

Simple intervention can make your brain more receptive to health advice

February 2 2015



Credit: Petr Kratochvil/public domain

A new discovery shows how a simple intervention—self-affirmation - can open our brains to accept advice that is hard to hear.

"Self-affirmation involves reflecting on core values," explained Emily Falk, the study's lead author and director of the Communication Neuroscience Laboratory at University of Pennsylvania's Annenberg School for Communication. Has your doctor ever told you to get more exercise? Has your spouse ever suggested you eat healthier? Even though the advice comes from good intentions, most people feel defensive when confronted with suggestions that point out their weaknesses. Reflecting on values that bring us meaning can help people see otherwise threatening messages as valuable and self-relevant. "Our work shows that when people are affirmed, their brains process subsequent messages differently."

Along with colleagues at Annenberg, The University of Michigan and The University of California Los Angeles, Falk and her team used functional magnetic resonance imaging (fMRI) to examine a part of the brain involved in processing self-relevance called [ventromedial prefrontal cortex](#) (VMPFC). The team examined activity in this region as sedentary adults were given the type of advice they might get from a doctor (e.g. - "People who sit less are at lower risk for certain diseases."). Participants who were guided through a [self-affirmation](#) exercise before getting the health advice showed higher levels of activity in this key brain region during the health advice, and then went on to show a steeper decline in couch-potato-type sedentary behaviors in the month following the intervention. Those who were instructed to think about values that weren't as important to them showed lower levels of activity in the key brain region during exposure to the health advice and maintained their original levels of sedentary behavior.

The results are reported in the February of the *Proceedings of the National Academy of Science*.

Past studies have shown that brain activity in VMPFC during health messages can predict behavior change better than individuals' own

intentions, and this study sheds new light on why. VMPFC is the brain region most commonly activated when participants think about themselves and when they ascribe value to ideas. The new results show that opening the brain in this way is a key pathway to behavior change. "Understanding the brain opens the door to new health interventions that target this same pathway," Falk noted.

"We were particularly interested in using self-affirmation to help people become more active because sedentary behavior is one of the biggest health threats faced by both Americans and people around the world," said Falk. Overly sedentary lifestyles are becoming a big problem; in some regions nearly 85 percent of an adult population leads an inactive lifestyle. This can cause multiple health problems, including poor heart health, diabetes, and cancer, just to name three. Increasing activity even small amount can have an important impact on both mental and physical health.

The team studied 67 sedentary adults from a range of backgrounds. Participants wore devices on their wrists to objectively measure their activity levels for a week before and a month after the intervention. Participants were also sent text messages reinforcing the main messages delivered in the fMRI scanner. Volunteers were shown health messages like "According to the American Heart Association, people at your level of physical inactivity are at much higher risk for developing heart disease," or "After an hour of sitting, try standing for five minutes. Stand up while you read, watch TV, talk on the phone, fold laundry, or write an email." For some participants, these health messages were packaged with a self-affirmation message like "think of a time when you will help a friend or family member reach an accomplishment." When [health messages](#) were paired with self-affirmation, volunteers demonstrated more activity in VMPFC activity during the health message and also went on to follow the advice more.

Psychologists have used self-affirmation as a technique to improve outcomes ranging from [health](#) behaviors in high risk patients to increasing academic performance in at risk youth, suggesting that the findings may be applicable across a wide range of interventions. "Our findings highlight that something as simple as reflecting on core values can fundamentally change the way our brains respond to the kinds of messages we encounter every day," Falk noted. "Over time, that makes the potential impact huge."

More information: Self-affirmation alters the brain's response to health messages and subsequent behavior change, *PNAS*, www.pnas.org/cgi/doi/10.1073/pnas.1500247112

Provided by University of Pennsylvania

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