Attentional Bias Training, Antidepressant Drugs and their Combination

Can the Neurocognitive Effects of the Treatments for Anxiety be Used to Guide the Development of Novel Combination Regimes?

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Conflicts of Interest

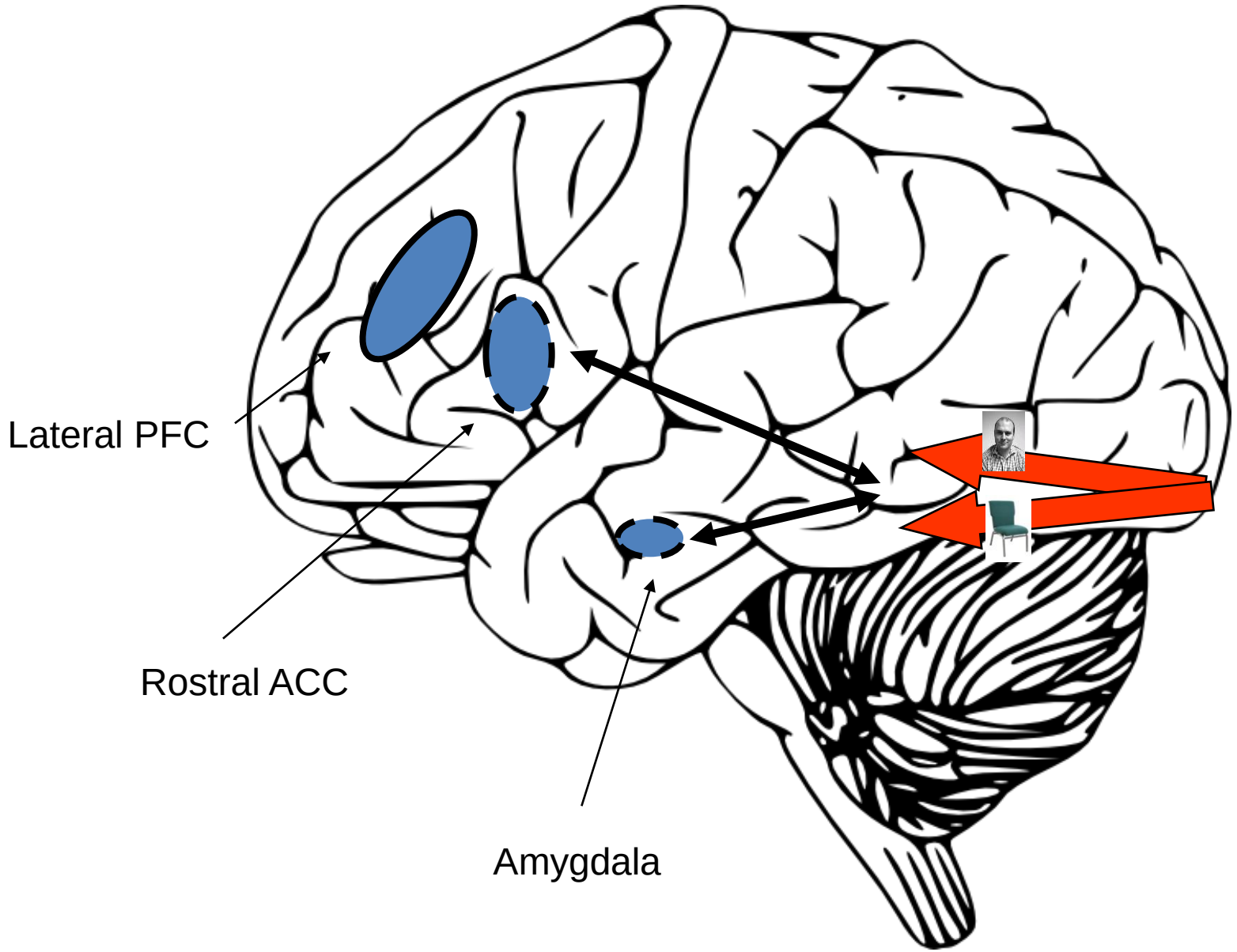
- No conflicts of interest to report

Cognition in anxiety

- Anxious patients tend to attend to and interpret environmental information in a negative manner

