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Brain activation to threat-related stimuli

Phobic subjects show hypersensitivity to threat-related stimuli. The functional neuroanatomy that is associated with abnormal information processing and fear symptoms in phobics was investigated in several experiments by means of functional magnetic resonance imaging. The results of these experiments propose a critical role of the amygdala during rapid, but not sustained, processing of phobia-related stimuli. While the amygdala seems to be relevant for the automatic detection of threat, activation of areas such as the insula and anterior cingulate cortex (ACC) requires sufficient attentional resources. These areas might be associated with the detailed evaluation of danger and with subjective emotional experiences. A functional relevance of the insula and ACC for phobic symptoms is supported by the observation that successful cognitive-behavioral therapy strongly reduces hyperactivity within these brain regions. The talk describes and discusses these and other findings within the context of the distinction between automatic and controlled modi of threat processing.