding of the brain mechanisms associated with disrupted sleep and irregular circadian rhythms emerges, researchers are discovering new ways to prevent and alleviate disorders such as Alzheimer's and anxiety. The new work highlights the importance of making healthy sleep a priority.

Today's presentations reveal:

- The first-ever look at the impact of concussion after long periods of sleep deprivation, which finds that brain injuries disrupt circadian rhythms and reduce restorative sleep. (Allison Brager, abstract 192.10).
- The brain mechanisms underlying an increase in anxiety among sleep-deprived people, which indicate that deep slow-wave sleep is needed to calm overactive brain regions. (Eti Ben Simon, abstract 192.11).
- A novel role for a circadian clock gene in brain cells called astrocytes, which suggests that disrupted cellular circadian rhythms can cause neuroinflammation and exacerbate Alzheimer's pathology. (Brian Lananna, abstract 267.11).

The new work highlights the importance of making healthy sleep a priority. NeuroscienceNews.com image is in the public domain.

“The studies presented today help deepen our understanding of why sleep is disrupted in so many patients,” said press conference moderator Clifford Saper, MD, PhD, of Harvard Medical School, who’s work focuses on integrated functions maintained by hypothalamus which includes the regulation of wake-sleep cycles. “They also suggest that sleep-focused therapies, such as treatments to regulate circadian rhythms, may be beneficial in the prevention or treatment of a vast array of diseases, including Alzheimer’s disease and anxiety disorder and furthermore emphasize the critical need of good sleep for everyone’s health.”

ABOUT THIS NEUROSCIENCE RESEARCH ARTICLE

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Original Research: The study will be presented at Neuroscience 2018, the annual meeting for the Society of Neuroscience.