
Effects of repetitive somatosensory stimulation on motor behaviour

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Abstract

Somatosensory signals are essential to motor system control and tactile impairments can result in a significant reduction in the quality of motor abilities. Repetitive somatosensory stimulation (RSS) at a finger is known to improve performance in a two-point discrimination task (2PDT), supposedly thanks to the increase of the cortical representation of the stimulated body part in the somatosensory cortices. Yet, whether the RSS-induced improvement in touch perception affects the activity of the motor cortex remains unknown. Here we assessed the effects of RSS on the motor system. Tactile performance and motor skills were evaluated before and after 3 hours of the training phase by using a 2PDT and a grooved pegboard task. The training phase consisted of either an RSS or a sham RSS. Results showed that the tactile performance increased for the trained finger (right index) only after the RSS and not sham RSS. Results on motor performance showed that execution times for the grooved pegboard task were shorter after RSS only with the left hand, whereas participants in the sham group did not show any significant change. We suggest that RSS can have an inhibitory effect on the participants' motor performance possibly through sensorimotor interactions.

Keywords: Repetitive Somatosensory Stimulation, Two point discrimination, Manual dexterity, Sensorimotor, Tactile training.

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