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# Coping behavior causes asymmetric changes in neuronal activation in the prefrontal cortex and amygdala.

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### Abstract

When faced with an inescapable stressor, animals may engage in 'coping' behaviors, such as chewing inedible objects, that attenuate some physiological responses to the stressor. Previous evidence indicates that dopamine neurotransmission in the right prefrontal cortex is modulated by coping processes. Here we tested whether medial prefrontal cortical (mPFC) neuronal activation, as measured by Fos-immunoreactivity (Fos-ir), was altered in rats chewing inedible objects during exposure to novelty stress. We found that chewing caused an increase in Fos-ir that was selective for the right hemisphere of the mPFC along with a decrease in Fos-ir that was selective for the right central nucleus of the amygdala (CeA), a region that may regulate dopamine neurotransmission in mPFC. These observations suggest that coping during stress engages mPFC and CeA neuronal activity asymmetrically.

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