

Depression Causes Malfunctions in Brain's Pleasure Center

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Clinically depressed individuals are less capable of finding pleasure in activities they previously enjoyed, a recent study has proven. Research featured in the August 26 issue of the *NeuroReport* shows reduced brain function in the reward center of the brain in depressed individuals, when compared to healthy subjects.

The study was conducted by Dr. Elizabeth Osuch, a researcher at the Lawson Health Research Institute, and is the first scientific publication of data obtained by the newly developed First Episode Mood & Anxiety Program (FEMAP) research arm at the London Health Sciences Centre in Ontario, Canada.

To investigate the effects of [depression](#) on [brain](#) activity, Dr. Osuch and her team asked 15 healthy subjects and 16 recently depressed subjects to provide a list of their favourite music as well as identify music that they neither liked nor disliked (neutral music). The subjects then listened to their musical selections for three minutes while a functional magnetic resonance imaging (fMRI) scanner measured the neural activity in their brain.

The researchers found that the healthy subjects showed more brain activity in specific regions when they listened to their favourite music compared to the depressed subjects. More specifically, several regions of the brain that are associated with reward processing were shown to be less activated in the depressed individuals, suggesting that even the most basic capacity of enjoyment seems to be malfunctioning in this area of

the brain in those who have depression. This was true in spite of no difference in how enjoyable the two groups rated listening to the music in the scanner.

"Our results revealed significant responses within the areas of the brain that are associated with reward processing in healthy individuals. They also showed significant deficits in these neurophysiological responses in recently depressed subjects compared to the healthy subjects," explains Dr. Osuch. "It is known that depressed individuals experience anhedonia—a loss of enjoyment in previously pleasurable activities. The study results show that for recently depressed individuals this loss of enjoyment is linked to very specific parts of the brain which are involved with experiencing pleasure. If we can target these areas of the brain through treatment, we have the potential to treat depression earlier, right at the source."

More information: Osuch, Elizabeth A; Bluhm, Robyn L; et al. Brain activation to favorite music in healthy controls and depressed patients. *NeuroReport*: 26 August 2009 - Volume 20 - Issue 13.

Provided by Wolters Kluwer Health

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