

Does Thinking Positive Really Help?

Scientists Discover Neurological Differences Between Optimists and Pessimists



OPINION
By LEE DYE
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Scientists may have found a physiological explanation for the power of positive thinking. When optimists and pessimists attempt the same task, their different attitudes are reflected in different neural activities in their brains.

Can the power of positive thinking cure illness and disease?

Researchers at the California Institute of Technology found that participants in brain-scanning experiments who thought they were doing well on a complex task had greater neural activity in a high-level area of the brain called the posterior parietal cortex (PPT).

Different neural activity was observed in the brains of participants who thought they were doing poorly.

The implication in those results is that personal attitudes may pre-program us to succeed if we are optimists, and protect ourselves against failure if we are pessimists. Does that mean that optimists are more likely to succeed, as other experiments have suggested?

Not without limitations. In the Caltech experiments, changes in how the brains "lit up" depended on how the participants thought they had performed, not on whether they were successful or not. There was no correlation between neural activity and actual performance. Optimists were just as likely to fail at the task as were pessimists, and vice versa.

Optimism May Give Someone a Boost Up the Ladder of Success

That may seem contradictory, but the results suggest that while optimism may be helpful and even give someone a boost up the ladder of success, it's not likely to overwhelm a person's actual ability to perform better than someone else.

Of course, these conclusions go far beyond the limited objectives of the Caltech team of researchers, who are concentrating on understanding the neural mechanism involved in translating sensual stimuli into motor actions.

How do you duck if you see a baseball heading for your nose? Lots of questions are involved in that seemingly simple function.

"We are trying to understand the transition between the sensory input and subsequent motor actions," Igor Kagan, senior research fellow in biology at Caltech, said in a telephone interview. He is co-author of a paper in the August issue of PLoS Biology.

Brain Scanners Help Researchers Study Human Brain in Real Time

Until a decade or so ago, the only way to delve into that area was through animal research, which may or may not shed light on human activities. But with the advent of powerful brain scanners, researchers today can study the human brain in real time as subjects perform various tasks.

The "overarching goal" of the Caltech research, as Kagan put it, is to develop neurological prosthesis for paralyzed patients that could translate brain signals into physical functions.

That could enable a patient to operate external devices such as a robot arm, autonomous vehicle, or a computer, purely through neurological signals. But that's a long term goal, so the more immediate objective is to better understand how those same signals allow us to move our bodies.

Seventeen persons participated in the experiments, which required them to lie inside a functional magnetic resonance imaging scanner and perform a very difficult task of memorizing precisely when, where and in what order a trackball appeared on a computer screen.

Optimism Has Its Limitations

"The subjects were given one second to memorize the sequence, 15 seconds to plan their movements in advance, and then only 10 seconds to finish the task," Kagan said.

They could gain a modest monetary reward if successful, or lose part of it if they failed. The scanner would measure how hard their brains "worked," depending upon their personal attitudes.

"Subjects who are optimists and believe they are doing well will put out the most effort, and exhibit an increase in activity in their PPC, when they expect to earn a larger reward for being successful," Richard A. Andersen, who led the team, said in releasing the study. Conversely, pessimists would show an increase when they perceived a higher level of failure.

But the researchers themselves were a little surprised when the predicted results occurred on the basis of how the subjects thought they had performed, not on their actual performance.

Does that mean optimism really didn't help? Not necessarily. Kagan pointed out that this was a very difficult task which he couldn't do himself, so perhaps the results really show that optimism has its limitations.

Optimism Is Deep Seated in the Human Brain

That's consistent with other research showing that most of us tend to be optimistic, yet it's a mathematical certainty that most of us can't win most of the time.

Researchers at New York University, also using fMRI, found in 2007 that participants in their studies were far more likely to expect positive events in the near future than negative ones, and they saw them with "greater vividness," according to their study, published in the journal Nature. The researchers found what they believe to be a neural network that tends to make us optimistic.

"Understanding optimism is critical as optimism has been related to physical and mental health," Elizabeth Phelps of NYU said at the time. "On the other hand, pessimistic view is correlated with severity of depression symptoms."

The NYU study was reinforced last year when the University of Kansas and the Gallup World Poll released the results from surveys of 150,000 adults in more than 140 countries. The results showed that 85 percent believe the next five years will be as good or better than their current life.

"The results provide compelling evidence that optimism is a universal phenomenon," Matthew Gallagher, then a psychology doctoral candidate at the university, said in releasing the study.

That may seem astounding, given the current state of world affairs, but various research projects, including the Caltech work, suggest that optimism is deep seated in the human brain. But the Caltech research also suggests that sometimes, we may be fooling ourselves.