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A Placebo for Pain Relief—Even When You Know It's Not Real

Research suggests a possible alternative to traditional pain medications, which can be ineffective and carry side effects

Illustration: Dan Page



By

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Some patients with chronic pain can get relief from a placebo even when they know it isn't an active medication, a growing body of evidence shows.

More researchers are looking at the idea of placebos—substances that have no actual pharmaceutical effect—as an alternative to traditional pain medications, which can be ineffective and carry significant side effects. Placebos might have particular potential for difficult-to-treat conditions like chronic back pain, cancer-related fatigue and symptoms of irritable bowel syndrome, researchers hope.

As many as 30% to 50% of chronic pain patients will respond to placebos, research suggests. And new studies are helping to identify genetic and brain differences that make certain people more likely to respond.

“It is a possibility that seems important, and may offer relief for many people who are getting insufficient relief or have too many side effects on the medication they take,” says Ted J. Kaptchuk, director of the Program in Placebo Studies and Therapeutic Encounter at Beth Israel Deaconess Medical Center in Boston and a professor at Harvard Medical School.

It's unclear exactly why placebos can help relieve pain even when people know it's not a real drug. Some evidence suggests that patients still experience a level of relief by subconsciously picking up cues from a medical setting, such as engaging with the doctor, and even perhaps the act of taking a pill.

Normally, placebos are used in clinical drug trials to be compared with the effect of drugs in development. Sometimes physicians also prescribe very low doses of active medications that function as placebos.

Giving patients a disguised placebo without telling them is considered unethical by the medical profession. But if patients are informed they are taking a placebo—what researchers call “open-label” placebo treatment—it's ethical, says Dr. Kaptchuk.

Researchers in Germany published a [study](#) in the journal *Pain* in December showing that open-label placebos can help relieve chronic lower-back pain, replicating a [2016 study](#). A similar study by University of Colorado, Boulder researchers found that placebo saline injections reduce chronic lower-back pain.

Share Your Thoughts

How effective do you think placebos could be in relieving pain? Join the conversation below.

Two other [recent studies](#) showed placebos openly given to cancer patients helped relieve cancer-related fatigue. And a forthcoming study by German researchers found openly giving placebo to elderly patients helped improve knee pain.

For the Pain study, German researchers divided 122 chronic back pain patients into two groups. One group knowingly received a placebo treatment; the other group received no intervention but continued their usual treatment.

The researchers found that the group knowingly taking a placebo reported a larger reduction in pain intensity, functional disability and depression. There was no difference in objective measures of spine mobility, anxiety or stress.

Yoni Ashar, a research scientist at Weill Cornell Medical College in New York, was the lead researcher in another study of chronic lower-back pain patients when he was at the University of Colorado, Boulder. The study's results found that the 50 patients given a placebo of saline injections reported less pain a month later than a control group of 50 patients who received their usual care.

Dr. Kaptchuk's research shows that patients with [chronic lower-back pain](#), [irritable bowel syndrome](#) and [migraines](#) benefit from being told they are receiving a placebo. He is finalizing the results of a larger study with more than 300 irritable bowel syndrome patients. He is also completing a five-year follow-up analysis of the 2016 low-back pain study to see how patients fared after they stopped taking the placebo.

Kathryn Tayo Hall, an assistant professor of medicine at Brigham and Women's Hospital in Boston, studies the genetics of the placebo response. One day, she says, genetic tests may be able to predict which patients would benefit from a placebo treatment.

"We know that there are changes in your brain and physiology that correlate with your response to placebo, and to a large extent these changes are consistent with pain signaling related to opioid and dopamine transmission in the brain," says Dr. Hall. "So our thinking is if you have genetic variation in the proteins involved in those signaling pathways, that could influence your placebo response."

Vania Apkarian, director of the Center for Translational Pain Research at Northwestern University Feinberg School of Medicine, studies which patients respond to placebo. In a [2016 study](#) in the journal PLOS Biology, he used brain scans to identify the regions in the brain that can predict a response to placebo in 56 chronic knee osteoarthritis pain patients compared with 20 control patients. He replicated the findings in a [2018 study](#) in Nature Communications with 63 chronic-back-pain patients.

About 30% to 50% of chronic pain patients will respond to placebo, says Dr. Apkarian. His studies have found a "brain signature" in patients who respond, with more connectivity in the sensory areas of the brain.

The effects last at least three months. “These patients get enough pain relief from placebo that is as good as any drug on the market being sold for pain relief of chronic pain,” says Dr. Apkarian.

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