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Increased dopamine tone during meditation-induced change of consciousness.Kjaer TW¹, Bertelsen C, Piccini P, Brooks D, Alving J, Lou HC.**+ Author information****Abstract**

This is the first in vivo demonstration of an association between endogenous neurotransmitter release and conscious experience. Using 11C-raclopride PET we demonstrated **increased endogenous dopamine release in the ventral striatum during Yoga Nidra meditation**. Yoga Nidra is characterized by a depressed level of desire for action, associated with decreased blood flow in prefrontal, cerebellar and subcortical regions, structures thought to be organized in open loops subserving executive control. **In the striatum, dopamine modulates excitatory glutamatergic synapses of the projections from the frontal cortex to striatal neurons, which in turn project back to the frontal cortex via the pallidum and ventral thalamus. The present study was designed to investigate whether endogenous dopamine release increases during loss of executive control in meditation.** Participants underwent two 11C-raclopride PET scans: one while attending to speech with eyes closed, and one during active meditation. The tracer competes with endogenous dopamine for access to dopamine D2 receptors predominantly found in the basal ganglia. **During meditation**, 11C-raclopride binding in ventral striatum decreased by 7.9%. This corresponds to **a 65% increase in endogenous dopamine release**. The reduced raclopride binding **correlated significantly with a concomitant increase in EEG theta activity, a characteristic feature of meditation. All participants reported a decreased desire for action during meditation, along with heightened sensory imagery.** The level of gratification and the depth of relaxation did not differ between the attention and meditation conditions. Here we show increased striatal dopamine release during meditation associated with the experience of reduced readiness for action. **It is suggested that being in the conscious state of meditation causes a suppression of cortico-striatal glutamatergic transmission.** To our knowledge this is the first time in vivo evidence has been provided for regulation of conscious states at a synaptic level.

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