Changes in Neuronal Processing of Food Cues by Attention Modification in Binge Eating Disorder
(project no. 70-16)

Authors

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Aim

This project will test whether an attention bias modification training (AMT) can modify altered neural processing of food cues in binge eating disorder (BED).

Background

Previous research has shown that the AMT is an intervention able to reduce food-related attentional biases and food craving/consumption in BED. However, it is yet to be studied whether (a) an AMT is able to modify food-related altered brain activities, and (b) whether a modification of relevant brain circuits will lead to an improvement of craving and binge eating in binge-typical situations in BED. These will be the aims of our research proposal. It is hypothesized that (a) when confronted with high-caloric food stimuli, individuals with BED are characterized by an increased activity in reward-related brain areas, including the orbitofrontal cortex (OFC), as well as a decreased activity in prefrontal control regions (dorsolateral prefrontal cortex [DLPFC]; inferior frontal gyrus [IFG]). It is further hypothesized that (b) these alterations can be modified by the AMT. Finally, it is assumed that (c) the modification of the dysfunctional food-image-processing and cognitive control brain circuits is correlated with the reduction of eating pathology as assessed by eaten calories in a bogus taste test and eating-related pathology as assessed by an expert interview.

Method

In order to test the hypotheses, we will rely on an established paradigm implemented both prior to and after the AMT (an AMT control condition, respectively). Measurements of brain activation will be conducted using functional near-infrared spectroscopy (fNIRS), an optical imaging technique that allows for a BOLD-based assessment of activation patterns in cortical areas.

Execution

May 2017 - May 2020