Alcohol, marijuana, tobacco and other drugs are widely used by America’s youth. This use of substances poses short and long-term health and safety risks, including to the developing brain.

To further our knowledge of how substance use affects the development of the adolescent brain, the National Institutes of Health (NIH) is planning an historic and ambitious scientific initiative, the ABCD study. Lessons learned from this project will guide future tobacco, alcohol and drug prevention and treatment efforts.

What is the Adolescent Brain Cognitive Development (ABCD) Study?

The ABCD Study is a national longitudinal study that will assess the short- and long-term impact of adolescent substance use on brain development. Unique in its scope and duration, the project will recruit 10,000 youths before they begin using alcohol, marijuana, tobacco and other drugs, and follow them over 10 years into early adulthood. It will use advanced brain imaging as well as psychological and behavioral research tools to evaluate brain structure and function. The study will track substance use, academic achievement, IQ, cognitive skills and mental health over time.

Why Do We Need It?

The size and complexity of the ABCD study will allow scientists to address key questions:

- What is the impact of the occasional versus regular use of marijuana, alcohol, tobacco and other substances on the developing brain? What are the effects of multiple substances in combination?
- What are the brain pathways that link adolescent substance use and pre-existing or emerging mental illnesses?
- What impact do these substances have on information processing, academic achievement, motivation, social development, and other behaviors?

Why Now?

- Evidence from animal and human studies suggests that substance use affects the developing brain.
- Advances in neuroimaging allow us to study the brain in greater detail.
- Adolescent perceptions about alcohol and drug use in this country are changing.
- Adolescents today are drinking more alcohol when they binge, and have access to higher potency marijuana and greater varieties of nicotine delivery devices than previous generations.
- Changes in state and local policies, particularly with respect to marijuana, have health implications.

Who is Involved?

The study will be led by the Collaborative Research on Addiction at NIH (CRAN) – National Institute on Alcohol Abuse and Alcoholism (NIAAA), National Institute on Drug Abuse (NIDA), and the National Cancer Institute (NCI) – in collaboration with the National Institute of Child Health and Human Development (NICHD).