

Chinese-Style Meditation Linked To Brain Changes

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AsianScientist (Jun. 13, 2012) - Scientists report that practising Chinese mindfulness meditation regularly for a month may lead to positive behavioral changes and structural changes in the brain.

In a paper published this week in the *Proceedings of the National Academy of Sciences*, scientists Yi-Yuan Tang and Michael Posner report that the technique, known as integrative body-mind training (IBMT), caused a change in structural efficiency of white matter in the brain of subjects.

Positive mood changes coincided with increased axonal density -- more brain-signaling connections -- and an expansion of myelin, the protective fatty tissue that surrounds the axons, in the brain's anterior cingulate region. Deficits in the anterior cingulate cortex have been associated with dementia, depression, and schizophrenia, among others.

IBMT is adapted from traditional Chinese medicine in the 1990s in China, where it is practiced by thousands of people. It differs from other forms of meditation because it depends heavily on the inducement of a high degree of awareness and balance of the body, mind, and environment. The meditative state is facilitated through training and trainer-group dynamics, harmony, and resonance.

In 2010, research led by Tang and Posner first reported positive structural changes in brain connectivity in 45 participants that correlated to behavioral regulation.

The new findings came from additional scrutiny of the 2010 study and another that involved 68 undergraduate students at China's Dalian University of Technology. After a month, or about 11 hours of IBMT, both increases in axon density and myelin formation were measured.

"When we got the results, we all got very excited because all of the other training exercises, like working-memory training or computer-based training, only have been shown to change myelination," Tang said. "We believe these changes may be reflective of the time of training involved in IBMT. We found a different pattern of neural plasticity induced by the training."

The order of changes we found may be similar to changes found during brain development in early childhood, said Posner, allowing a new way to reveal how such changes might influence emotional and cognitive development.

The improved mood changes noted in this and earlier studies are based on self-ratings of subjects based on a standard six-dimensional mood-state measure, said Tang.

Tang and Posner first reported findings related to IBMT in 2007, also in PNAS. They found that doing

IBMT for five days prior to a mental math test led to low levels of the stress hormone cortisol among Chinese students compared to students in a relaxation control group.

The article can be found at: [Tang YY et al. \(2012\) Mechanisms of white matter changes induced by meditation](#).

Source: [University of Oregon](#).

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