PAIN SUBJECTIVE DIMENSIONS AND EVENT-RELATED POTENTIALS MODULATED BY MEDITATION STATES AND TRAITS

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Pain is a combined product of bottom-up and top-down influences mediated by attentional and emotional factors, which can be modulated by *meditation*.

In **Study 1**, we investigated three dimensions of pain and related affective experience, pain, aversion and identification, in short-term meditators (STMs) and long-term meditators (LTMs), in three forms of meditation, i.e. Focused Attention Meditation (FAM), Open Monitoring Meditation (OMM), Loving Kindness Meditation (LKM), and in a non-meditative Rest condition. Study 1 revealed relationships and causal influences between pain, aversion and identification.

In **Study 2**, EEG pain-related oscillations (PROs) were analysed in STMs and LTMs during a non-meditative resting state. Study 2 found that even when subjected to pain outside of meditation, experienced meditators exhibit a pro-active top-down inhibition of somatosensory areas resulting in suppressed processing and communication of sensory information at early stages of painful input.

In **Study 3,** we explored the effects of the three forms of meditation on the neurophysiologic mechanisms of pain processing in terms of PROs. Study 3 showed that different meditation states do not influence bottom-up sensory pain processing; however, they significantly alter cognitive/affective pain mechanisms in state- and trait-dependent ways.

Taken together, our findings shed new light on the effects of meditation traits and states on the relationships between pain and affective experiences, as well as on implicated bottom-up and top-down neurophysiological mechanisms.