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cannabis that show
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The Fontes, et al. (2011) study investigated the impact of cannabis abuse on brain development prior to and subsequent to attaining the age of fifteen years. The authors referred to several scholars who previously investigated these relationships, and they indicate that most of these studies suggest that puberty is a stage of significant exposure to neurocognitive effects linked to substance abuse. On the other hand, the authors point out that few important studies have endeavoured to measure the disparities in cognitive performance involving chronic addicts of cannabis who began abusing cannabis before attaining the age of fifteen years, with chronic addicts who started after reaching the age of fifteen. Longitudinal, as well as cross-sectional structural brain imaging research have demonstrated that the brain, prior to the reaching fifteen years of age, is under a complicated course of biological development.

The motive of the study by Fontes, et al. (2011) was to probe the executive functioning of persons who began chronic abuse of cannabis before attaining the age of fifteen years, compared with those who started after attaining the age of fifteen years. According to Fontes, et al. (2011), while several studies have established neuropsychological deficits linked to chronic cannabis exposure, there are study outcomes investigating recurrent cognitive impairments linked to chronic cannabis that show contradictory viewpoints. The authors continue to assert that some studies demonstrate that even after practicing abstinence, chronic cannabis addicts may continue to experience considerable neuropsychological deficits. The authors explain that these conflicting findings may be based on the hypothesis that the neurotoxic impact of cannabis differ among populations. In this regard, when

persons of less than fifteen years of age are exposed to substances that are potentially neurotoxic, they become more liable to develop recurrent neuropsychological deficits, in comparison to older persons.

Fontes, et al. (2011) asserts that adolescents are at risk of defective cognitive effects related to the abuse of cannabis. Puberty is a stage in which the brain seems to be defenceless to the neurotoxic impact of cannabis. The authors allege that results from diverse studies imply that chronic cannabis addicts process complicated information significantly slowly, while performance deteriorates in cognitive overload responsibilities as lifetime use increases. It is in this context that Fontes, et al.

(2011) investigated the effect on executive functioning among 104 chronic cannabis addicts. While focusing on executive functioning, the group was divided in two sets, where 49 individuals were chronic users in the early-onset category and 55 individuals, late-onset chronic users, as well as 44 healthy controls that carried out neuropsychological responsibilities. The control group involved individuals who had not abused cannabis in the previous three months, and less than five times in their lifetime. Comparisons concerning neuropsychological measures were carried out through a generalised linear model analysis of variance (ANOVA). These chronic users of cannabis were initially under care at the Substance Use Disorder Program, Federal University of Sao Paulo.

In the study, Fontes, et al. (2011) held the hypothesis that the early-onset group (prior to 15 years of age) was likely to exhibit poor performance in cognitive tests that evaluate executive functioning, in comparison to the

late-onset group, and the healthy controls. The inclusion criteria employed for chronic users of cannabis was males and females, between eighteen and fifty-five years of age, exhibiting DSM-IV cannabis abuse or addiction as stipulated by the Composite International Diagnostic Interview (CIDI).

The criteria for exclusion entailed present record of other DSM-IV Axis I disorders, excluding nicotine-related disorders as stipulated by CIDI; present usage of psychoactive drugs, record of head trauma with seizures for above five minutes, intellectual incapacity or approximate IQ less than 80, as well as irreparable hearing, vision or injury. Persons in the control group were eligible for the study on condition that they were between eighteen and fifty-five years of age, and did not abuse psychoactive substances, did not hold a record of head trauma, and never diagnosed with Axis I DSM-IV disorders in their lifetime. The study's protocol was endorsed by the local institutional review board, while the respondents were under obligation to consent in writing, in line with the Federal University of Sao Paulo review board. The study findings point out that the early onset cohort are cognitively impaired in relation to controls, implying that early use of cannabis is linked to negative impact on the brain.

These outcomes correspond to preceding studies that investigated cognitive effects linked to early exposure to cannabis. The study did not establish disparities in executive functioning performance between the late-onset cohort and the healthy cohort. In conclusion, the study findings imply that early-onset chronic users of cannabis but not display executive deficits, while the contrary is the case in the late-onset group.

While the fundamental mechanisms may not be entirely understood, it is apparent that exposure to cannabis at an early age might hold more significant detrimental impact on neurocognitive functioning.