Health & Medicine

Are You Sure It Doesn't Hurt?

Columbia researchers study the placebo effect.

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It’s a boon to snake-oil salesmen and a nuisance to drug developers. But the placebo effect, while well documented, still holds mysteries for scientists: Do fake pills merely trick people into believing they feel better? Or does the power of suggestion actually induce physiological changes?

Columbia scientists say they’re teasing out the answer. A research team led by Tor Wager, an assistant professor of psychology, conducted an experiment recently in which a stimulus hot enough to sting was applied to volunteers’ forearms covered partly with a fake pain-relief ointment. Researchers applied heat, in turns, to those parts of their arms treated with the placebo and those left bare. At the same time, the scientists monitored the subjects’ brains using positron-emission tomography and found that when the subjects saw heat applied to the areas covered in the pain salve, their brains released more opioids, which are the body’s natural painkillers.

“Placebo effects are often observed in clinical practice,” says Wager, “but there have been relatively few scientific studies that document how they work in the brain and body.”

Wager and colleagues from the University of Michigan published their results in the June 26 issue of the *Proceedings of the National Academy of Sciences*. The paper also pinpoints specific areas of the brain where the most opioids were released. The periaqueductal gray, a section of the brain stem targeted in neurosurgical interventions to control chronic pain, was especially awash in these endorphins. So, too, were the orbitofrontal cortex and anterior cingulate, parts of the cerebral cortex that orchestrate the body’s responses to perceived threat, producing the so-called flight-or-fight response.

Wager says that a precise explanation of the placebo effect’s mechanics might one day help doctors determine the conditions under which it’s best to administer

medicine and lead to the development of drug therapies better “informed by knowledge of mind-body interactions.”



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