From Trance to Transcendence during Meditation

**Results:**

A total of 16 mindfulness meditators (MM) underwent both MEG measurement and structural MRI. Of these, a total of 12 had previously served in an EEG study with us, and their EEG data are reported (as part of a larger set) in a forthcoming publication (Berkovich-Ohana, Glicksohn, & Goldstein, under review).

We report: (1) that default mode network (DMN) activity is identified as reduced gamma mean phase coherence (MPC) during the transition from resting state to a time-production task; (2) a state increase in alpha MPC; (3) MM-induced trait reduction in right theta and left alpha and gamma MPC.

In our MEG study, we devised a novel protocol for assessing a change in time perception, space perception and perception of self, and focus on three specific experiences: a sense of timelessness, a sense of spacelessness and a sense of selflessness. Common brain regions underlying the spacelessness and timelessness conditions were found only for theta activity, including the bilateral parietal and medial frontal cortex, the right temporo-parietal cortex and left precuneus, as well as the cerebellum.

We found that shifting from a 'narrative' self-awareness to a 'minimal' self-awareness (MS) involves extensive medial prefrontal gamma band (60-80 Hz) decrease; (2) shifting to a selfless mode of processing is related to beta-band (13-25 Hz) decreases in a network that includes medial prefrontal, medial posterior and lateral parietal regions. These data are reported in two forthcoming publications (Berkovich-Ohana et al., under review; Dor-Ziderman et al., under review).

**Published Work:**

**Papers**


**Chapters**

**Areas of interest:**
Time Perception; Consciousness; EEG/MEG

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