

Pain processing is modulated at different levels of the central nervous system by concurrent sensory and motor processes. From previous studies with innocuous somatosensory evoked potentials we know of the phenomenon of gating by movement. The classical explanation [Melzack R, Wall PD. Pain mechanisms: a new theory. *Science* 1965;150(699):971-979.] of the mechanism of gating in the posterior horn of spinal cord is complemented by other, lesser understood data, suggesting supraspinal mechanisms. A similar lack of understanding of the cortical mechanisms is seen in pain modulating methods using concurrent electrical nerve stimulation.

This work is intended to further our understanding of the cortical mechanisms of pain modulation in the specific cases of (a) isometric muscle contraction of the right or left hand during painful electrical intraepidermal stimulation of the right index finger and (b) during observation of the acute effects of concurrent innocuous median nerve stimulation on painful tonic thermal stimulation of the thenar eminence.