



## **Stress, Meditation and Science**

### **Effects of meditation on the brain and immune system**

There was a significant increase in left-sided activation in meditators, a pattern previously associated with positive affect, there was also a significant increase in antibody titers to the influenza vaccine. These findings demonstrate that a short program in mindfulness meditation produces demonstrable effects on brain and immune function.

Richard J. Davidson, PhD, Jon Kabat-Zinn, PhD, Jessica Schumacher, MS, Melissa Rosenkranz, et al. **Alterations in Brain and Immune Function Produced by Mindfulness Meditation**- *Psychosomatic Medicine* 65:564-570 (2003)

### **Meditation, Yoga Might Switch Off Stress Genes.**

When you evoke the relaxation response, the very genes that are turned on or off by stress are turned the other way. The mind can actively turn on and turn off genes. The mind is not separated from the body.

Dusek JA, Otu HH, Wohlhueter AL, Bhasin M, Zerbini LF, et al. 2008 **Genomic Counter-Stress Changes Induced by the Relaxation Response**. *PLoS ONE* 3(7): e2576. doi:10.1371/journal.pone.0002576

### **Meditation alters the anatomy of the brain**

Researchers at UCLA who used Magnetic Resonance Imaging to scan the brains of people who meditate found that meditators showed significantly larger volumes of the hippocampus and areas within the orbito-frontal cortex, the thalamus and the inferior temporal gyrus- all regions known for regulating emotions. "We know that people who consistently meditate have a singular ability to cultivate positive emotions, retain emotional stability and engage in mindful behavior," said Eileen Luders, lead author and postdoctoral research fellow at UCLA Laboratory of Neuro Imaging. "The observed differences in brain anatomy might give us a clue why meditators have these exceptional abilities.

University of California - Los Angeles (2009, May 13). **Meditation May Increase Gray Matter**. *ScienceDaily*. Retrieved April 12, 2010, from <http://www.sciencedaily.com/releases/2009/05/090512134655.htm>

### **Effects of meditation in mood disturbances.**

This program was effective in decreasing mood disturbance and stress symptoms in both male and female patients with a wide variety of cancer diagnoses, stages of illness, and ages.

Michael Speca, PsyD, Linda E. Carlson, PhD, Eileen Goodey, MSW and Maureen Angen, PhD **The Effect of a Mindfulness Meditation-Based Stress Reduction Program on Mood and Symptoms of Stress in Cancer Outpatient**. *Psychosomatic Medicine* 62:613-622 (2000)© 2000 American Psychosomatic Society

### **Additional resources:**

#### **Relaxation response- Harvard University:**

<http://www.relaxationresponse.org/howto.htm>

#### **National Center for Complementary and alternative medicine ( keywords: yoga, Meditation)**

<http://nccam.nih.gov>

#### **National Institutes of health ( Keywords: Yoga, meditation)**

<http://www.nih.gov/>