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Two different faces of threat. Comparing the neural systems for recognizing fear and anger in dynamic body expressions.

Pichon S, de Gelder B, Grèzes J.

Author information

Abstract

Being exposed to fear or anger signals makes us feel threatened and prompts us to prepare an adaptive response. Yet, while fear and anger behaviors are both threat signals, what counts as an adaptive response is often quite different. In contrast with fear, anger is often displayed with the aim of altering the behavior of the agent to which it is addressed. To identify brain responses that are common or specific to the perception of these two types of threat signals, we used functional magnetic resonance imaging and asked subjects to recognize dynamic actions expressing fear, anger and neutral behaviors. As compared with neutral actions, the perception of fear and anger behaviors elicited comparable activity increases in the left amygdala and temporal cortices as well as in the ventrolateral and the dorsomedial prefrontal cortex. Whereas the perception of fear elicited specific activity in the right temporoparietal junction, the perception of anger triggered condition-specific activity in a wider set of regions comprising the anterior temporal lobe, the premotor cortex and the ventromedial prefrontal cortex, consistent with the hypothesis that coping with threat from exposure to anger requires additional contextual information and behavioral adjustments.

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