

Neuroplasticity and Meditation: Implications in Understanding the neurobiology of Consciousness

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Abstract

Our awareness about our self and the world at large comes from our interaction with our environment. Human brain is the most highly evolved organ endowing us with higher cognitive functions. As the adult brain is endowed with the incredible phenomenon of plasticity, we have the ability to modulate our behaviour as a result of experience. Meditation practices induce various aspects of brain plasticity, both at structural and functional levels leading to alterations in brain network properties at various dimensions. This provides neuroscientists a great opportunity to understand the relation between plasticity, meditation and its ultimate influence on consciousness.

Over the past two decades we have explored the effects of meditation proficiency at different states of consciousness - across rest, meditation, cognitive performance and even sleep. We have explored several meditation traditions and tried to evaluate specific effects of different meditation techniques on the neurobiology, as well as general and long lasting effects of practicing different techniques within any meditation tradition. Our findings show that the neurobiological changes that accompany meditative states persist even when the person is not meditating, and have lasting effects on brain and behaviour. There are meditative practices which influence our wellbeing without much concomitant changes in brain functions! We discuss findings from this body of meditation research, exclusively focusing on our own work, to illustrate the enduring effects of meditation on consciousness.