

CAM Therapies: Meditation, Yoga, and Cognitive Behavioral Therapies

Now Joshua Grant and Pierre Rainville have been studying meditation and they found that, again, as with hypnosis, meditation alters pain perception. Here what they did is they had a person keep turning up the intensity of a heat stimulus until they said okay, it feels like moderate. And then what they did is they looked at what temperature felt like moderate, like a moderate pain, and the meditators chose a much higher temperature than did the control subjects that they described as being a moderate pain. And as with the hypnosis, meditation alters pain processing. But meditation—the data so far suggests that meditation is kind of an interesting thing in that has a very complicated relationship with the brain that in fact this dorsolateral prefrontal cortex which is part of this descending pain modulatory system, during meditation you actually get decreased activation in this modulatory system that one might expect to get increased activation and despite the lower pain ratings, you get increased activation in the dorsal anterior cingulate cortex. And they suggest that meditation results in people decoupling the normal modulatory systems and the normal pain processing systems from levels of consciousness. So this is something that needs to be followed up. Their data were quite strong, but surprising in that it didn't fit this kind of normal increased modulation, decreased pain signal.

Now yoga, this is something that Chantal Villemure and Marta Ceko in our group have been studying. And again, when you present looking at yoga practitioners versus healthy controls not during yoga but just outside of the yoga situation, if you look at pain tolerance, this is how long a person can keep their hand in freezing cold water, and the yoga practitioners can keep their hand in the freezing water much longer than the control subjects. We matched them subject by subject, and in terms of age and sex and other exercise and economic status, and education and everything, and we found that all but two basically showed that the batch controls were much lower tolerance than their matched yoga practitioner. And then we looked at the thresholds for detecting a cool stimulus or a warm stimulus, and we didn't see any difference, and then the threshold for perceiving something that's painfully hot, there was a small difference, and painfully cold, there was a small difference. But the big difference was in the tolerance that they really could tolerate a lot more pain.

Cognitive behavioral therapy. This also has been shown to alter pain and functioning. This is from a meta-analysis from a number of studies where you look at physical. So this is the weight list people. These are the people undergoing CBT. And you see physical functioning, pain behavior, pain experience, emotional functioning, and cognitive coping and appraisal. For all of them, the studies overall show that the cognitive behavioral therapy reduces pain and other aspects of the pain experience. And CBT has also been shown to alter neural activity. Again, there's been some inconsistencies in the studies, but this is a study that is at least consistent with my view of the world in that they basically show increased activity in the dorsolateral prefrontal cortex part of the pain modulatory system during CBT, suggesting that you may be increasing this dampening of the pain signal.