- These “negative cognitive biases” are believed to by *causally* related to anxious symptoms

Mathews & MacLeod 2005



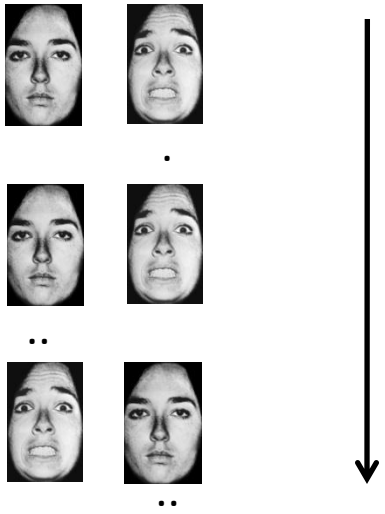
Vuilleumier 2006
Bishop 2007

Measuring affective processing bias

X

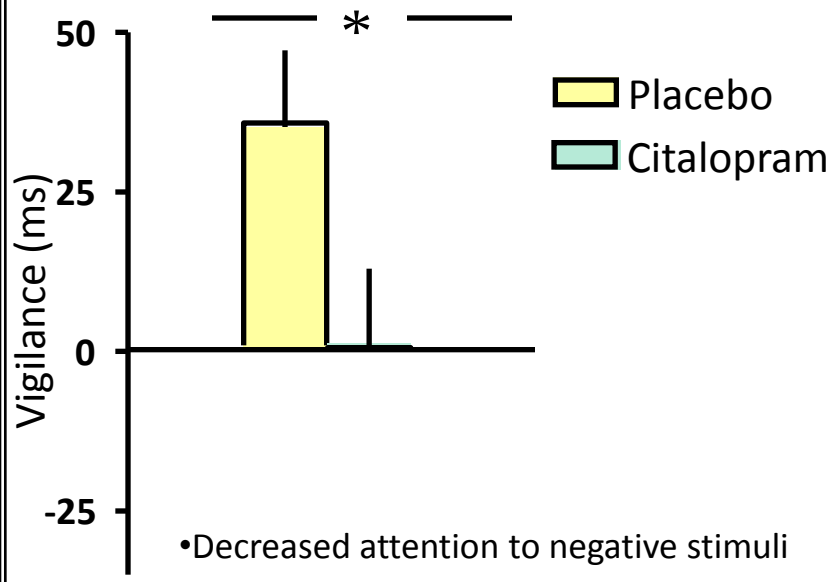
Antidepressant Medication–Behavioural Effects

Attention to emotional stimuli



• Are one or two dots presented?

