

## Cognitive and affective trait effects of meditation-training on brain and behaviour. An event-related longitudinal fMRI study

### **Results:**

We tried to bridge the gap between the two main study types concerning meditation by conducting a longitudinal study on meditation training with different types of assessment strategies including brain imaging techniques (fMRI) using the paradigm of "binocular rivalry" by testing the effects of attentional training on the switching rate during several measures. Eighteen healthy right-handed volunteers (5 males, 13 females, ages 20-57,  $M = 32.8$ ) participated in the first (baseline; t0) measures. After the first measures and after participating in the meditation training for a few times eleven participants left the study and were not available for further measures. Seven participants (1 male, 6 females, ages 20-57,  $M = 37.2$ ) remained in the study and took part in all the subsequent measures (t1, t2, t3). Behavioural measurements indicate that the ability to focus on the desired percept while suppressing the undesired one improved during the course of the meditation training. We found clear cut effects after six months of training in all participants concerning their attentional abilities ("attending to the stimulus" vs. "passively viewing"), differences were observed and characterized by activations in the left and right superior frontal and middle gyrus, suggesting an enhanced capacity for selective attention. No clear cut effects were found concerning our hypotheses about binocular rivalry. On a single-subject level remarkable changes were found in some subjects concerning mindfulness, well-being, clarity to and repair of their own feelings and also in the ability to improve in the paradigm of binocular rivalry.

### **Published work:**

Halsband, U, Mueller, S, Hinterberger, T, Strickner, S (2009). Plasticity changes in the brain in hypnosis and meditation. *Contemporay Hypnosis*. Published online in Wiley InterScience ([www.interscience.wiley.com](http://www.interscience.wiley.com)) DOI: 10.1002/ch.386.

Halsband, U, Mueller, S (in print). Die neurobiologischen Grundlagen von Hypnose und Meditation. Wiener Schriftenreihe für Forensische Psychiatrie, MMV Medizinisch Wissenschaftliche Verlagsgesellschaft.

### **Area(s) of interest:**

Research in Clinical and Experimental Neuropsychology, Motor Learning and Gesture, Hypnosis, Meditation, Cortical Restructuring by Hypnotherapy, Learning in Trance, Psychology of Music Perception, Bi-and Multilingual Perception

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## **Researchers' contacts:**

Department of Psychology/Neuropsychology  
Engelbergerstr. 41  
79085 Freiburg  
Germany  
Tel. Int+49-761-203-2473  
Fax. Int+49-761-203-9438  
Email: [sekr.neuro@psychologie.uni-freiburg.de](mailto:sekr.neuro@psychologie.uni-freiburg.de)  
[halsband@psychologie.uni-freiburg.de](mailto:halsband@psychologie.uni-freiburg.de)