

Neurofeedback may reduce anxiety

March 21 2019



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A new method for reducing anxiety based on neurofeedback has been validated in the current issue of *Psychotherapy and Psychosomatics*. Deficient emotion regulation and exaggerated anxiety represent a major transdiagnostic psychopathological marker. On the neural level these deficits have been closely linked to impaired, yet treatment-sensitive,

prefrontal regulatory control over the amygdala. Gaining direct control over these pathways could therefore provide an innovative and promising intervention to regulate exaggerated anxiety.

To this end, the current proof-of-concept, this study evaluated the feasibility, functional relevance and maintenance of a novel connectivity-informed real-time fMRI [neurofeedback](#) training. In a randomized crossover sham-controlled design, 26 healthy subjects with high anxiety underwent real-time fMRI-guided neurofeedback training to enhance connectivity between the ventrolateral prefrontal cortex (vlPFC) and the amygdala (target [pathway](#)) during threat exposure. Maintenance of regulatory control was assessed after 3 days and in the absence of feedback. Training-induced changes in functional connectivity of the target pathway and anxiety ratings served as primary outcomes.

Results showed that training of the target, yet not the sham control, pathway significantly increased amygdala-vlPFC connectivity and decreased levels of anxiety. Stronger connectivity increases were significantly associated with higher anxiety reduction on the group level. At the follow-up, volitional control over the target pathway was maintained in the absence of feedback.

According to the authors, this study demonstrates for the first time that successful self-regulation of amygdala-prefrontal top-down regulatory circuits may represent a novel intervention to control [anxiety](#). As such, these findings underscore both the critical contribution of amygdala-prefrontal circuits to emotion regulation and the therapeutic potential of connectivity-informed real-time.

More information: Zhiying Zhao et al. Real-Time Functional Connectivity-Informed Neurofeedback of Amygdala-Frontal Pathways Reduces Anxiety, *Psychotherapy and Psychosomatics* (2019). [DOI: 10.1159/000496057](https://doi.org/10.1159/000496057)

Provided by Journal of Psychotherapy and Psychosomatics

Citation: Neurofeedback may reduce anxiety (2019, March 21) retrieved 23 June 2024 from <https://medicalxpress.com/news/2019-03-neurofeedback-anxiety.html>

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