
Working Memory for Painful and Non-painful Touch: A transcranial magnetic stimulation study

Louisa Gwynne^{*†1}, Luigi Tame^{‡2}, and Brianna Beck^{§2}

¹University of Kent [Canterbury] – United Kingdom

²University of Kent [Canterbury] – United Kingdom

Abstract

Neural regions underlying the transient retention of tactile inputs to the skin's surface have been identified as those also subserving initial tactile encoding. Such regions are likewise implicated in the detection of nociceptive inputs however, to our knowledge, no study has yet investigated their causal involvement in working memory for painful tactile stimulation. In the current study, participants complete either a painful or non-painful 2-alternative forced choice intensity discrimination task. On every trial, two different intensity electro-tactile stimulations are consecutively delivered to the index finger. The two pulses are separated by an interstimulus delay during which inhibitory single-pulse TMS is applied over S1, S2 or a control site (lateral occipital cortex; LOC) at one of three-time points: 300, 600 or 1200 ms. Preliminary data shows a trend in the reduction of task accuracy at early working memory delay (≤ 600 ms) in both painful and non-painful conditions by TMS over S1 and S2 but not by LOC. This direction of effects remains to be determined over the coming weeks as I collect further data.

Keywords: TMS, Pain, Touch

*Speaker

†Corresponding author: lg497@kent.ac.uk

‡Corresponding author: l.tame@kent.ac.uk

§Corresponding author: b.c.beck@kent.ac.uk