Investigate Cortical Activation During Motor Functions Using fNIRS in Healthy Adults

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In this study, young participants (n=29) were instructed to perform the functional reaching task with their right upper limb in motor execution (ME), motor imagery (MI), motor observation (MO) and mirror visual feedback (MVF). While executing the tasks, brain activations at distinct motor-related areas, including primary motor cortex (M1), premotor cortex (PMC), and supplementary motor area (SMA), were measured by functional near infrared spectroscopy (fNIRS) simultaneously. Results demonstrated that the motor-related areas, including M1, SMA, and PMC, were significantly activated while ME, MI, and MVF. Moreover, the brain activation patterns during MVF were significant similar to ME and MI, and showed significant difference from MO in right M1. Therefore, the MVF would be recommended for individuals with unilateral limb hemiplegia or stroke patients to facilitate brain activation in higher rank of brain regions.

Awards Won:
Third Award of $1,000