How Mindfulness Works to Help the Brain Manage Pain

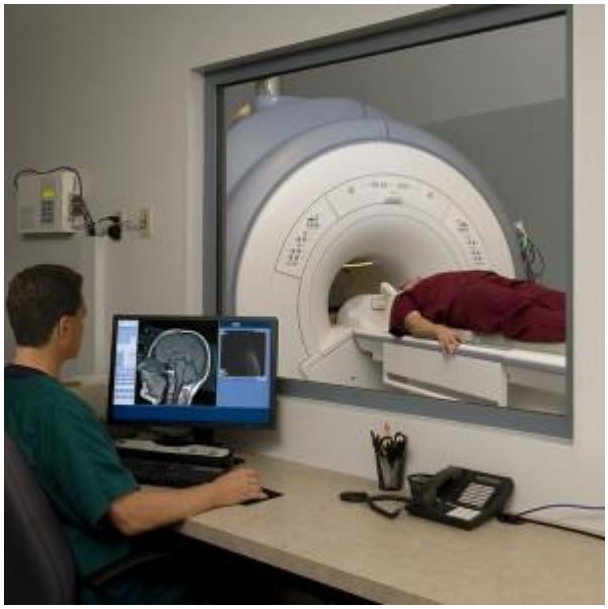
From the website and link
http://www.nicabm.com/nicabmblog/how-mindfulness-works-to-help-the-brain-manage-pain-2/

Can meditation help you feel less pain?

What if one week of short meditation classes could change the way your brain perceives pain?

Fadel Zeidan, PhD, and his colleagues at Wake Forest University wanted to find out how mindfulness meditation affects pain reception.

Specifically, they looked at the areas of the brain responsible for constructing the experience of pain, such as the prefrontal cortex, anterior cingulate cortex, and anterior insula.



Researchers performed MRI exams on 18 subjects while they applied a series of neutral and painful stimuli. They then asked subjects to focus on the sensations of their breath while applying the stimuli again.

Upon exiting the MRI, subjects rated the intensity and unpleasantness of the pain.

Next, researchers put participants through a four-day mindfulness meditation training, involving four sessions of 20 minutes each. The training emphasized acknowledgment of sensations without reacting to them emotionally.

Following the training, participants went through the whole process again – MRI exams and pain stimuli in two stages, first lying still and then actively meditating.

Here's what they found.

Before they received meditation training, subjects showed no difference in the way they rated the pain, whether they were focused on their breath or not.

But after the training, **subjects reported a 40% decrease in pain intensity** between resting and breath-focusing.

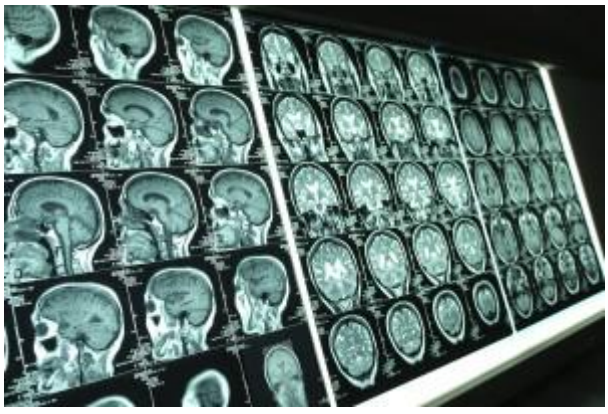
Also, looking at the MRI data – **meditation seemed to reduce pain-related processing.**

The major difference was in the primary somatosensory cortex, a region associated with sensory-discriminative processing of information.

They also found an association between decreased pain magnitude and activation in the anterior cingulate cortex and the right anterior insular cortex.

This is important because these two areas are presumed to play a role in the evaluation of pain.

Taken together, these findings suggest that meditation may work in two ways. First, by allowing patients to better focus on neutral stimuli like their breath, meditation helps patients reduce the importance of painful stimuli.



Second, by focusing on the present moment and reducing the expectation of future events, **meditation may help patients reduce the anticipation of pain.**

In general, I think research is stronger when it measures real phenomena in the brain – not just self-reports. From that perspective, this experiment is a good start.

However, this particular study is limited because the sample size was so small and because it wasn't randomized and controlled. Without these methodological improvements, we don't necessarily know that the meditation training in particular helped change the way patients' brains worked.

If you'd like to read the full study, it's available in the *Journal of Neuroscience*.

Do you use brain science to introduce the topic of mindfulness? A lot of practitioners have been reporting that discussing brain changes with patients can be an excellent way to introduce mindfulness. Please share what you do below.