Integrating Meditation With Science

Mindfulness meditation produces personal experiences that are not readily interpretable by scientists who want to study its psychiatric benefits in the brain. At a conference near Boston April 5, 2014, Brown University researchers will describe how they've been able to integrate mindfulness experience with hard neuroscience data to advance more rigorous study.

Mindfulness is always personal and often spiritual, but the meditation experience does not have to be subjective. Advances in methodology are allowing researchers to integrate mindfulness experiences with brain imaging and neural signal data to form testable hypotheses about the science – and the reported mental health benefits – of the practice.

A team of Brown University researchers, led by junior Juan Santoyo, will present their research approach on Saturday, April 5, 2014, at the 12th Annual International Scientific Conference of the Center for Mindfulness at the University of Massachusetts Medical School. Their methodology employs a structured coding of the reports meditators provide about their mental experiences. That can be rigorously correlated with quantitative neurophysiological measurements.

“In the neuroscience of mindfulness and meditation, one of the problems that we've had is not understanding the practices from the inside out," said co-presenter Catherine Kerr, assistant professor (research) of family medicine and director of translational neuroscience in Brown's Contemplative Studies Initiative. "What we've really needed are better mechanisms for generating testable hypotheses – clinically relevant and experience-relevant hypotheses.”

Carefully coded data on experience – “grounded theory methodology” – supports the formulation and testing of hypotheses and a scientific investigation of mindfulness. Now researchers are gaining the tools to trace experiences described by meditators to specific activity in the brain.