Testing the ontological status of the experience of meditation-induced timeless states

Results:

Experienced meditators occasionally report experiences of "timelessness," or states of awareness that seem to transcend the usual boundaries of the subjective present. This study explored the nature of such experiences by measuring 32 channels of EEG prior to exposure to unpredictable light and sound stimuli in eight experienced meditators and eight matched controls. The experiment postulated (a) that if some aspect of perception extends into the future, then prestimulus measurements would differ depending on stimuli that were about to be selected by a truly random process, and (b) that such differences would be more apparent in meditators than in non-meditators.
Each of the 32 EEG channels was baseline-adjusted on each trial by the electrical potential averaged from 2 seconds to 1 second pre-stimulus. Then for each channel the average potential was determined from 1 second pre-stimulus to stimulus onset. The resulting means across subjects in each group were compared by stimulus type using randomized permutation procedures and corrected for multiple comparisons using False Discovery Rate. Within the control group, no EEG channels showed significant pre-stimulus differences between light vs. sound stimulus conditions, but within the meditator group 5 of 32 channels showed significant differences ($p < 0.05$, two-tailed). Comparisons between control and meditator groups showed significant pre-stimulus differences prior to audio tone stimuli in 14 of 32 channels ($p < 0.05$, two-tailed, of which 8 channels were at $p < 0.005$, two-tailed). This outcome successfully replicates effects observed in conceptually similar experiments.

Published works:

Radin, D.I.; Vieten, C., Michel, L. & DeLorme, A. (2011). Electrocortical Activity Prior to Unpredictable Stimuli in Meditators and Nonmeditators. Explore: The Journal of Science and Healing, 7: 5, pp. 286-299.

Area of interest:

Consciousness, presentiment, time perception

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