

# Do we inhibit responses to stop them? Assessing the role of inhibition in motor stopping tasks

Chelan Weaver

University of St. Andrews

Michael Anderson

University of St. Andrews

**Abstract:** Stop-signal and go/no-go paradigms are widely used to measure motor stopping ability. Although both tasks quantify stopping performance, it is unclear to what degree they share common processes or substrates. Further, it has not been shown that either necessitates inhibitory control as defined by cognitive psychologists, in which stopping is accomplished by attenuating the response. To ascertain the involvement of inhibition, each task was adapted to incorporate an independent probe, a technique developed to isolate the aftereffects of inhibition from other sources of impairment. In both paradigms, novel stimuli cued recently stopped motor responses, enabling the measurement of localized performance decrements. This revealed a dissociation between the two types of stopping. Robust aftereffects of inhibition were found in the adapted stop-signal task, but no evidence of inhibition was found in the go/no-go task, suggesting that inhibitory control is recruited for revoking actions, but might not be utilized to prevent movements.