

Emily Eck
SRC Abstract

Can Meditation Modulate the Experience of Pain? A Neuroimaging Study

We examined the neurobiology of acute pain in chronic pain patients with and without mindfulness meditation experience in order to elucidate the neural mechanisms of coping with pain through meditation. Chronic pain patients with and without meditation experience were recruited and matched for age and gender. Meditators were evaluated for type and length of meditation practice. Pain sensitivity threshold (the onset of pain) and pain tolerance (highest level of pain the participant is willing to tolerate) as well as a moderate-pain level were determined for each participant. The moderate-pain level was used in an fMRI task where participants were instructed to either attend to the pain or to cope with the pain. We hypothesized that meditators will have higher tolerance of pain and that they will be able to effectively reduce the intensity of acute pain using mindfulness coping skills. The reduction in the intensity of acute pain will be associated with a modulation of neuronal activity in the pain neuromatrix (measured with fMRI). Specifically, we predicted that the acute pain stimulus will evoke less anterior insula, amygdala, and posterior cingulate cortex activation in meditators, and that this reduction in fMRI activation will correlate with lower ratings of the subjective experience of acute thermal pain. This research supports recent suppositions that the emotional and the cognitive aspects of the pain experience can be decoupled by meditation leading to more effective coping with chronic pain.