

Competitive and Inhibitory Processes during Action Selection

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A central feature of human performance is our ability to interact with a highly variable environment such that an appropriate behavior is selected from a vast set of possibilities. Even when the goal of an action has been specified, we must still specify a particular movement to achieve that goal. For example, we may reach for our glass of wine at the dinner table with either the left or right hand. I will review a set of experiments in which we use transcranial magnetic stimulation to examine the dynamics of this selection process, using TMS either as a tool to influence hand choice or as a probe on cortical excitability during the preparation and execution of movement. Previous work has suggested that the resolution of a competition between the two hands involves the inhibition of the nonselected hand. The current results suggest an additional inhibitory mechanism ensures that movements associated with potential actions are not initiated prematurely.