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Why Placebos Work Wonders

From Weight Loss To Fertility, New Legitimacy For 'Fake' Treatments



By SHIRLEY S. WANG

Say "placebo effect" and most people think of the boost they may get from a sugar pill simply because they believe it will work. But more and more research suggests there is more than a fleeting boost to be gained from placebos.

A particular mind-set or belief about one's body or health may lead to improvements in disease symptoms as well as changes in appetite, brain chemicals and even vision, several recent studies have found, highlighting how fundamentally the mind and body are connected.



Is the placebo effect just the boost you may get from a sugar pill simply because you believe it will work? New research suggests there is more than just that to be gained from placebos. Emily Nelson reports. (Photo: Getty Images)



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It doesn't seem to matter whether people know they are getting a placebo and not a "real" treatment. One study demonstrated a strong placebo effect in subjects who were told they were getting a sugar pill with no active ingredient.

Placebo treatments are sometimes used in some clinical practices. In a 2008 survey of nearly 700 internists and rheumatologists published in the *British Medical Journal*, about half said they prescribe placebos on a regular basis. The most popular were over-the-counter painkillers and vitamins. Very few physicians said they relied on sugar pills or saline injections. The American Medical Association says a placebo can't be given simply to soothe a difficult patient, and it can be used only if the patient is informed of and agrees to its use.

Researchers want to know more about how the placebo effect works, and how to increase and decrease it. A more powerful, longer-lasting placebo effect might be helpful in treating health conditions related to weight and metabolism.

Hotel-room attendants who were told they were getting a good workout at their jobs showed a significant decrease in weight, blood pressure and body fat after four weeks, in a study published in *Psychological Science* in 2007 and conducted by

Alia Crum, a Yale graduate student, and Ellen Langer, a professor in the psychology department at Harvard. Employees who did the same work but weren't told about exercise showed no change in weight. Neither group

reported changes in physical activity or diet.



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Patients in a recent study were treated with placebos for an induced asthma attack. They reported feeling just as good as when they received an active treatment with albuterol.

Another study, published last year in the journal *Health Psychology*, shows how mind-set can affect an individual's appetite and production of a gut peptide called ghrelin (GREL-in), which is involved in the feeling of satisfaction after eating. Ghrelin levels are supposed to rise when the body needs food and fall proportionally as calories are consumed, telling the brain the body is no longer hungry and doesn't need to search out more food.

Yet the data show ghrelin levels depended on how many calories participants were told they were consuming, not how many they actually consumed. When told a milkshake they were about to drink had 620 calories and was "indulgent," the participants' ghrelin levels fell more—the brain perceived it was satisfied more quickly—than when they were told the shake had 120 calories and was "sensible."

The results may offer a physiological explanation of why eating diet foods can feel so unsatisfying, says Ms. Crum, first author on the study. "That mind-set of dieting is telling the body you're not getting enough."

Studies across medical conditions including depression, migraines and Parkinson's disease have found that supposedly inert treatments, like sugar pills, sham surgery and sham acupuncture, can yield striking effects. A 2001 study published in *Science* found that placebo was effective at improving

Parkinson's disease symptoms at a magnitude similar to real medication. The placebo actually induced the brain to produce greater amounts of dopamine, the neurotransmitter known to be useful in treating the disease.

At times, a weaker placebo effect might be desired. In trials of experimental drug treatments for dementia, depression and other cognitive or psychiatric conditions, where one patient group takes medication and the other takes a sugar pill, it can be difficult to demonstrate that the medicine works because the placebo effect is so strong.

With depression, an estimated 30% to 45% of patients—or even more, in some studies—will respond to a placebo, according to a review published in December in *Clinical Therapeutics*. An additional 5% of patients were helped by an antidepressant in cases of mild depression, and an additional 16% in cases of severe depression. (The clinically meaningful cutoff for additional benefit was 11%.)

Fertility rates have been found to improve in women getting a placebo, perhaps because they experience a decrease in stress. A recent randomized trial of women with polycystic ovarian syndrome found that 15%, or 5 of 33, got pregnant while taking placebo over a six-month period, compared with 22%, or 7 of 32, who got the drug—a statistically insignificant difference. Other studies have demonstrated pregnancy rates as high as 40% in placebo groups.

Ted Kaptchuk, director of Harvard's Program in Placebo Studies and the Therapeutic Encounter, and colleagues demonstrated that deception isn't necessary for the placebo effect to work. Eighty patients with irritable bowel syndrome, a chronic gastrointestinal disorder, were assigned either a placebo or no treatment. Patients in the placebo group got pills described to them as being made with an inert substance and showing in studies to improve symptoms via "mind-body self-healing processes." Participants were told they didn't have to believe in the placebo effect but should take the pills anyway, Dr. Kaptchuk says. After three weeks, placebo-group patients

reported feelings of relief, significant reduction in some symptoms and some improvement in quality of life.

Why did the placebo work—even after patients were told they weren't getting real medicine? Expectations play a role, Dr. Kaptchuk says. Even more likely is that patients were conditioned to a positive environment, and the innovative approach and daily ritual of taking the pill created an openness to change, he says.

Do placebos work on the actual condition, or on patients' perception of their symptoms? In a study published last year in the *New England Journal of Medicine*, Dr. Kaptchuk's team rotated 46 asthma patients through each of four types of treatment: no treatment at all, an albuterol inhaler, a placebo inhaler and sham acupuncture. As each participant got each treatment, researchers induced an asthma attack and measured the participant's lung function and perception of symptoms. The albuterol improved measured lung function compared with placebo. But the patients reported feeling just as good whether getting placebo or the active treatment.

"Right now, I think evidence is that placebo changes not the underlying biology of an illness, but the way a person experiences or reacts to an illness," Dr. Kaptchuk says.

Placebo can be more effective than the intended treatment. In a trial published in the journal *Menopause* in 2007, 103 women who had menopausal hot flashes got either five weeks of real acupuncture, or five weeks of sham acupuncture, where needles weren't placed in accepted therapeutic positions. A week after treatments ended, only some 60% of participants in both groups reported hot flashes—a robust immediate placebo effect. Seven weeks post-treatment, though, 55% of patients in the sham acupuncture group reported hot flashes, compared with 73% in the real acupuncture group.

Corrections & Amplifications

An earlier version of this article said that a study in the journal *Health Psychology* about appetite and the gut peptide ghrelin was published earlier this year.

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