Transcranial magnetic stimulation to assess corticospinal output to lateral abdominal muscles

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Studies employing transcranial magnetic stimulation (TMS) suggest that there is a direct corticospinal input to the abdominal muscles. These studies have identified the locus of control of the abdominal muscles within the motor cortex. No study to date has reported a reliable method for obtaining input-output (I-O) curves using TMS from the lateral abdominal muscles. In this study, measures for I-O curves were obtained with TMS during voluntary abdominal muscle facilitation using an expiratory muscle strength training device (EMST-150) set at 20% of each individual's maximum expiratory pressure. This study examined the reproducibility of I-O curves of the motor-evoked potentials using surface EMG electrodes at three time points. Data from 5 participants will be presented. This work represents development of a reliable method of using TMS to assess the impact of respiratory training interventions on corticospinal output to abdominal muscles.