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References

**Hill, M. N. (2014). Clearing the smoke: What do we know about adolescent cannabis use and schizophrenia?. *Journal of Psychiatry & Neuroscience*, *39*(2), 75-77.**

The author of this article, a researcher at the Hotchkiss Brain Institute at the University of Calgary in Canada, reflects on research conducted on the relation of adolescent cannabis use and the occurrence of schizophrenia. This work examines the results of a study conducted in 1987 on cannabis use and its link to schizophrenia development in Swedish army conscripts, the lack of evidence on the development of schizophrenia with cannabis use, and conflicting evidence on self-medication with cannabis use. After reviewing evidence for the association of schizophrenia and cannabis use, the author concludes that those diagnosed with schizophrenia should be informed of the effects and contraindications of cannabis with their condition. This articlegives a clear and unbiased overview of the academic knowledge on the association of schizophrenia and cannabis use and links together conclusions drawn from various studies.

**Hooper, S., Woolley, D., & Bellis, M. (2014). Intellectual, neurocognitive, and academic achievement in abstinent adolescents with cannabis use disorder. *Psychopharmacology,231*(8), 1467-1477.**

The authors, researchers at, the University of North Carolina at Chapel Hill and Duke University, examine neurocognitive measures (IQ, academic achievement, attention, memory, and executive function) in abstinent adolescence with cannabis use disorder (CUD) while controlling for demographics and psychopathology. The authors investigate neurocognitive performance in three groups: adolescents with CUD and in full remission (sample size of 33), controls with psychiatric disorders without substance use history (sample size of 37), and healthy adolescents (sample size of 43). It was concluded that abstinent adolescents with CUD history did not differ from the two comparison groups, suggesting that previously reported neurocognitive deficits may be related to other factors. This study sheds a new light on the link between cannabis use and neurocognitive development in that deficits are not attributed to cannabis exposure while providing a gateway to further research.

**Lubman, D. I., Cheetham, A., &Yücel, M. (2015). Cannabis and adolescent brain development. *Pharmacology & Therapeutics*, *148*, 1-16.**

The authors, researchers at Monash University in Australia, discuss the findings of studies examining the acute and chronic effects of cannabis use on the brain with a particular focus on the impact of beginning use in adolescence. Accumulating evidence from both animal and human studies, the authors suggest that regular heavy use of cannabis has more severe and persistent outcomes in adolescence as compared to adulthood which can be attributed to the disruption of the neuromaturational processes that occur during this period. The authors conclude that synaptic pruning and white matter development are two processes that may be negatively impacted by cannabis use during adolescence and therefore be the underlying cause behind emotional and cognitive deficits associated with cannabis exposure. This review provides a fresh perspective by comparing the acute and chronic cannabis use in adolescence and closely examining the neural processes implicated with cannabis exposure along with providing a basis for future research.

**Malone, D. T., Hill, M. N., &Rubino, T. (2010). Adolescent cannabis use and psychosis: epidemiology and neurodevelopmental models. *British Journal of Pharmacology*, *160*(3), 511-522.**

The authors, researchers at, Monash University in Australia, Rockefeller University in New York, and University of Insubria in Italy, summarize recent research into the endocannabinoid system focusing on the relationships between adolescent exposure to cannabinoids and increased risk for schizophrenia. The article emphasizes possible mechanisms by which adolescent cannabis consumption can increase susceptibility to developing psychoses such as schizophrenia. From the review of the research, the authors conclude that cannabis use is a risk factor for schizophrenia, while cannabis use in individuals with a predisposition for schizophrenia results in an exacerbation of symptoms and worsening of the schizophrenic prognosis. This work provides a detailed summary on the link between cannabis use and psychosis and thoroughly describes possible underlying mechanisms for this relationship along with suggesting further studies to be conducted to enhance our current knowledge.

**Meier, M. H., Caspi, A., Ambler, A., Harrington, H., Houts, R., Keefe, R. S. E., . . . Moffitt, T. E. (2012). Persistent cannabis users show neuropsychological decline from childhood to midlife. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, *109*(40), E2657-E2664.**

The authors, researchers at, Duke University, King’s College London in the United Kingdom, and the University of Otago’s School of Medicine in New Zealand, tested the association between long-term cannabis use and neuropsychological decline through a longitudinal study that followed participants from birth to adulthood and conducted neuropsychological testing between ages 7 and 13 and then again at age 38. The authors concluded that persistent cannabis use was associated with neuropsychological decline and concentrated among more persistent users. This study strengthens previous research conducted on the effects of cannabis on adolescents and serves to advance our current knowledge by ruling out variables that explain the link between neuropsychological decline and persistent cannabis use.

**Realini, N., Rubino, T., &Parolaro, D. (2009). Neurobiological alterations at adult age triggered by adolescent exposure to cannabinoids. *Pharmacological Research*, *60*(2), 132-138.**

The authors, researchers at the University of Insubria in Italy, present the newest experimental data on the long-term behavioral consequences of cannabis treatment in adolescence while focusing on the cellular and molecular basis of the altered behavior. They compare the results of animal studies and human studies along with indicating limitations that arise with such comparisons. After examining previous literature, the authors conclude that cannabinoid treatment in adolescence may induce subtle changes in the adult brain circuits resulting in altered emotional and cognitive performance that can be sex-dependent. This review investigates literature on cannabis-related behavioral consequences through a new lens by focusing on the underlying neural mechanisms and comparing the animal and human models used in studies.