

The brain changes after behavioral exposure are lasting

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In the current issue of *Psychotherapy and Psychosomatics* the brain changes following behavioral exposure have been examined at an unusually long follow-up. Even the most effective psychological treatments, such as cognitive behavioral therapy, show high percentages of relapse in the long term.

Predicting the persistence of therapy effects remains a major unanswered question, which is complicated by psychiatric comorbidity and by limited insight into the effectiveness of different therapy components applied during [cognitive behavioral therapy](#). Neuroimaging offers the possibility of objective measures for predicting long-term therapy success and to elucidate its mechanisms. Authors have linked behavioral and neural changes following exposure therapy for specific phobia with behavioral measures at 8-year follow-up, to investigate which outcome measures of short-term therapeutic assessment are associated with long-term persistence of therapeutic response. Sixteen right-handed, unmedicated female spider phobic subjects received one prolonged (3-5 h) session of group-based exposure therapy. Behavioral change was examined with repeated measures analyses of variance.

Short-term behavioral changes (T1-T0) were correlated with long-term outcome (SPQ). For the fMRI analyses in SPM8, individual contrast images for spider > neutral, followed by statistical images of therapy-related change (T1-T0) were created. A second-level regression analysis was used to evaluate baseline and changes (T1-T0) in neural activation associated with follow-up SPQ scores. A familywise error rate small-

volume correction was applied for a priori regions of interest: left amygdala, [anterior cingulate cortex](#), and left insula, as these regions showed therapy-induced changes.

Additionally, an exploratory whole-brain second-level analysis was conducted. Results showed that although SPQ scores at follow-up were still lower than T0 ratings, indicating that the therapy effect was partially maintained over 8 years. Similarly, a lower SPQ score at follow-up was associated with more attenuation in the BOLD response from pre- to posttherapy in the left anterior insula. The present findings point to the usefulness of assessing fear levels in the evaluation of the therapy effect when not measured immediately after therapy, but after allowing time for consolidation of learning. They also warrant a focus on the insula/lateral orbitofrontal cortex in future studies into the neural effects of psychological [therapy](#).

More information: Iris Lange et al. Brain and Behavior Changes following Exposure Therapy Predict Outcome at 8-Year Follow-Up, *Psychotherapy and Psychosomatics* (2016). [DOI: 10.1159/000442292](https://doi.org/10.1159/000442292)

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