

Why prescribed cannabis isn't safer for adolescent brains

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The increasing legalisation and medical acceptance of cannabis across various jurisdictions have opened new avenues for therapeutic use, but also raised concerns, particularly regarding vulnerable populations. Adolescents, with their still-developing brains, represent a demographic where the risks associated with cannabis exposure may outweigh perceived benefits.

Clinicians must understand the specific harms to guide prescribing decisions and patient counselling, especially as the line between recreational and medical use blurs for many young people.

KEY TAKEAWAYS

- **The Pivot:** The expanding availability of medical cannabis necessitates a clear understanding of its specific risks in adolescent populations.
- **The Data:** Adolescent cannabis use is associated with increased risks of psychosis, depression, anxiety, and impaired cognitive function.
- **The Action:** GPs and specialists should counsel adolescent patients and their guardians on the neurodevelopmental and psychiatric risks of cannabis, even when prescribed for medical indications.

Adolescence is a critical period for brain development, characterised by significant synaptic pruning and myelination, particularly in the prefrontal cortex. This region, responsible for executive functions like decision-making, impulse control, and working memory, continues to mature well into the mid-20s. Exposure to exogenous cannabinoids during this sensitive window can disrupt these intricate processes, leading to long-term neurodevelopmental consequences. The endocannabinoid system plays a crucial role in regulating neurodevelopment, including neuronal proliferation, migration, and synaptic plasticity. Tetrahydrocannabinol (THC), the primary psychoactive component in cannabis, acts on cannabinoid receptors (CB1 and CB2) within this system. In adolescents, whose endocannabinoid systems are still undergoing maturation, external modulation by THC can lead to dysregulation, altering brain structure and function.

Psychiatric Morbidity and Cognitive Impairment

The association between adolescent cannabis use and psychiatric disorders is well-established. Regular cannabis use during adolescence significantly increases the risk of developing psychotic disorders, particularly schizophrenia, with a dose-response relationship observed. Individuals who start using cannabis in early adolescence face a substantially higher risk compared to those who initiate use later or abstain. The risk is particularly pronounced in individuals with a genetic predisposition to psychosis, where cannabis can act as an environmental trigger.

Beyond psychosis, adolescent cannabis use is linked to an elevated risk of other mental health conditions. Studies indicate

an increased incidence of depression and anxiety disorders among regular adolescent users. While the causal direction can be complex, longitudinal data consistently show cannabis use preceding the onset of these conditions in a significant proportion of cases. This is not merely correlation; the neurobiological changes induced by THC in the developing brain contribute to altered mood regulation and stress responses.

Cognitive function also suffers. Adolescent cannabis users exhibit deficits in memory, attention, and executive functions. These impairments can persist even after periods of abstinence, suggesting long-lasting changes in brain circuitry. For example, studies using neuroimaging techniques reveal altered brain activity and reduced grey matter volume in regions critical for memory and learning, such as the hippocampus and prefrontal cortex, in adolescents with a history of heavy cannabis use. These cognitive deficits can impact academic performance and future vocational prospects.

The Medical Cannabis Conundrum

The push for medical cannabis often highlights its potential benefits for conditions like chronic pain, epilepsy, and spasticity. But for adolescents, these benefits must be weighed against the documented risks. Prescribing cannabis to a developing brain, even for legitimate medical reasons, introduces a complex risk-benefit calculus. The long-term effects on cognitive development and mental health are not trivial.

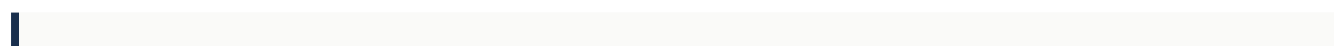
The lack of robust, long-term clinical trial data specifically on medical cannabis in adolescent populations further complicates the picture. Most evidence supporting medical cannabis use derives from adult studies, and extrapolating these findings to adolescents is problematic given their unique neurodevelopmental stage. The formulations, dosages, and cannabinoid profiles of medical cannabis products also vary widely, making it difficult to establish clear safety parameters. Clinicians considering medical cannabis for adolescent patients must proceed with extreme caution, prioritising non-cannabis therapies where effective and available. For a comprehensive overview of general clinical practice, the Oxford Handbook of Clinical Medicine (11th ed) remains an invaluable resource.

The open-label nature of many observational studies on cannabis use is an obvious caveat, as is the potential for confounding by other substance use. Still, the consistent patterns observed across diverse populations and methodologies lend considerable weight to the concerns. The trial designs are not always powered to detect subtle neurodevelopmental changes, and that gap matters significantly for a population whose brains are still forming.

Dependence and Withdrawal

Adolescents are also more susceptible to developing cannabis use disorder (CUD). The adolescent brain's reward system is particularly sensitive, making it more vulnerable to the reinforcing effects of drugs. Regular cannabis use can lead to tolerance, dependence, and withdrawal symptoms upon cessation. These symptoms, which include irritability, anxiety, sleep disturbances, and decreased appetite, can make it challenging for adolescents to stop using cannabis, perpetuating a cycle of use.

The risk of CUD is higher in adolescents who start using cannabis at an earlier age, use it more frequently, and consume products with higher THC concentrations. The increasing potency of cannabis products available today exacerbates this risk. Clinicians should screen adolescent patients for cannabis use and provide appropriate counselling and intervention strategies, including referral to substance use treatment programs when indicated. The long-term implications of CUD extend beyond immediate withdrawal, impacting educational attainment and social functioning.



CLINICAL IMPLICATIONS

The evidence is clear: medical cannabis use in adolescents is not a benign intervention. GPs and specialists must recognise that the developing brain is uniquely vulnerable to the neurotoxic effects of cannabinoids. Prescribing cannabis to this population, even for conditions like intractable epilepsy, demands a level of scrutiny that often exceeds what is currently applied.

We need to move beyond anecdotal reports and adult data. The absence of rigorous, long-term, placebo-controlled trials in adolescents means clinicians are operating in a data vacuum. Until such evidence emerges, the default position should be extreme caution, prioritising therapies with established safety profiles in this age group. The potential for irreversible cognitive and psychiatric harm is simply too high to ignore.

This also means a frank conversation with parents and guardians. The perception that 'medical' cannabis is inherently safe is widespread, but it is a dangerous oversimplification for adolescents. Clinicians have a duty to educate families on the specific risks of psychosis, depression, anxiety, and cognitive impairment, ensuring fully informed consent that acknowledges these significant unknowns.

The industry, too, bears responsibility. The push for broader medical cannabis access often overlooks the specific vulnerabilities of adolescents. Developing formulations with lower THC and higher CBD ratios, or conducting dedicated paediatric trials, would be a start. But without robust data, the current approach risks trading short-term symptomatic relief for long-term neurodevelopmental consequences.

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REFERENCES

1. Medscape. Medical Use of Cannabis Poses Risks in Adolescents - Medscape. Accessed Jul 2026.
<https://news.google.com/rss/articles/CBMimgFBVV95cUxPVHVXT3U2V0p4TjlzTHJaLVILSHpSbnVKbjRhTXFjWTJ1RVhWb1F3YkdsRU95TU16bnpSX2>

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