

# Diverse mechanisms underlie associations between sleep and anxiety

November 9 2022

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Research on animals is shedding light on the biological mechanisms that link sleep and anxiety. The findings were presented at Neuroscience 2022, the annual meeting of the Society for Neuroscience and the

world's largest source of emerging news about brain science and health.

Stress and anxiety are frequently connected to sleeping problems.

Anxiety increases agitation and arousal, making it harder to sleep, and sleep deprivation can worsen anxiety. According to recent studies, about 41–56% of people experienced [sleep disturbances](#) during the COVID-19 pandemic, up from pre-pandemic rates of around 14–25%.

Insufficient sleep is known to have numerous negative implications for health, including increasing the likelihood of mental distress. However, the specific circuits and cells involved in mediating stress, anxiety, and sleep are just beginning to be elucidated.

Today's new findings show that:

- A brain circuit in the ventral medial midbrain/pons is associated with mania behaviors, including reduced need for sleep. (Takato Honda, Massachusetts Institute of Technology)
- Gut microbiota's regulation of the [stress response](#) is time-of-day dependent. (Gabriel S. S. Tofani, University College Cork)
- Microglia may regulate sleep/wake behavior and play a protective role against sleep disturbance related to mental stress. (Kazuya Miyanishi, University of Tsukuba)
- A population of neurons in the paraventricular thalamus may be critical to the development of acute stress disorder. (Laszlo Acsady, Institute of Experimental Medicine)

"The [neuroscience research](#) presented today illustrates the biological diversity of mechanisms involved in both sleep and stress responses," says Sara Aton, associate professor of molecular, cellular, and developmental biology at the University of Michigan, who studies neural plasticity, sleep, and memory formation in the rodent brain.

"These studies highlight that [sleep](#) is an essential component of regulating responses to acute and chronic stressors, and the findings could have implications for developing new therapies for anxiety."

**More information:** Conference:

[www.sfn.org/meetings/neuroscience-2022](http://www.sfn.org/meetings/neuroscience-2022)

Conference abstract: [www.abstractsonline.com/pp8/#!/...9/presentation/74375](http://www.abstractsonline.com/pp8/#!/...9/presentation/74375)

Conference abstract: [www.abstractsonline.com/pp8/#!/...9/presentation/66133](http://www.abstractsonline.com/pp8/#!/...9/presentation/66133)

Conference abstract: [www.abstractsonline.com/pp8/#!/...9/presentation/78603](http://www.abstractsonline.com/pp8/#!/...9/presentation/78603)

Conference abstract: [www.abstractsonline.com/pp8/#!/...9/presentation/70973](http://www.abstractsonline.com/pp8/#!/...9/presentation/70973)

Provided by Society for Neuroscience

Citation: Diverse mechanisms underlie associations between sleep and anxiety (2022, November 9) retrieved 24 April 2024 from

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