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Is the brain's inertia for motor movement different for acceleration and deceleration? BHIM ADHIKARI, KRISTEN QUINN, MUKESHWAR DHAMALA, Georgia State University, Dept. of Physics & Astronomy, Atlanta, GA 30303 — The brain's ability to synchronize movement with external cues is used daily, yet neuroscience is far from a full understanding of the processes that allow these simple sequential performances. This experimental design was implemented to determine differences in brain activity when finger tapping at increasing and decreasing rhythms. Eight subjects tapped their right index finger on a response box following visual cues projected on a screen during an fMRI session. Isolating continuous and discrete finger tapping (sinusoidal variation of rate and step-like variation) decelerations versus accelerations revealed much greater activity in the left and right primary motor cortices when completing the sinusoidal rhythm task. Decelerating rates recruited distributed regions of the brain in contrast to brain stimulation during accelerating rates. These results suggest that the brain's inertia for movement is different for acceleration and deceleration.

Bhim Adhikari
Georgia State University,
Dept. of Physics & Astronomy, Atlanta, GA 30303

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