

Are teenagers wired differently than adults?

November 17 2009

Parents have long suspected that the brains of their teenagers function differently than those of adults. With the advent of magnetic resonance imaging, or MRI, we have begun to appreciate how the brain continues to develop structurally through adolescence and on into adulthood. High emotionality is a characteristic of adolescents and researchers are trying to understand how 'emotional areas' of the brain differ between adults and adolescents.

Scientists from the National Institute of [Mental Health](#), publishing in the November 15th issue of Elsevier's *Biological Psychiatry*, have helped to advance our understanding. They studied the amygdala, the major emotional center in the brain, which undergoes structural reorganization during adolescence. To do so, they examined emotional learning in both juvenile and adult mice.

"Our work on the amygdala revealed that the neuronal pathways that carry sensory information to the amygdala directly, bypassing cortex, are more plastic in the juvenile than in adult mice," explained senior author Alexei Morozov, PhD.

John Krystal, MD, the Editor of *Biological Psychiatry*, further commented on this work: "Pan and colleagues elegantly describe one developmental 'switch' in the regulation of the amygdala. This switch may be one way that the cortex emerges during development as having a greater role in regulating the amygdala and thus, [emotional behavior](#)."

Dr. Morozov concluded that "this finding suggests that emotional

behaviors in adolescence are less precise and more irrational because they are driven more by subcortical than by cortical structures."

More information: The article is "Divergence Between Thalamic and Cortical Inputs to Lateral Amygdala During Juvenile-Adult Transition in Mice" by Bing-Xing Pan, Wataru Ito, and Alexei Morozov. The authors are affiliated with the Unit on Behavioral Genetics, Laboratory of Molecular Pathophysiology, National Institute of Mental Health, National Institutes of Health, Bethesda, Maryland. The article appears in [Biological Psychiatry](#), Volume 66, Issue 10 (November 15, 2009), published by Elsevier.

Source: Elsevier

Citation: Are teenagers wired differently than adults? (2009, November 17) retrieved 5 May 2024 from <https://medicalxpress.com/news/2009-11-teenagers-wired-differently-adults.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--