

Project title	Priming stimulation: a multimodal approach to evaluate the effects of theta-burst transcranial magnetic stimulation priming on prefrontal cortex functioning in healthy and depressed individuals
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Study period	2021-2025
Status of the project	Data analysis
Funding	Fonds Wetenschappelijk onderzoek (FWO)
Link to study website	https://www.gheplab.ugent.be/projects/
Neuromodulation technique	tDCS, iTBS, cTBS
Hardware	MagStim
Species	Human
Research question(s)	We will investigate the effects of Theta Burst priming applied to the left DLPFC. The effects of iTBS alone and in combination with an excitatory or inhibitory TBS prime will be assessed, to estimate the incremental gains of the priming approach.
Stimulation parameters	TBS will be delivered via a figure-eight shaped coil (Magstim 70 mm double air film coil) connected to the Magstim Rapid2 Plus1 magnetic stimulator (Magstim Company Limited, Wales, UK). The iTBS protocol employs 3 triplet bursts with train duration of 2s that are repeated every 10s for 190s. During cTBS, there is a 40s train of uninterrupted TBS. Both TBS protocols have a total of 600 pulses and will be administered at 80% resting motor threshold (Huang et al., 2005). For the sham TBS protocol, a placebo derivative of the Magstim coil will be used that mimics physical sensations of real TBS without delivering actual stimulation.
Stimulation target	DLPFC
Primary outcome	cognitive control and emotion regulation
Inclusion criteria	participants will be right-handed healthy volunteers between 18 and 45 years old. They will be screened for past or current psychiatric diagnoses using the Mini International Neuropsychiatric Interview (MINI; Pinninti et al., 2003).
Exclusion criteria	Exclusion criteria will be: (1) any contraindication for the applied techniques (i.e., TBS and MRI) (2) habitual smokers (above 10 cigarettes per day) or abuse/dependence on other drugs; (3) pregnant or the possibility of becoming pregnant during the study; (4) use of psychoactive drugs, including antidepressant drugs, benzodiazepines and Z-drugs; (5) serious neurological or clinical conditions.