



STRAIGHTEN UP AND FLY RIGHT: Lessons from the Cockpit of a Fly

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Flies represent nearly 10% of all species described by science and are arguably unmatched among flying organisms in their aerial agility. The flight trajectory of flies often consists of crisp straight flight segments interspersed with rapid changes in course called body saccades. Recent advances in genetic tools have made it possible to explore the neurobiological circuitry underlying these two distinct modes of fly flight behavior. Whereas the rapid turns are controlled by just a small set of descending command interneurons, the animals' ability to fly straight relies on a much larger number of descending neurons that work via a population code to sustain the large, yet precise, bilateral differences in wing motion. One behavior that is responsible for the remarkable ecological diversity of dipteran insects is their uncanny ability to track attractive odor plumes to their source. In this lecture, Dr. Dickinson will argue that flies' virtuosic power of odor localization results from their ability to estimate wind direction each time they execute a body saccade—a feat they accomplish using a specialized region of their brain to perform vector computations.

Please join us for this special event. No registration necessary