

UC San Diego

UC San Diego News Center

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Sandra Brown. Photo by Erik Jepsen/UC San Diego Publications

UC San Diego's Brown Briefs Congress on Brain Development, Substance Use in Young

Organized by APA, Congressional Briefing Draws Large Crowd

Sandra A. Brown, vice chancellor for research at UC San Diego, was a featured speaker at an October Congressional Briefing in Washington, D.C., where she shared important findings on adolescent neurodevelopment with other scientists and national leaders.

Brown, distinguished professor of psychology and psychiatry, and the director of the National Consortium on Alcohol and Neurodevelopment in Adolescence study, demonstrated long-term cognitive impairments sustained by teens who abuse alcohol, whether by itself or in combination with other drugs.

Generally, she told those attending the Congressional briefing, that while adolescent substance-users perform worse on a variety of cognitive-function tests, those who abstain can return to normal cognitive functioning. By contrast, she said, the brain scans of those who persist in alcohol and other substance use show that early substance-abuse may “re-wire” the brain’s normal learning and memory pathways.

Brown is a nationally recognized scholar and researcher whose work focuses on the effects of alcohol and drug abuse on patients of all ages, with special emphasis on the neurocognitive and psychosocial factors involved in both abuse and recovery.

Brown’s co-speakers were George F. Koob, director of the National Institute on Alcohol Abuse and Alcoholism/NIH; and Nora D. Volkow, director of the National Institute on Drug Abuse/NIH.

The briefing for members of Congress, their staffs, and scientists was organized by the American Psychological Association (APA), and was sponsored jointly by the Friends of the National Institute on Alcohol Abuse and Alcoholism and the Friends of the National Institute on Drug Abuse in cooperation with the Congressional Addiction, Treatment and Recovery Caucus. Thirty other organizations co-sponsored the event.

The briefing focused on the Adolescent Brain Cognitive Development (ABCD) study, an ambitious project that aims to follow 10,000 adolescents across a 10-year span. By enrolling participants at a young age, before they begin to use or abuse substances, the researchers hope to track the impact of substance-use on brain development.

There are still many open questions about how the brain develops, said Brown. Since research has shown that brain development continues into the twenties, it is unclear how substance-use among this age group will affect them later in life. One of the goals of the ABCD study is to shed light on this issue.

Brown’s research in this area has focused largely on understanding how alcohol and drug problems develop during adolescence, the neurocognitive impact of early alcohol and drug use, and how best to treat these problems in the young.

As the director of the NCANDA, Brown provided unique insight into the scientific potential of a large-scale prospective study like the ABCD study. Brown’s data added to a growing body of evidence that suggests adolescent substance-use is more harmful than previously thought, particularly with respect to learning and memory.

For instance, after prolonged abstinence, binge-drinkers can obtain an equal level of performance on tests of memory and visuospatial ability. But it appears their brains are functioning in a different way. The volumes of both white and gray matter are diminished and the structural integrity of white matter

appears to be more diffuse when compared to normal controls. How these conditions will affect them later in life, Brown said, is unknown.

Given evidence of such dramatic morphological and functional effects on the adolescent brain, the importance of answering critical questions about substance use cannot be overstated, said Brown.

“The biotechnology and behavioral technologies are now sufficiently advanced that we can answer questions about the impact of alcohol and drugs on human development – answers that were not possible a decade ago,” Brown said. “Such a comprehensive investigation has implications for improving the education and health care of America’s youth, and the potential to find new ways to prevent drug problems at an early age.”

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