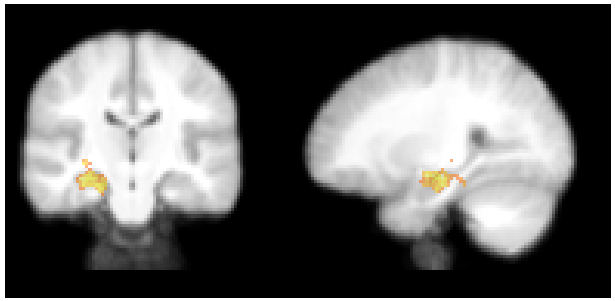
Anti-depressant effect



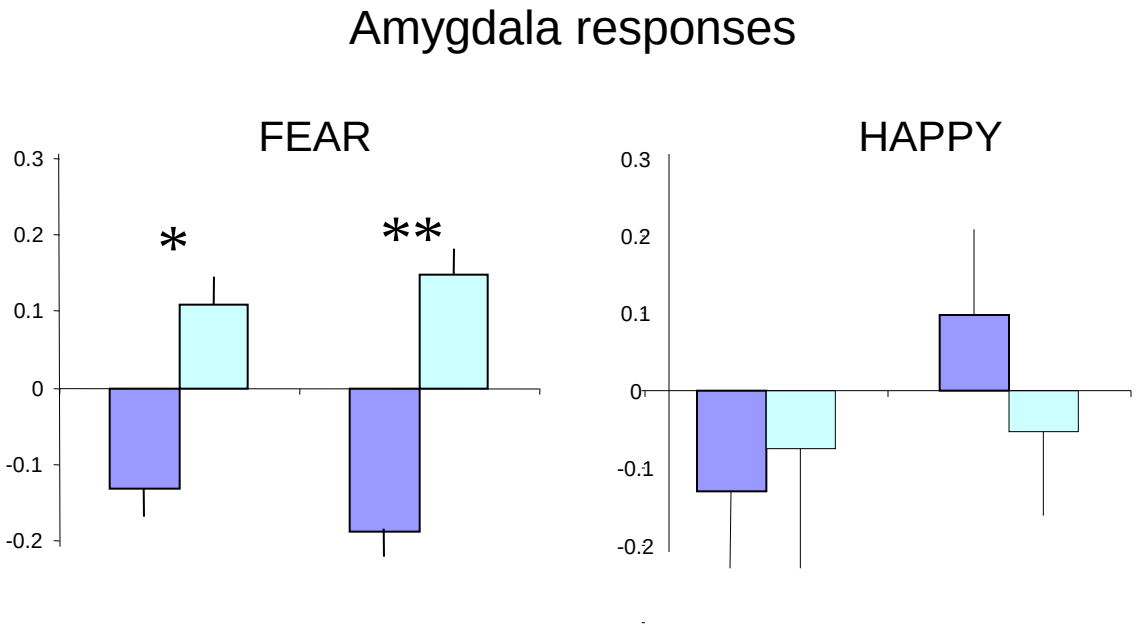
•Decreased attention to negative stimuli

Murphy et al . 2009

Antidepressant Medication–Neural Effects



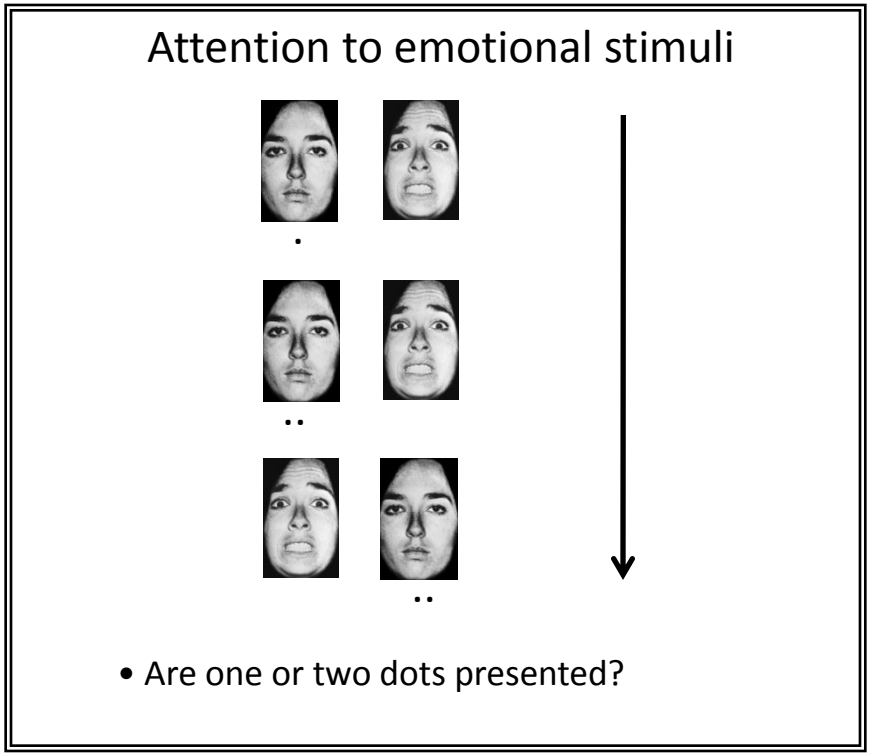
Placebo
Citalopram



- Citalopram reduced amygdala responses to fearful but not happy facial expressions

