

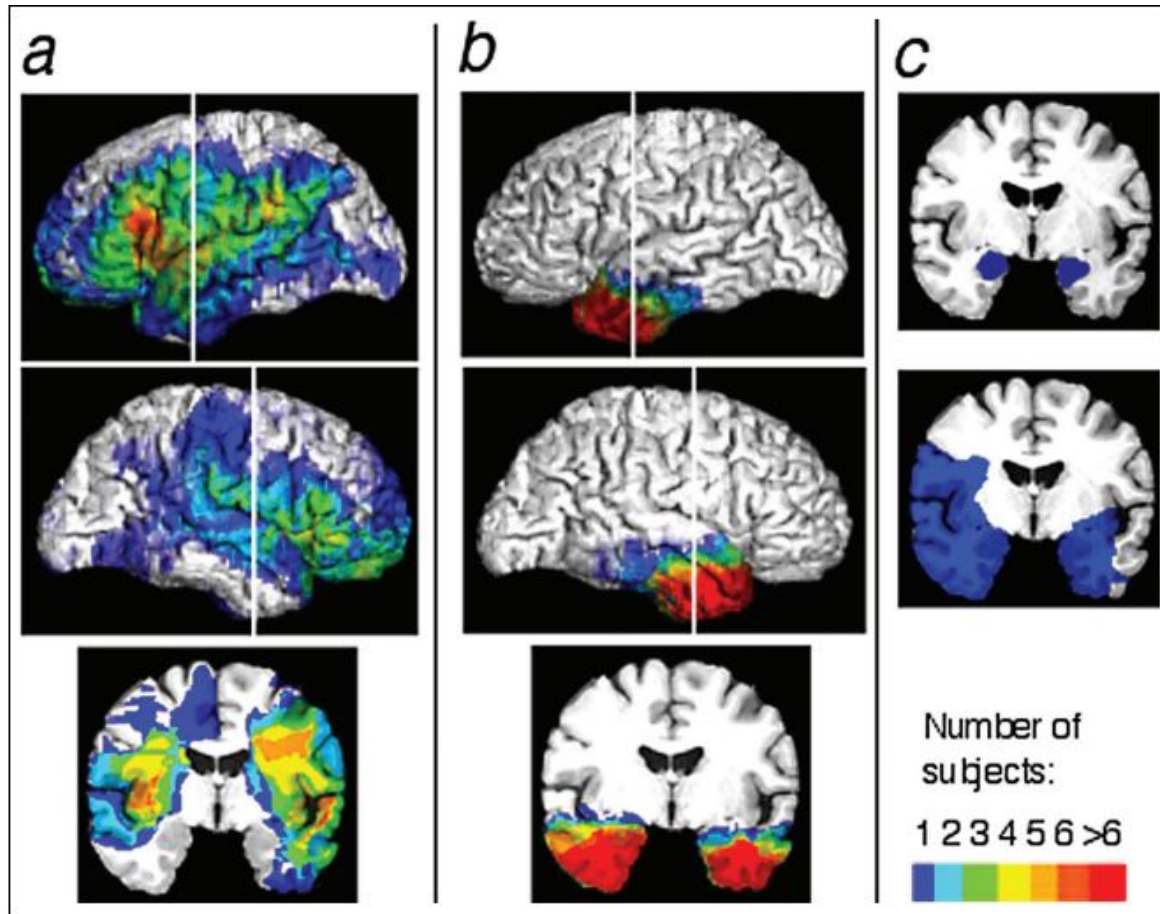
# Impaired Recognition of Social Emotions following Amygdala Damage

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# Introduction

- Past studies... amygdala plays an important role in processing social information from the face, as well as judging complex social interactions.
- Hypothesis: the amygdala is necessary to recognize social emotions from the face. So, it predicts that damage to the amygdala will impair performance on tasks that assess the ability to recognize facial expressions showing social emotions.

# Method



# Method

- Background neuropsychological data were derived from verbal and performance IQ test, The Benton Facial Recognition Task, Speech and Language Functioning, and Depression.
- Stimuli: 20 different facial expressions
  - 1) basic emotions(e.g., fear, anger, surprise, sadness)
  - 2) complex mental states(e.g., guilty, admiring, bored)
  - 3) social emotions

# Method

- All data were scored in relation to the relative frequencies of occurrence of responses given by normal control.  
  
→ High scores correspond to relatively better performance, low scores to relatively worse performance

# Results

<i>Expression Category</i>	<i>Controls</i>		<i>Amygdala</i>		<i>S. M.</i>	<i>R. H.</i>
	<i>Normal</i>	<i>Brain-Damaged</i>	<i>Left</i>	<i>Right</i>		
<i>Eyes</i>						
Basic	0.02	0.12	0.13	0.2	0.03	0.08
Social	0.11	0.12	0.25	0.23	0.25	0.29
Other	0.09	0.18	0.09	0.13	−0.1	0.22
All	0.07	0.14	0.16	0.19	0.06	0.2
<i>Face</i>						
Basic	0.13	0.19	0.27	0.24	0.22	0.09
Social	0.10	0.18	0.29	0.25	0.51	0.56
Other	0.02	0.03	0.11	0.00	−0.12	0.00
All	0.09	0.14	0.23	0.17	0.17	0.16

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*t* tests showed that in both cases the difference between controls and amygdala subjects was not significant when comparing performances involving basic emotions but was highly significant when involving complex mental states. Moreover, this specific pattern of impairment is evident when subjects perceive only the eye region of the face.

# Results

- amygdala damage impairs recognition of complex mental states more than it impairs recognition of basic emotions, on average. The above impairment in recognizing complex mental states was evident both when subjects were shown whole faces and when they were shown the eye region of the face.
- A further analysis showed that amygdala damage impairs recognition of social emotions, again both from the whole face and from the eyes.