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"Brain Biofeedback Training May Help Prevent Depression in At-Risk Youth."

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Researchers at Stanford University's Mood & Anxiety Disorders Laboratory have developed a new tool to help teens improve their ability to maintain emotional equanimity through brain activation training.

It has long been known that individuals prone to depression tend to overreact to sad or threatening situations, and that this overreaction correlates with hyperactivity in brain regions such as the amygdala. However, until recently, researchers and the public alike did not realize that with training, the level of activation could be placed under conscious control.

Ian Gotlib, a Psychology professor, and collaborators at the Lucas Center for Imaging are using fMRI (functional magnetic resonance imaging) to allow people to literally visualize their brains in action in real time while facing negative stimuli. Gotlib's study targeted girls ages 10-14 whose mothers had a history of depression. The research is part of ongoing NIMH (National Institute of Mental Health)- sponsored efforts to better understand the heritability of mental illnesses and how to prevent their occurrence.

During the training phase of the first experiment, girls would view distressing stimuli (such as a picture of an accident) while inside an fMRI machine. Software designed by Gary Glover, director of the Lucas Center, would simultaneously provide them visual feedback about the activation level of the amygdala. The researchers asked the girls to try to lower the bar indicating activation level, and suggested that they counteract the distress they were experiencing by shifting their focus to positive thoughts such as the beach or pets. The girls' conscious efforts worked; most of them could significantly decrease their amygdalar activation levels, said [Paul Hamilton](#), a postdoctoral researcher with the study. "They're happy but they also come across as a little amazed they were able to do it."

The key practical implication of this study, however, is that the benefits of the brain biofeedback occur not only at the time of the training, but appear to last, and thus could potentially confer greater resilience in facing challenges outside of the laboratory. When participants returned to the lab for a testing phase that involved a series of tasks designed to be stressful, they were able to keep their heartrate and other physiological indicators of stress to manageable levels. "That's a critical step in learning how to prevent the onset of a depressive episode. . . .my hope is we can prevent the onset of a first episode." according to Gotlib.

As medicine as a whole evolves to become more holistic and prevention-oriented, *researchers* are excited about this development in preventative mental health. As Hamilton says: "We're happy we've been able to give them a potentially adaptive strategy to cope" with the negative things that life inevitably throws at all of us.

Reference: <http://www.futurity.org/health-medicine/girls-rewire-brain-to-beat-depression/>
<http://news.stanford.edu/news/2012/february/depression-brain-imaging-020912.html>