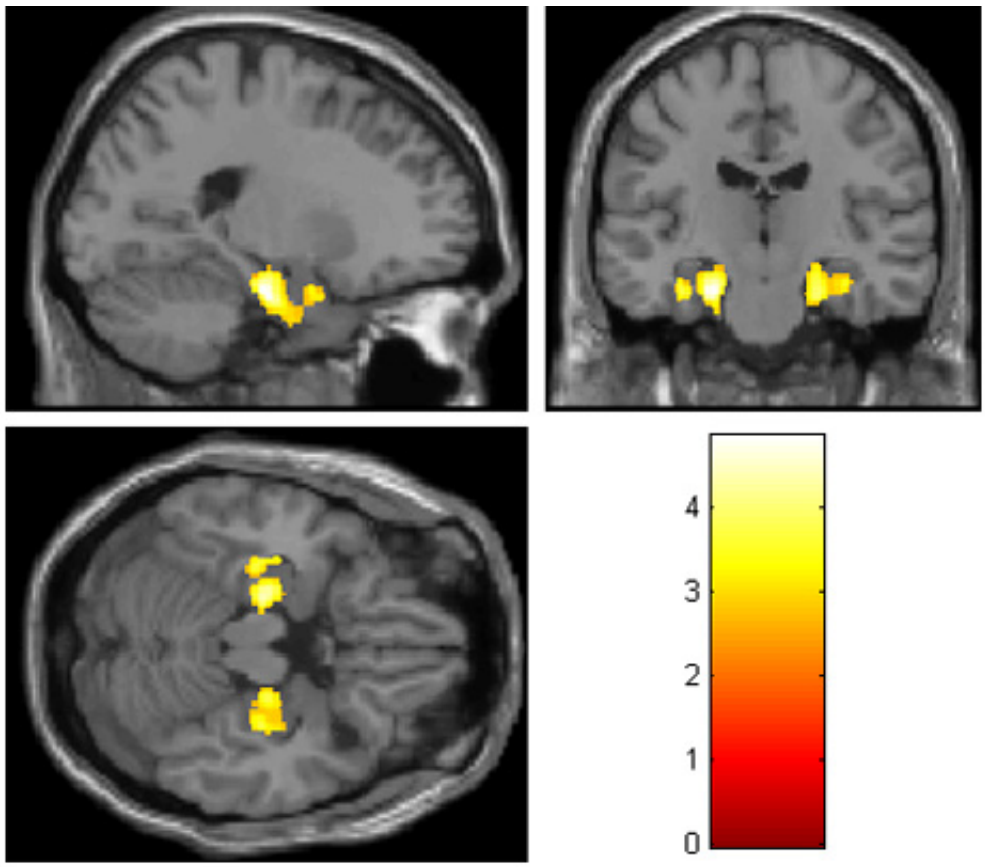
Brain retains signs of childhood trauma—and a warning for substance abusers

June 12 2014, by Bill Hathaway



Brains of people mistreated in childhood have less brain volume in areas of the hippocampal complex shaded in yellow. These areas of the brain associated with emotion and memory processing may also put substance abusers at greater risk of relapse, a new Yale study shows.

(Medical Xpress)—People abused as children show reduced brain volume in regions governing emotion, learning, and memory, deficits that make them more vulnerable to relapse—and relapses of greater severity—if they become substance abusers, a new study by Yale School of Medicine researchers shows.

The study, published online June 11 in the journal *JAMA Psychiatry*, identifies potential biological markers that can identify addicts at high risk of relapse.

"We can begin to think about ways to address the underlying pathology in substance abuse and explore use of exercise and some medications to stimulate new growth and connections in brain cells in these specific brain regions to help restore trauma-related brain atrophy," said Rajita Sinha, the Foundations Fund Professor of Psychiatry, director of the Yale Stress Center, and senior author of the study.

The Yale team studied 175 patients being treated for substance abuse and healthy controls, and conducted a brain scan on the participants. Members of both groups included individuals who had reported being abused as children. Those who had been abused showed reduction in brain-cell volume in the hippocampal complex, areas of the brain involved in emotion and memory processing and in regulating learning. Substance abusers with lower brain volumes specifically in these trauma-affected areas showed greater severity of addiction relapse than those with higher volume in these regions and those with low trauma histories.

"As childhood trauma is highly common in substance abuse, addressing these trauma-related structural brain changes can help us develop better treatment plans to promote successful recovery from addiction," Sinha said.