Harmer et al. 2006
Murphy et al. 2009
Fu et al. 2004

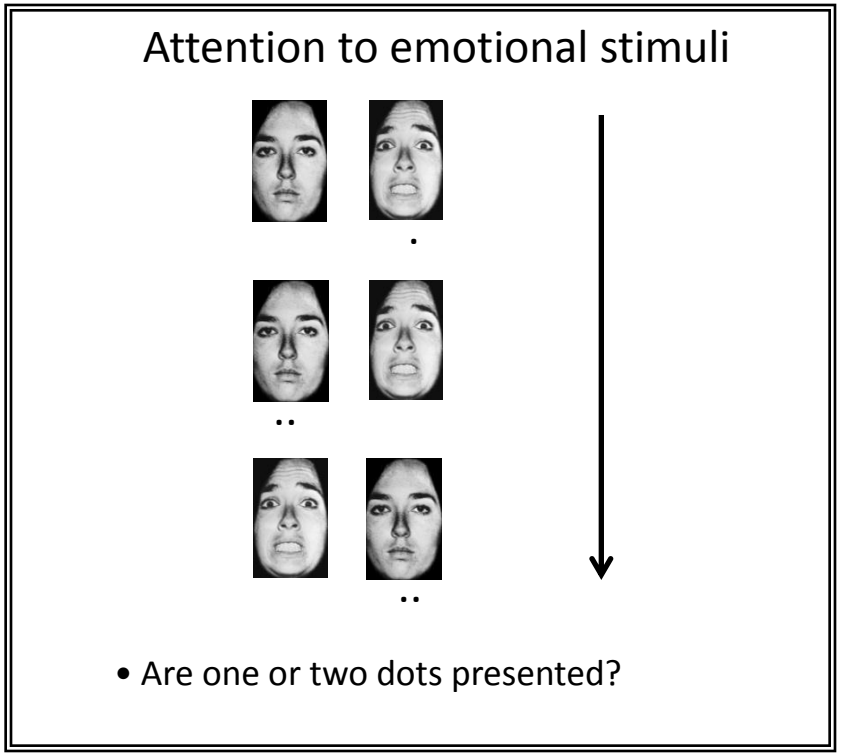
Cognitive Bias Modification

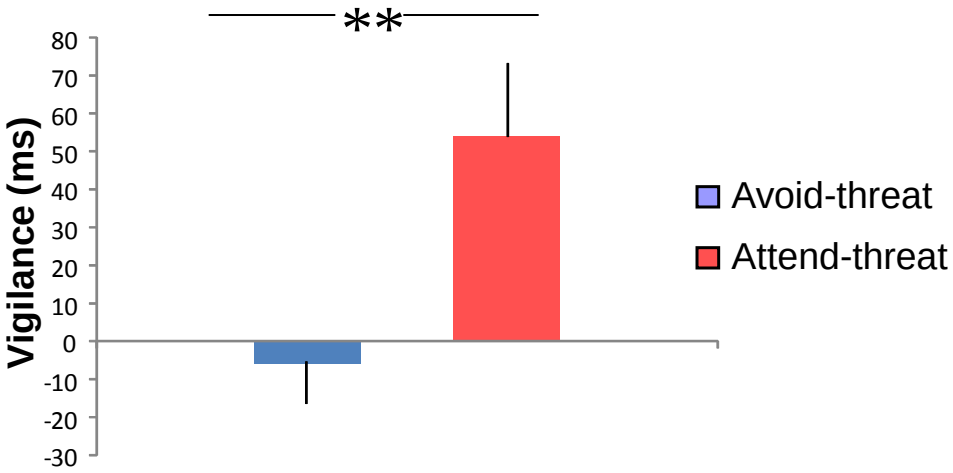


- Learn a different cognitive bias

MacLeod et al. 2002

CBM– Behavioural Effects

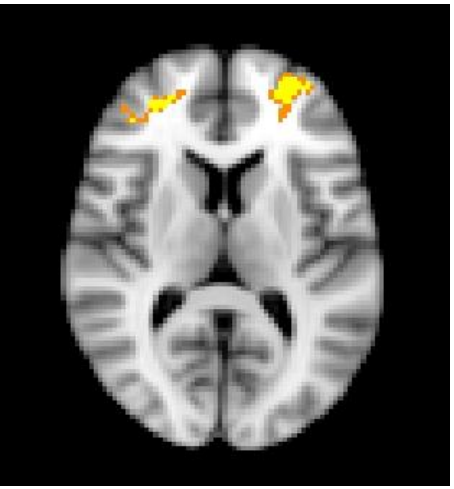


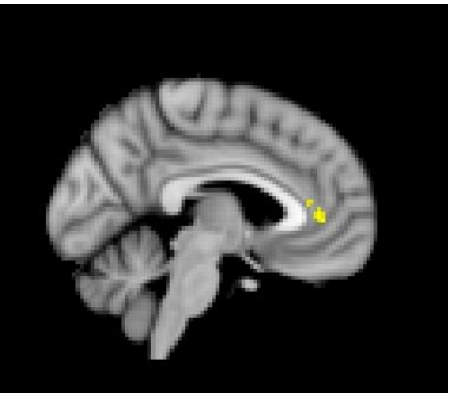


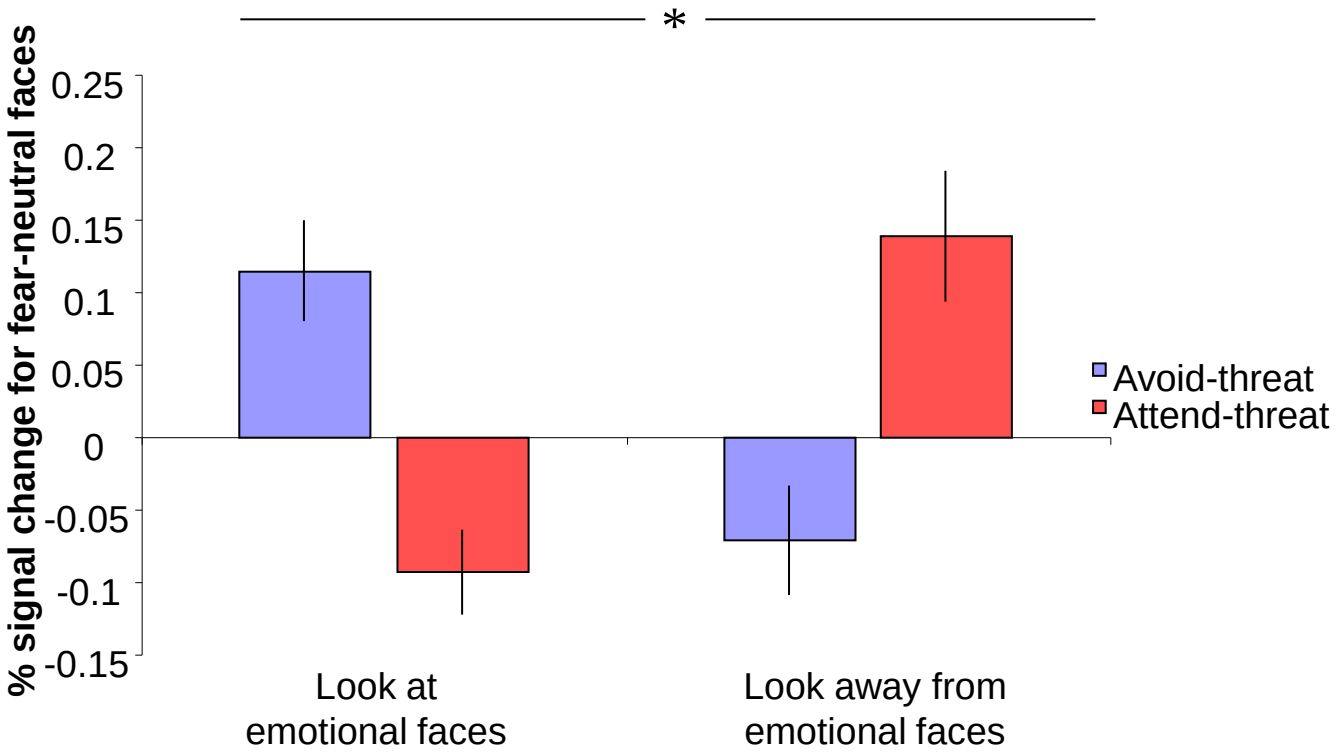
•CBM does what it says on the tin

Browning et al. 2010

CBM– Neural Effects







•Following CBM prefrontal control systems react to violations of the training rule

Browning et al. 2010

Question

