

# Adolescent brain development impacts mental health, substance use

November 6 2018

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Advances in understanding adolescent brain development may aid future treatments of mental illness and alcohol and substance use disorders. The findings were presented at Neuroscience 2018, the annual meeting of the Society for Neuroscience and the world's largest source of emerging news about brain science and health.

Adolescence is a developmental period characterized by outsized risk-taking and reward-seeking behavior, including first [alcohol](#) and drug exposures, as well as the first emergence of symptoms such as depression and anxiety. And yet, much of the research on brain functions related to these conditions is performed on adults. As we gain a better understanding of adolescence-specific neurological causes of these conditions and behaviors, we increase the potential for early treatments and for interventions even before serious symptoms emerge.

Today's new findings show that:

- A variant in an opioid receptor gene in the brain reduces the natural reward response in young adolescents before they have started using alcohol or other substances, indicating carriers of this genetic variant may be more susceptible to addiction (John W. VanMeter, abstract 281.06).
- Childhood trauma impacts the development of critical brain networks during adolescence, elevating the risk for [alcohol abuse](#) (Sarita Silveira, Ph.D., abstract 645.04).
- The strength of connections between the brain's reward and anti-

reward systems corresponds to the severity of several important psychiatric symptoms in adolescents, including anxiety and depression (Benjamin Ely, abstract 320.11).

"The neuroscience advances presented today help expand our understanding of the connections between [adolescent brain](#) development and mental health issues, including alcohol and substance use," said press conference moderator Jay Giedd, MD, of the University of California, San Diego, who conducts research on the biological basis of cognition, emotion, and behavior with an emphasis on the teen years. "These advances provide potential new methods to identify young people who have biological susceptibility to addiction and mental illnesses, so we can implement intervention strategies even before problems emerge."

**More information:** Related Neuroscience 2018 Presentation Featured Lecture: When Is an Adolescent an Adult?: Implications for Justice Policy Monday, Nov. 5, 10-11 a.m., SDCC Ballroom 20

Provided by Society for Neuroscience

Citation: Adolescent brain development impacts mental health, substance use (2018, November 6) retrieved 7 May 2024 from

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