

# Sleep or sex? How the fruit fly decides

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*Drosophila* sp fly. Credit: Muhammad Mahdi Karim / Wikipedia. GNU Free Documentation License, Version 1.2

Choosing between sex or sleep presents a behavioral quandary for many species, including the fruit fly. A multi-institution team has found that, in *Drosophila* at least, males and females deal with these competing imperatives in fundamentally different ways, they report July 28 in the journal *Nature Communications*.

"An organism can only do one thing at a time," said corresponding

author Michael Nitabach, professor of cellular and molecular physiology and professor of genetics at Yale. "What we have discovered is a neuronal connection that regulates the interplay between courtship and sleep."

Nitabach—in collaboration with scientists from Janelia Research Campus of the Howard Hughes Medical Institute, Southeast University in China, and University of San Diego—investigated neuronal activity involved in both behaviors and found that sleep-deprived males showed little interest in courtship while a lack of shut-eye had no effect on the mating behavior of [females](#). Sexually aroused males got little sleep, while aroused females slept more.

The male flies' behavior is easily explained as an adaptive behavior, say the scientists: Falling asleep during sex is not a good way to pass on your genes. But, they wondered, why are females still receptive to male advances when sleepy?

It could be that females can't afford to pass up an eligible suitor no matter how tired they are, Nitabach said.

"It appears that whichever behavior has the highest biological drive suppresses the other behavior," he said.

In addition to identifying this sex-specific [behavior](#), the collaborative team also revealed underlying functional connections between the distinct neural centers that mediate sex and sleep.

Nitabach said humans could possibly have a similar mechanism for adjudicating when the drives for sleep and sex collide.

Provided by Yale University

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