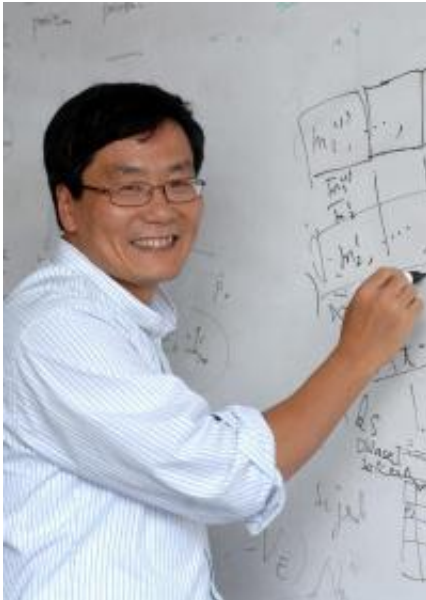


MRI study finds that depression uncouples brain's hate circuit

October 4 2011



This is Professor Jianfeng Feng. Credit: University of Warwick

A new study using MRI scans, led by Professor Jianfeng Feng, from the University of Warwick's Department of Computer Science, has found that depression frequently seems to uncouple the brain's "Hate Circuit". The study entitled "Depression Uncouples Brain Hate Circuit" is published today in the journal *Molecular Psychiatry*.

The researchers used [MRI scanners](#) to scan the [brain activity](#) in 39 depressed people (23 female 16 male) and 37 control subjects who were

not depressed (14 female 23 male). The researchers found the fMRI scans revealed significant differences in the [brain circuitry](#) of the two groups. The greatest difference observed in the [depressed patients](#) was the uncoupling of the so-called "hate circuit" involving the superior frontal gyrus, insula and putamen. Other major changes occurred in circuits related to risk and action responses, reward and emotion, attention and memory processing.

The hate circuit was first clearly identified in 2008 by UCL Professor Semir Zeki who found that a circuit which seemed to connect three regions in the brain (the superior frontal gyrus, insula and putamen) when test subjects were shown pictures of people they hated.

The new University of Warwick led research found that in significant numbers of the depressed test subjects they examined by [fMRI](#) that this hate circuit had become decoupled. Those depressed people also seemed to have experienced other significant disruptions to [brain circuits](#) associated with; risk and action, reward and emotion, and attention and memory processing. The researchers found that in the depressed subjects:

- The Hate circuits were 92% per cent likely to be decoupled
- The Risk/Action circuit was 92% likely to be decoupled
- The Emotion/Reward circuit was 82% likely to be decoupled

Professor Jianfeng Feng, from the University of Warwick's Department of Computer studies said that:

"The results are clear but at first sight are puzzling as we know that depression is often characterized by intense self loathing and there is no obvious indication that depressives are less prone to hate others. One possibility is that the uncoupling of this hate circuit could be associated

with impaired ability to control and learn from social or other situations which provoke feelings of hate towards self or others. This in turn could lead to an inability to deal appropriately with feelings of hate and an increased likelihood of both uncontrolled self-loathing and withdrawal from social interactions. It may be that this is a neurological indication that is more normal to have occasion to hate others rather than hate ourselves."

More information: A draft of the paper can be seen at:
www.dcs.warwick.ac.uk/~feng/papers/mp_11_jf.pdf

Provided by University of Warwick

Citation: MRI study finds that depression uncouples brain's hate circuit (2011, October 4)
retrieved 4 May 2024 from
<https://medicalxpress.com/news/2011-10-mri-depression-uncouples-brain-circuit.html>

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