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UM Study Shows Chinese Acupuncture Affects Brain's Ability To Regulate Pain

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Acupuncture has been used in East-Asian medicine for thousands of years to treat pain, possibly by activating the body's natural painkillers. But how it works at the cellular level is largely unknown.

Using brain imaging, a University of Michigan study is the first to provide evidence that traditional Chinese acupuncture affects the brain's long-term ability to regulate pain.

The results appear online ahead of print in the September *Journal of NeuroImage.*

In the study, researchers at the U-M Chronic Pain and Fatigue Research Center showed acupuncture increased the binding availability of mu-opoid receptors (MOR) in regions of the brain that process and dampen pain signals - specifically the cingulate, insula, caudate, thalamus and amygdala.

Opioid painkillers, such as morphine, codeine and other medications, are thought to work by binding to these opioid receptors in the brain and spinal cord.

"The increased binding availability of these receptors was associated with reductions in pain," says Richard E. Harris, Ph.D., researcher at the U-M Chronic Pain and Fatigue Research Center and a research assistant professor of anesthesiology at the U-M Medical School.

One implication of this research is that patients with chronic pain treated with acupuncture might be more responsive to opioid medications since the receptors seem to have more binding availability, Harris says.

These findings could spur a new direction in the field of acupuncture research following recent controversy over large studies showing that sham acupuncture is as effective as real acupuncture in reducing chronic pain.

"Interestingly both acupuncture and sham acupuncture groups had similar reductions in clinical pain," Harris says. "But the mechanisms leading to pain relief are distinctly different."

The study participants included 20 women who had been diagnosed with fibromyalgia, a chronic pain condition, for at least a year, and experienced pain at least 50 percent of the time. During the study they agreed not to take any new medications for their fibromyalgia pain.

Patients had position emission tomography, or PET, scans of the brain during the first treatment and then repeated a month later after the eighth treatment.

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