

Does Belief in Free Will Lead to Action?

March 23, 2011

Free will may be an illusion. Yet we persist in believing we are the masters of our fates—and that belief affects how we act. Think you determine the course of your life and you're likely to work harder toward your goals and feel better about yourself too. Think you don't, and you're likelier to behave in ways that fulfill that prophesy.

"Folk psychology tells us if you feel in control, you perform better," says Davide Rigoni, an experimental psychologist now at the University of Marseille. "What is crucial is that these effects are present at a very basic motor level, a deep level of brain activity."

Working with Marcel Brass and Simone Kuhn of the University of Gent and the University of Padova's Giuseppe Sartori, Rigoni showed that shaking people's belief in self-mastery impairs their brains' readiness to act, even before they're aware of the intention to move. The study is published in an upcoming issue of *Psychological Science*, a journal of the Association for Psychological Science.

To see how free-will beliefs affect pre-conscious aspects of motor control, the team observed a well-known brain marker of voluntary action: the negative electrical wave of "readiness potential," which first fires in preparation to move and then, milliseconds later, activates as the brain sends signals to the muscles. Because the first part is not conscious but is modulated by intention, the researchers thought its strength might reflect belief—or disbelief—in free will.

The study divided 30 men and women ages 18 to 24 into two groups. The experimental group read a text stating that scientists had discovered free will to be an illusion. The control group read about consciousness with no mention of free will. They were instructed to read carefully in preparation for a quiz.

Then the participants performed a "Libet task": pressing a button whenever and however many times they chose, while indicating on a screen the time they became aware of the intention to act. Meanwhile, an EEG recorded their brain activity.

Finally, participants answered questions assessing their beliefs in free will and determinism, both regarding people in general and themselves in particular.

The questionnaires showed the text worked: the first group's belief in their own self-determination was weaker than that of the control group's.

The same effect showed up in the Libet test. The no-free-will group's EEGs measured brain activity far lower than the control group's during that first, unconscious phase of readiness potential. Deep in the brain, the gumption to act flagged along with the belief in self-determination.

Impatient with the biological deterministic bent of science—“that genes and brains control us and we have no control,” Rigoni was motivated by a more philosophical question: “Is it better to believe or not believe we are free? What if we all disbelieved in free will?” The study gives scientific support to his intuition that it is better to believe. “If we are not free,” he says, “it makes no sense to put effort into actions and to be motivated.”