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REMITTED MAJOR DEPRESSION IS RELATED TO INCREASED FUNCTIONAL COUPLING BETWEEN VENTRAL STRIATUM AND CORTICAL REGIONS IN RESTING STATE FMRI

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Introduction: Dysfunction in the basal ganglia has been related to impaired reward processing and anhedonia, a core symptom of Major Depressive Disorder (MDD). In particular, the ventral striatum including the nucleus accumbens is increasingly implicated in the pathophysiology of MDD, but evidence for a specific role during episodes of full remission is lacking so far.

Objectives: To investigate functional connectivity patterns of resting-state activity in patients in the remitted phase of MDD (rMDD).

Aims: To determine whether rMDD is related to disruptions of functional coupling between the ventral striatum and cortical regions.

Methods: Forty-three remitted depressed patients and thirty-five healthy controls were recruited at Medical University of Vienna, Vienna, Austria, and performed a six minute resting-state fMRI scan. Seed time series were extracted from the preprocessed data using individual masks for ventral striatum and correlated with all nodes in a surface based analysis using FreeSurfer, AFNI and SUMA. The resulting correlation coefficients were then Fishertransformed, group results were determined by comparing group mean smoothed z-scores with a two-sample ttest.

Results: Increased resting-state functional connectivity was revealed between ventral striatum (seed region) and anterior cingulate cortex as well as orbitofrontal cortex in the rMDD group compared to healthy controls.

Conclusions: Our preliminary data is in accordance with the idea that increased functional coupling between the ventral striatum and two major emotion processing regions, the anterior cingulate cortex and the orbitofrontal cortex, may represent a neural mechanism contributing to the maintenance of full remission of MDD.