- The effects of antidepressant medication and CBM appear to be mediated by different neural systems

- What happens when the two interventions are combined?

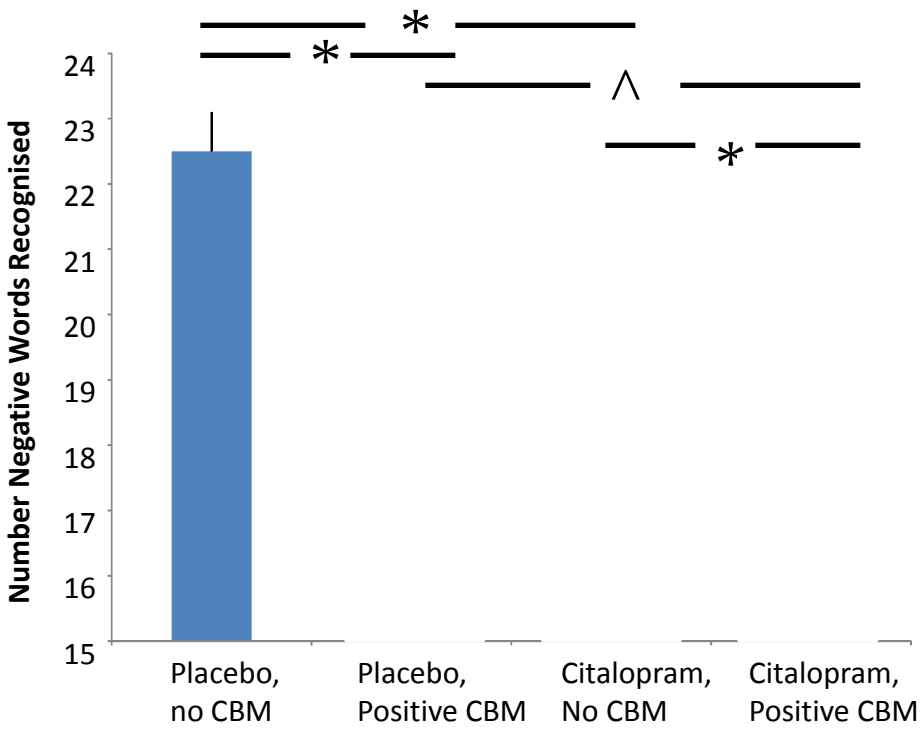
Testing Treatment Interaction

- 62 non-clinical volunteers
- Cognitive bias (memory, categorisation) measured after one week of treatment

	Citalopram	Placebo
Positive CBM	16	15
Neutral CBM	15	16

Browning et al. 2012

Interaction Between Antidepressants and CBM



Combining antidepressants and CBM produces interference on emotional memory (and categorisation)

Browning et al. 2012

Summary

- Cognitive biases can be altered in the laboratory using antidepressant drugs and CBM
- The effects of the interventions appear to be mediated by different neural systems
- When combined they produce an interference effect on measures of cognitive bias

Outstanding Questions

- Can these cognitive effects account for the mixed clinical picture when CBT and antidepressants are combined?
- What drug would enhance the effect of CBM?
- What psychological intervention would enhance the effect of antidepressant drugs?

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