Title: Investigating Effects of Auditory Salience on TMS-EEG Artifact and Local Cortical Excitability

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Off-target sensory effects of transcranial magnetic stimulation (TMS) complicate interpretability of TMS-evoked electroencephalography (EEG) potentials (TEPs) that are used to characterize cortical response to TMS. The TEP from ~80ms after the TMS is affected by these sensory responses to the sound of TMS, a complex referred to as the vertex N100-P200. Although it is common to jitter the timing of TMS pulses, recently we reported that unjittered protocols reduce the N100-P200 more than jittered protocols, possibly due to reduced salience of predictable TMS sounds (the ATTENUATE protocol). However, it is unknown how this method for reducing N100-P200 sensory potentials affects TMS-evoked cortical activity. To explore the influence of unjittered TMS timing on non-sensory parts of the TEP, we applied jittered and unjittered TMS using multiple ISI durations to the left dorsolateral prefrontal cortex (dlPFC) and measured vertex N100/P200 and local cortical excitability, as measured by left prefrontal P20/N40. We hypothesized an interaction between jitter and ISI in the sensory potentials with no change to dlPFC excitability. The primary aims are to 1) examine whether using unjittered ISI protocols have unanticipated effects on TMS-evoked local cortical excitability and 2) to investigate whether ISI duration for unjittered TMS is critical for reducing N100-P200 sensory potentials. This work will inform how salience affects the use of ATTENUATE for reducing sensory TEP while preserving non-sensory parts of the TEP.