Effects of Mindfulness Meditation on Long-Term Memory

Andrew Engel, 2016

Meditation is the practice of self-regulating the mind and/or body to facilitate recognizing undesired thoughts and disengaging attention from these distractions. Studies have indicated that meditation enhances attention (Lutz et al., 2008), working memory, and executive functioning (Zeidan et al., 2010), as well as leads to increased gray matter in the hippocampus (Holzel et al., 2011) and prefrontal cortex (Zeidan, In Press). However, there is a scarcity of research describing its effects on long-term memory. Therefore, the goal of our research is to provide a longitudinal study demonstrating the effects of mindfulness meditation on long-term memory, specifically episodic memory, involving the context in which memories are encoded.

We intend to use a source memory task to quantify the subject’s memory recall while simultaneously recording the subject’s brainwaves using an EEG. After an initial memory test, the subjects, who will be meditation-naïve students, will undergo four weeks of mindfulness meditation instruction and practice, including a weekly one-hour training session with a licensed mindfulness meditation instructor, and 20 minutes of daily meditation practice on their own, which will include some guided meditation recordings from the instructor. Mindfulness meditation involves practicing directing awareness towards the present moment by noticing one’s own body (posture, physical sensations, etc.), focusing on feeling the breath move in and out, and becoming aware of any thoughts that arise. The meditation group will be compared to a control group that will participate in an audio book club, which will involve listening to a book on tape for 20 minutes each day and having a weekly hour-long group discussion. After the four weeks, the participants will come back and perform another memory task while we record their brainwaves.

We anticipate that, based on results from previous research, practicing mindfulness meditation will allow the participants to be more aware of the present moment and better able to direct and sustain their attention, as opposed to being distracted by random thoughts that are not related to the task at hand. Thus, we hypothesize that compared to the control group, the meditation intervention will result in improved memory recall, specifically recognition of whether objects are old or new, and increased theta oscillations in the prefrontal cortex and hippocampus, brain regions associated with attention and memory recall.

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References:


