
Study seeks to show how acupuncture really works

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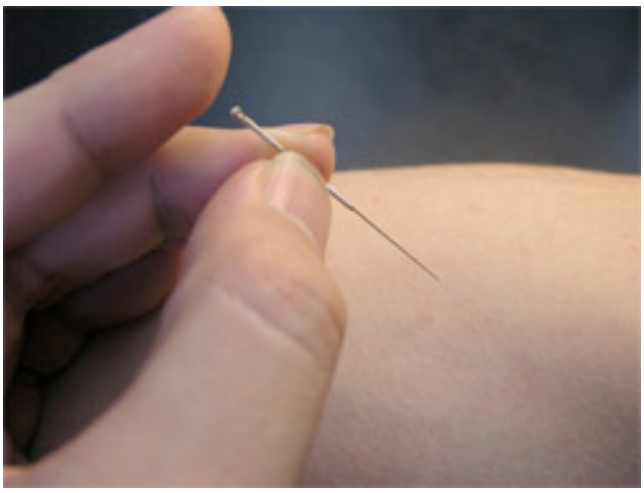
and World Science staff

Scientists are presenting a new theory on the mechanism of acupuncture—a traditional Chinese healing technique that seems to work for some ailments, though Western researchers don't understand why.

Eastern practitioners say acupuncture works by changing energy flows in the body. Western scientists tend not to buy this account, arguing that the proposed energy fields have never been seen or measured.



An acupuncture needle commonly used today. (Credit: Takumi Fujita)

Acupuncture involves inserting thin needles into the skin at selected points to treat a range of conditions. Several studies have shown that it works for certain kinds of pain; a study last year found that acupuncture beats conventional treatment for chronic lower back pain.

The new study, published in the May 30 online issue of the journal *Nature Neuroscience*, suggests that acupuncture works by activating pain-suppressing receptors, or molecules, in the area of the body where the needle is inserted.

In the research, Maiken Nedergaard of the University of Rochester Medical Center in New York and colleagues inserted fine needles into the mouse equivalent of a traditional acupuncture point near the knee. The researchers rotated these needles intermittently as is practiced by acupuncturists.

This eased the pain reactions of mice with an inflamed paw, the researchers found. It also strongly boosted the local tissue concentration of a neurotransmitter, or a molecule that transmits signals through nerves, called adenosine.

Pain relief required the presence of a particular receptor for adenosine, the research team found. A receptor is a molecular structure on the surface of a cell that acts as a sort of gateway for allowing specific types of "messenger" molecules to deliver a signal.

The receptor in question, called the adenosine A1 receptor, is known to lie on pain-transmitting nerve fibers and to reduce the activity of these fibers when activated, according to Nedergaard and colleagues.

The team found that no pain relief or adenosine elevation was observed when the needles were inserted into the acupuncture point without rotation. They also noted that a drug that prolongs the lifetime of adenosine in live tissue helped to prolong the pain-easing effect of mouse acupuncture.

“Thus, medications that interfere with A1 receptors or adenosine metabolism may improve the clinical benefit of acupuncture,” the researchers wrote.