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There are many aspects of sleep that make it particularly puzzling. One of these is the fact that no known animal species has ever managed to evolve their way out of sleep. Yet, sleep amount greatly differs among animal species: horses and elephants sleep about 4 hours a day; bats sleep up to 21 hours a day. Does a bat really need 21 hours of sleep? Or is part of that sleep an accessory component that is used only to keep the animal out of trouble? And – as a corollary – do we need 8 hours of sleep or are we – at least in part – driven by the same accessory component? This seems to be a very basic question, one that scientists should have tried to solve already many decades ago. And yet, it remains unanswered. We decided to use flies to address this issue and we found an answer we did not expect. Using ethoscopes, we measured sleep in about 2000 wild-type flies and we found that while sleep in males does not differ too much from what it has been published, female sleep is largely different from what it has been described before. In particular, we found a very large population of wild-type female flies (~20%) that sleep in normal conditions less than 2 hours a day. We found extreme cases of female flies that sleep less than 5 minutes a day and yet live a normal life. Using a novel, targeted way of sleep deprivation, we deprived several hundred flies of sleep for days without disturbing any other function. Even though we achieved sleep deprivation efficiencies close to 100%, we never managed to kill any fly. These two lines of experiments, taken together, support the notion that sleep does not appear to be a vital requirement in *Drosophila*. This is clearly a very surprising and provocative result that will shake the sleep field to its core. We do not believe that we have uncovered a peculiarity of insect sleep; rather, we believe we have uncovered a weakness of the sleep field. Sleep deprivations experiments are difficult to perform and we must be careful and re-evaluate all of our potentially dogmatic conclusions.

“What flies can teach us about sleep?”

Host: F. Feiguin

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