

Spring 2014 colloquium

the department of psychology presents...

“Chronic stress and fear conditioning: Implications for PTSD”



Ann Hoffman, Ph.D.

Department of Psychology
University of California, Los Angeles

Abstract

The stress response promotes adaptation and survival. However, repeated activation of the stress response has the potential to alter cognition, emotion, and motivation - key functions of the brain's limbic system. Limbic structures, such as the amygdala, are of special interest because of their ability to quickly react with structural changes. Indeed, it has been suggested that structural changes within the limbic system contribute to the susceptibility to develop post-traumatic stress disorder (PTSD). To test this hypothesis, we used a chronic stress procedure in a rat model to create a vulnerable brain that leads to a PTSD-like phenotype following Pavlovian fear conditioning. We showed that chronic stress enhanced amygdala functional activation during fear memory retrieval (i.e., reactivation). Moreover, these enhanced fear memories were resistant to protein synthesis interference to disrupt a previously formed memory, referred to as reconsolidation. The latter is a novel attempt to weaken chronic stress enhanced traumatic memory, which has been proposed as a novel therapeutic avenue for PTSD. These studies provide implications for understanding the neurobiology of and potential novel treatments for PTSD, with chronic stress being an environmental risk factor for the development of PTSD.

02.12.14 Wednesday 3:30-4:30 pm PSY154