Meditation can change brain function, psychology study says
Findings appear in December issue of Social Cognitive and Affective Neuroscience
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by Jenny Lass

Feeling stressed or depressed? You may one day be prescribed meditation rather than medication, thanks to a study conducted by researchers from the Department of Psychology and the Centre for Addiction and Mental Health (CAMH) at St. Joseph’s Hospital.

A research team that included Professor Adam Anderson of psychology, Norman Farb, a psychology PhD candidate, and Professor Zindel Segal of psychiatry are the first to use functional magnetic resonance imaging (fMRI) to map brain activity changes in people trained in mindfulness meditation — the art of “being in the moment” and free of judgment.

The researchers scanned the brains of study participants as they completed two tasks. Participants were first asked to judge whether word prompts described their personalities, a task designed to trigger rumination or what the authors call “narrative” thought patterns. In another task, participants were instructed to monitor their reactions to the words without further judgment in an attempt to coax them to be in the moment or adopt an “experiential” focus.

People with no meditation training showed very little change in brain activity from task to task. They mostly engaged the areas along the middle of the brain such as the prefrontal cortex, which is responsible for personality expression and appropriate social behaviour. However, participants who had practised meditation regularly for eight weeks showed a more dramatic change in brain activity when asked to move from the narrative to the experiential focus — they shifted away from the midline brain regions to areas that regulate more primitive functions such as touch, pain and temperature sensation.

“This ability to alter brain activity may explain why so many studies show mood improvements with meditation. It turns out taking a break from the middle regions of the brain, which we tend to overuse, might be just what’s needed to help you feel better,” Anderson said. “The prefrontal cortex allows us to mentally time travel. It’s an amazing capacity,” he explained, “but it can have some side effects.” The ability to learn from the past and predict the future is useful but it can also cause us to worry about what has already happened or what is yet to come. Training your brain to switch off its default desire to ruminate could give “people the cognitive tools for dealing with their emotions,” said Anderson. This is important because drugs for treating psychological conditions such as depression and anxiety have side effects, making their long-term use a challenge.

The results of this study, published in the December 2007 issue of Social Cognitive and Affective Neuroscience, are particularly germane because they measure the effects of meditation in
“regular” people instead of frequently studied special populations such as monks.