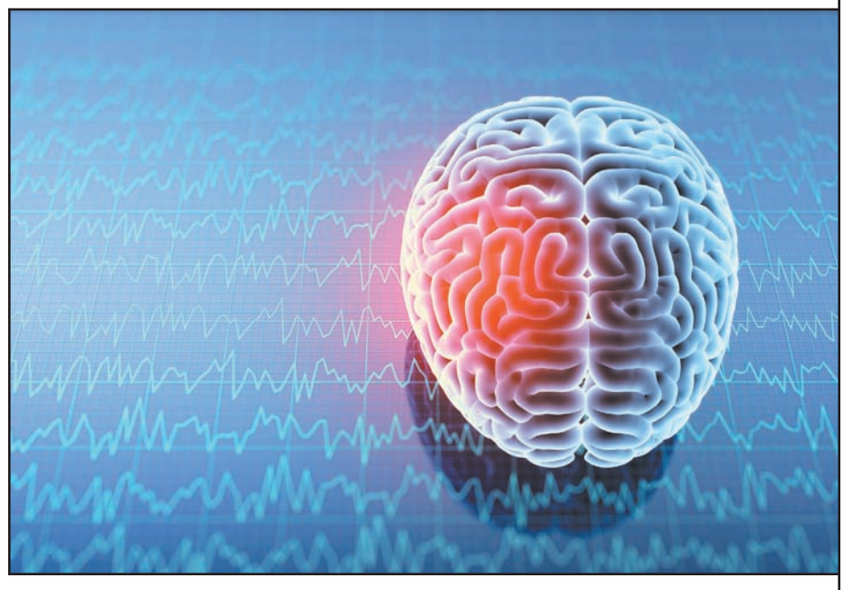
Cannabis and the Adolescent Brain

CANNABIS IS NOT ASSOCIATED WITH STRUCTURAL BRAIN DIFFEREN CES, STUDIES FIND

A new study by Arizona State University is challenging the long-held assumption that cannabis impacts structural brain development in adolescents.

Conducted over a 20-year period, this longitudinal study focused on adolescent use as a predictor for adult brain structure. It followed the cannabis smoking habits of 1,009 boys with behavior problems, recruited from the Pittsburgh Public Schools in the late 1980s. The results were published in the September 2019 issue of Drug and Alcohol Dependence.

Ranging in age from 13 to 19, each boy reported his cannabis use on an annual basis. Then 20 years later, the participants underwent high-resolution MRI brain scans. The study's five authors analyzed the data, and were able categorize four subgroups of adolescent smokers, from infrequent or non-users to chronic daily users.



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Dr. J. Cobb Scott
Department of Psychiatry, University of Pennsylvania

When comparing their adult brain scans between each subgroup, the study found no significant differences in structural development.

The study also reviewed previous case-controlled adolescent studies where brain structure differences had been found. "It was unclear from those studies if brain structure differences among [research subjects] persisted into later adulthood," wrote Dr. Madeline Meier, who led the ASU team. "Our study suggests they might not."

The ASU study reaffirms comparable results produced from a larger 2018 study on cannabis and the adolescent brain. Conducted by the University of Pennsylvania, this comprehensive "meta-analysis" reviewed 69 previous studies and included over 8,600 male and female participants.

The UPenn researchers agreed with previous studies, which found a slight reduction of cognitive function after smoking cannabis. But they concluded that the effect is only temporary, and older studies failed to consider that abstinence after intoxication would significantly reverse this effect. "Abstinence of longer than 72 hours diminishes cognitive deficits associated with cannabis use," wrote the UPenn team.

As with the ASU study, the UPenn researchers found implicit bias in past cannabis studies because they focused on addiction issues rather than the therapeutic benefits of cannabis. Their conclusion was that these "a-priori" studies overstated both "the magnitude and persistence of cognitive effects" with cannabis use.

"Inconsistent with conclusions from previous reviews," wrote UPenn team leader, Dr. J. Cobb Scott, "we found little evidence for more severe effects with cannabis use at earlier ages or specifically in adolescence."

Both the ASU and UPenn studies underscore the need to conduct further long-term research with a more objective approach, free from previously held theories about adolescents and cannabis.